

# TEST DATA OF MGW302415

Regulated DC Power Supply

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| Model             | MGW302415   | Temperature<br>Testing Circuitry      25°C<br>Figure A |               |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
|-------------------|---|--|---------------|--------------|---------------|---|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|
| Item              | Input Current (by Input Voltage)  |  |               |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| Object            | _____   | 2.Values   |               |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 1.Graph           | <p>—△— Load 100%</p> <p>- - -□- - Load 50%</p> <p>- - ○- - Load 0%</p> <table border="1"> <caption>Data points estimated from Graph</caption> <thead> <tr> <th>Input Voltage [V]</th> <th>Load 0% [A]</th> <th>Load 50% [A]</th> <th>Load 100% [A]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>10</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>18</td><td>0.000</td><td>0.000</td><td>2.000</td></tr> <tr><td>20</td><td>0.001</td><td>0.001</td><td>1.700</td></tr> <tr><td>25</td><td>0.002</td><td>0.002</td><td>1.300</td></tr> <tr><td>30</td><td>0.002</td><td>0.002</td><td>1.100</td></tr> <tr><td>35</td><td>0.002</td><td>0.002</td><td>0.900</td></tr> <tr><td>40</td><td>0.002</td><td>0.002</td><td>0.800</td></tr> </tbody> </table> | Input Voltage [V]                                      | Load 0% [A]   | Load 50% [A] | Load 100% [A] | 0 | 0.000 | 0.000 | 0.000 | 10 | 0.000 | 0.000 | 0.000 | 18 | 0.000 | 0.000 | 2.000 | 20 | 0.001 | 0.001 | 1.700 | 25 | 0.002 | 0.002 | 1.300 | 30 | 0.002 | 0.002 | 1.100 | 35 | 0.002 | 0.002 | 0.900 | 40 | 0.002 | 0.002 | 0.800 |
| Input Voltage [V] | Load 0% [A]   | Load 50% [A]   | Load 100% [A] |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 0                 | 0.000   | 0.000  | 0.000         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 10                | 0.000   | 0.000  | 0.000         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 18                | 0.000   | 0.000  | 2.000         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 20                | 0.001   | 0.001  | 1.700         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 25                | 0.002   | 0.002  | 1.300         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 30                | 0.002   | 0.002  | 1.100         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 35                | 0.002   | 0.002  | 0.900         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |
| 40                | 0.002   | 0.002  | 0.800         |              |               |   |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |    |       |       |       |

Note: Slanted line shows the range of the rated input voltage.

| Input Voltage [V] | Input Current [A] |          |           |
|-------------------|-------------------|----------|-----------|
|                   | Load 0%           | Load 50% | Load 100% |
| 0.0               | 0.000             | 0.000    | 0.000     |
| 4.0               | 0.001             | 0.001    | 0.001     |
| 8.0               | 0.002             | 0.002    | 0.002     |
| 16.0              | 0.002             | 0.002    | 0.002     |
| 16.6              | 0.039             | 1.033    | 2.081     |
| 17.0              | 0.039             | 1.004    | 2.011     |
| 18.0              | 0.039             | 0.941    | 1.885     |
| 20.0              | 0.038             | 0.840    | 1.692     |
| 22.0              | 0.038             | 0.762    | 1.530     |
| 24.0              | 0.038             | 0.703    | 1.402     |
| 28.0              | 0.037             | 0.608    | 1.206     |
| 30.0              | 0.036             | 0.568    | 1.123     |
| 32.0              | 0.035             | 0.536    | 1.056     |
| 36.0              | 0.034             | 0.483    | 0.944     |
| 40.0              | 0.034             | 0.440    | 0.855     |
| --                | -                 | -        | -         |
| --                | -                 | -        | -         |
| --                | -                 | -        | -         |

| Model                 | MGW302415  |                                  |                         |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
|-----------------------|--|----------------------------------|-------------------------|-------------------------|-------------------------|----------------------|----------------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|---|---|---|----|---|---|---|----|---|---|---|----|---|---|---|--|--|--|
| Item                  | Input Current (by Load Current)  | Temperature<br>Testing Circuitry | 25°C<br>Figure A        |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| Object                | _____  |                                  |                         |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 1.Graph               | <p>—△— Input Volt. 18V<br/>       - - -□- - Input Volt. 24V<br/>       - - ○ - - Input Volt. 36V</p> <table border="1"> <caption>Data points estimated from Figure A</caption> <thead> <tr> <th>Load Ration [%]</th> <th>Input Current [A] (18V)</th> <th>Input Current [A] (24V)</th> <th>Input Current [A] (36V)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.039</td><td>0.038</td><td>0.034</td></tr> <tr><td>20</td><td>0.406</td><td>0.306</td><td>0.218</td></tr> <tr><td>40</td><td>0.762</td><td>0.569</td><td>0.396</td></tr> <tr><td>60</td><td>1.123</td><td>0.839</td><td>0.575</td></tr> <tr><td>80</td><td>1.489</td><td>1.111</td><td>0.753</td></tr> <tr><td>100</td><td>1.875</td><td>1.392</td><td>0.937</td></tr> <tr><td>110</td><td>2.062</td><td>1.528</td><td>1.030</td></tr> </tbody> </table>   | Load Ration [%]                  | Input Current [A] (18V) | Input Current [A] (24V) | Input Current [A] (36V) | 0                    | 0.039                | 0.038                | 0.034 | 20    | 0.406 | 0.306 | 0.218 | 40    | 0.762 | 0.569 | 0.396 | 60    | 1.123 | 0.839 | 0.575 | 80    | 1.489 | 1.111 | 0.753 | 100   | 1.875 | 1.392 | 0.937 | 110   | 2.062 | 1.528 | 1.030 |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| Load Ration [%]       | Input Current [A] (18V)  | Input Current [A] (24V)          | Input Current [A] (36V) |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 0                     | 0.039  | 0.038                            | 0.034                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 20                    | 0.406  | 0.306                            | 0.218                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 40                    | 0.762  | 0.569                            | 0.396                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 60                    | 1.123  | 0.839                            | 0.575                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 80                    | 1.489  | 1.111                            | 0.753                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 100                   | 1.875  | 1.392                            | 0.937                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 110                   | 2.062  | 1.528                            | 1.030                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 2.Values              | <table border="1"> <thead> <tr> <th rowspan="2">Load<br/>Ration<br/>[%]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt.<br/>18[V]</th> <th>Input Volt.<br/>24[V]</th> <th>Input Volt.<br/>36[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.039</td><td>0.038</td><td>0.034</td></tr> <tr><td>20</td><td>0.406</td><td>0.306</td><td>0.218</td></tr> <tr><td>40</td><td>0.762</td><td>0.569</td><td>0.396</td></tr> <tr><td>60</td><td>1.123</td><td>0.839</td><td>0.575</td></tr> <tr><td>80</td><td>1.489</td><td>1.111</td><td>0.753</td></tr> <tr><td>100</td><td>1.875</td><td>1.392</td><td>0.937</td></tr> <tr><td>110</td><td>2.062</td><td>1.528</td><td>1.030</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> | Load<br>Ration<br>[%]            | Input Current [A]       |                         |                         | Input Volt.<br>18[V] | Input Volt.<br>24[V] | Input Volt.<br>36[V] | 0     | 0.039 | 0.038 | 0.034 | 20    | 0.406 | 0.306 | 0.218 | 40    | 0.762 | 0.569 | 0.396 | 60    | 1.123 | 0.839 | 0.575 | 80    | 1.489 | 1.111 | 0.753 | 100   | 1.875 | 1.392 | 0.937 | 110   | 2.062 | 1.528 | 1.030 | -- | - | - | - | -- | - | - | - | -- | - | - | - | -- | - | - | - |  |  |  |
| Load<br>Ration<br>[%] | Input Current [A]  |                                  |                         |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
|                       | Input Volt.<br>18[V]   | Input Volt.<br>24[V]             | Input Volt.<br>36[V]    |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 0                     | 0.039  | 0.038                            | 0.034                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 20                    | 0.406  | 0.306                            | 0.218                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 40                    | 0.762  | 0.569                            | 0.396                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 60                    | 1.123  | 0.839                            | 0.575                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 80                    | 1.489  | 1.111                            | 0.753                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 100                   | 1.875  | 1.392                            | 0.937                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| 110                   | 2.062  | 1.528                            | 1.030                   |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| --                    | -  | -                                | -                       |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| --                    | -  | -                                | -                       |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| --                    | -  | -                                | -                       |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |
| --                    | -  | -                                | -                       |                         |                         |                      |                      |                      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |  |  |  |

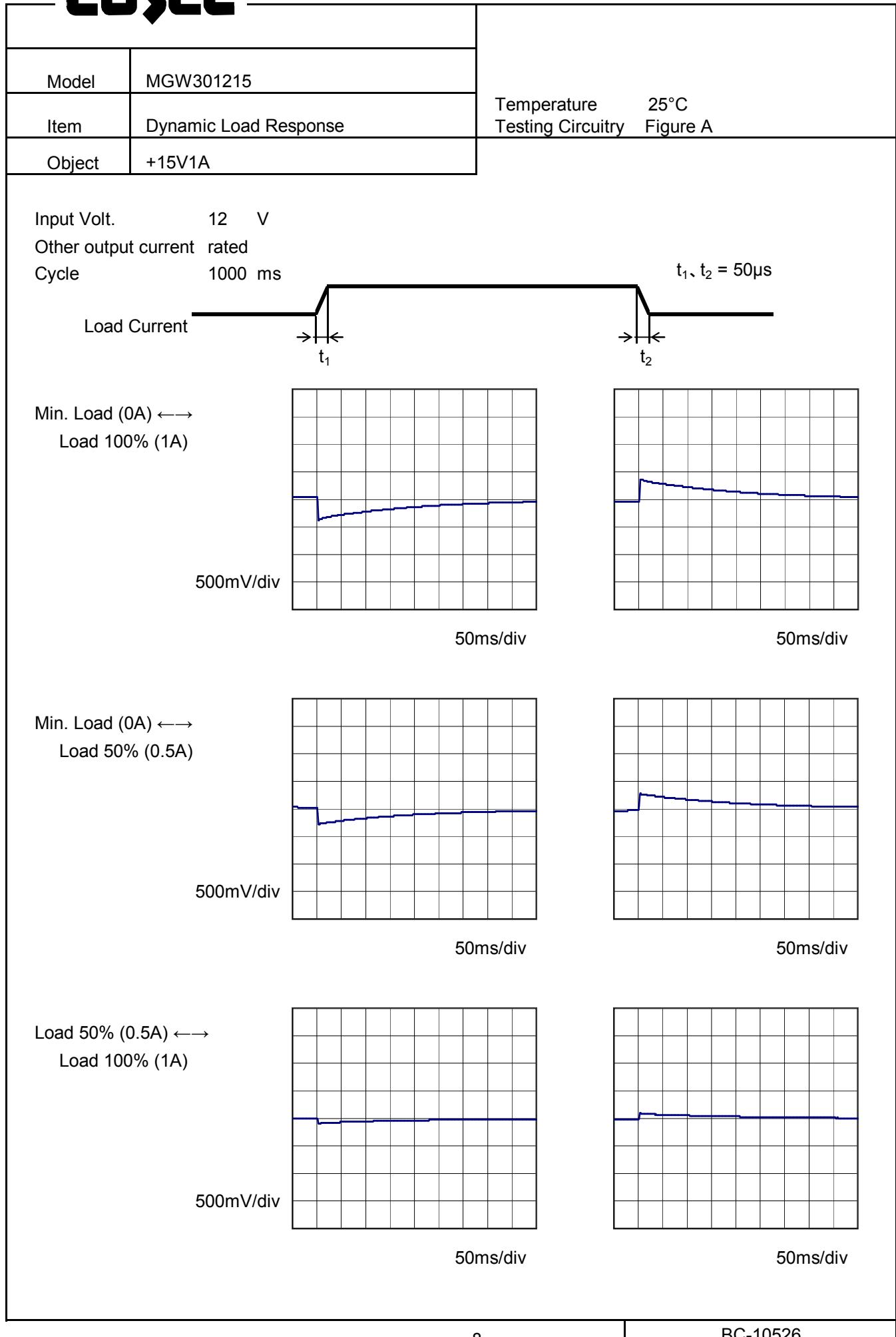
| Model                 | MGW302415  |                                  |                       |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
|-----------------------|--|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|----|---|---|----|----|---|---|----|----|---|---|----|---|---|---|
| Item                  | Input Power (by Load Current)  | Temperature<br>Testing Circuitry | 25°C<br>Figure A      |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| Object                | <hr/>  |                                  |                       |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 1.Graph               | <p>—△— Input Volt. 18V<br/>       - - -□--- Input Volt. 24V<br/>       - - -○--- Input Volt. 36V</p> <table border="1"> <caption>Data points estimated from Figure A</caption> <thead> <tr> <th>Load Ration [%]</th> <th>Input Power [W] (18V)</th> <th>Input Power [W] (24V)</th> <th>Input Power [W] (36V)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.70</td><td>0.91</td><td>1.24</td></tr> <tr><td>20</td><td>7.29</td><td>7.34</td><td>7.84</td></tr> <tr><td>40</td><td>13.70</td><td>13.67</td><td>14.23</td></tr> <tr><td>60</td><td>20.23</td><td>20.11</td><td>20.61</td></tr> <tr><td>80</td><td>26.90</td><td>26.69</td><td>27.09</td></tr> <tr><td>100</td><td>33.72</td><td>33.39</td><td>33.73</td></tr> <tr><td>110</td><td>37.20</td><td>36.77</td><td>37.07</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> |                                  |                       | Load Ration [%]       | Input Power [W] (18V) | Input Power [W] (24V) | Input Power [W] (36V) | 0                    | 0.70                 | 0.91                 | 1.24 | 20   | 7.29 | 7.34 | 7.84 | 40   | 13.70 | 13.67 | 14.23 | 60    | 20.23 | 20.11 | 20.61 | 80    | 26.90 | 26.69 | 27.09 | 100   | 33.72 | 33.39 | 33.73 | 110   | 37.20 | 36.77 | 37.07 | --    | -     | -     | -  | -- | - | - | -  | -- | - | - | -  | -- | - | - | -  |   |   |   |
| Load Ration [%]       | Input Power [W] (18V)  | Input Power [W] (24V)            | Input Power [W] (36V) |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 0                     | 0.70   | 0.91                             | 1.24                  |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 20                    | 7.29   | 7.34                             | 7.84                  |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 40                    | 13.70  | 13.67                            | 14.23                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 60                    | 20.23  | 20.11                            | 20.61                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 80                    | 26.90  | 26.69                            | 27.09                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 100                   | 33.72  | 33.39                            | 33.73                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 110                   | 37.20  | 36.77                            | 37.07                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 2.Values              | <table border="1"> <thead> <tr> <th rowspan="2">Load<br/>Ration<br/>[%]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>Input Volt.<br/>18[V]</th> <th>Input Volt.<br/>24[V]</th> <th>Input Volt.<br/>36[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.70</td><td>0.91</td><td>1.24</td></tr> <tr><td>20</td><td>7.29</td><td>7.34</td><td>7.84</td></tr> <tr><td>40</td><td>13.70</td><td>13.67</td><td>14.23</td></tr> <tr><td>60</td><td>20.23</td><td>20.11</td><td>20.61</td></tr> <tr><td>80</td><td>26.90</td><td>26.69</td><td>27.09</td></tr> <tr><td>100</td><td>33.72</td><td>33.39</td><td>33.73</td></tr> <tr><td>110</td><td>37.20</td><td>36.77</td><td>37.07</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>   |                                  |                       | Load<br>Ration<br>[%] | Input Power [W]       |                       |                       | Input Volt.<br>18[V] | Input Volt.<br>24[V] | Input Volt.<br>36[V] | 0    | 0.70 | 0.91 | 1.24 | 20   | 7.29 | 7.34  | 7.84  | 40    | 13.70 | 13.67 | 14.23 | 60    | 20.23 | 20.11 | 20.61 | 80    | 26.90 | 26.69 | 27.09 | 100   | 33.72 | 33.39 | 33.73 | 110   | 37.20 | 36.77 | 37.07 | -- | -  | - | - | -- | -  | - | - | -- | -  | - | - | -- | - | - | - |
| Load<br>Ration<br>[%] | Input Power [W]  |                                  |                       |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
|                       | Input Volt.<br>18[V]   | Input Volt.<br>24[V]             | Input Volt.<br>36[V]  |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 0                     | 0.70   | 0.91                             | 1.24                  |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 20                    | 7.29   | 7.34                             | 7.84                  |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 40                    | 13.70  | 13.67                            | 14.23                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 60                    | 20.23  | 20.11                            | 20.61                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 80                    | 26.90  | 26.69                            | 27.09                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 100                   | 33.72  | 33.39                            | 33.73                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| 110                   | 37.20  | 36.77                            | 37.07                 |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |
| --                    | -  | -                                | -                     |                       |                       |                       |                       |                      |                      |                      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |    |    |   |   |    |    |   |   |    |    |   |   |    |   |   |   |

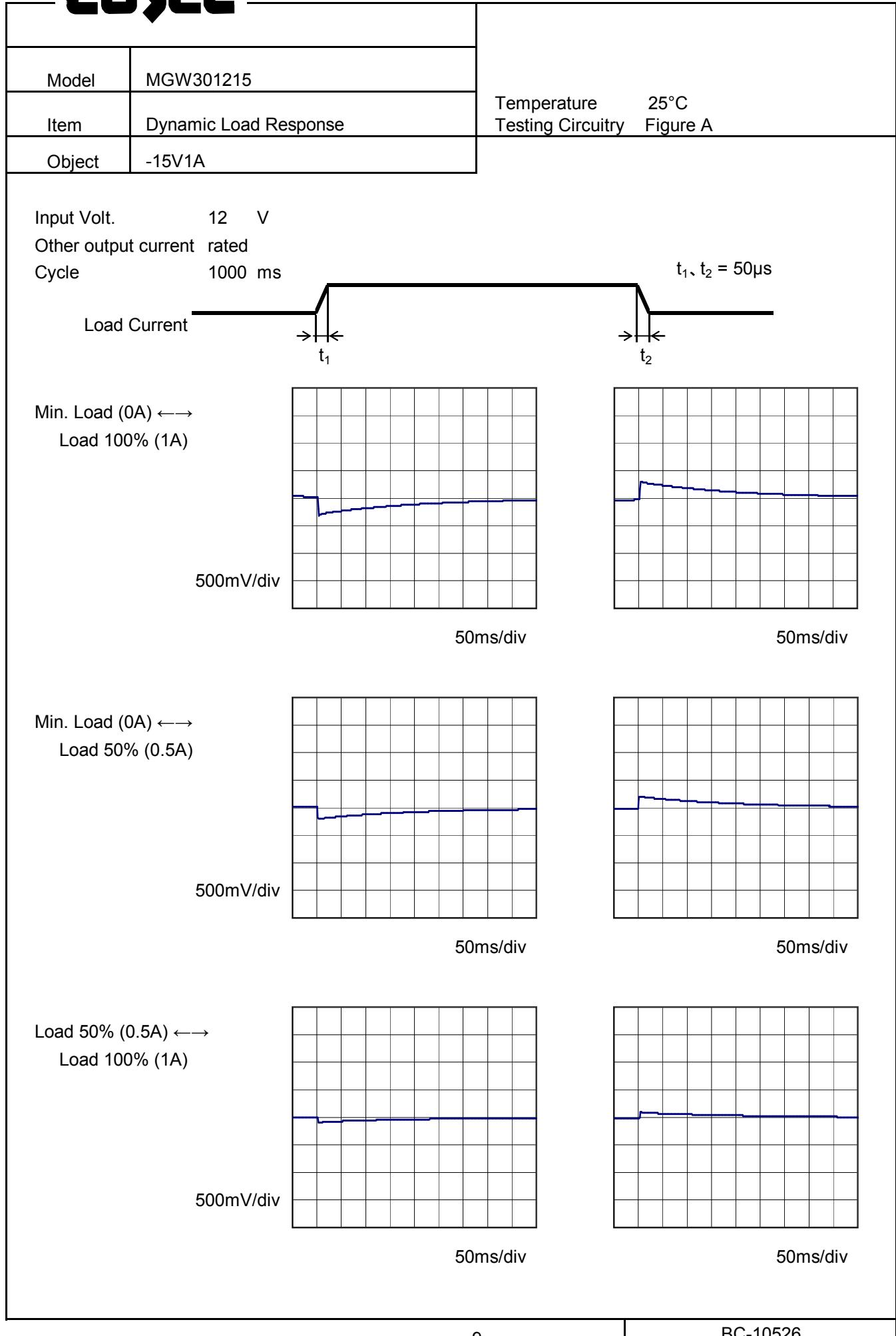
| Model  | MGW302415                     |  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
|--|-------------------------------|--|----------------------|----------------|--|----------|-----------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|------|------|----|---|---|----|---|---|
| Item   | Efficiency (by Input Voltage) | Temperature<br>Testing Circuitry      25°C<br>Figure A |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| Object   | —                             | —  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 1. Graph   |                               |  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| <p>The graph plots Efficiency [%] on the y-axis (50 to 100) against Input Voltage [V] on the x-axis (10 to 40). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a slight decrease in efficiency as input voltage increases. Two vertical slanted lines indicate the rated input voltage range between approximately 18V and 20V.</p>  |                               |  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 2. Values  |                               |  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| <table border="1"> <thead> <tr> <th rowspan="2">Input Voltage<br/>[V]</th> <th colspan="2">Efficiency [%]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>17</td><td>87.5</td><td>88.3</td> </tr> <tr> <td>18</td><td>88.3</td><td>89.0</td> </tr> <tr> <td>20</td><td>89.0</td><td>89.5</td> </tr> <tr> <td>24</td><td>88.9</td><td>89.9</td> </tr> <tr> <td>30</td><td>87.6</td><td>89.5</td> </tr> <tr> <td>36</td><td>86.2</td><td>89.0</td> </tr> <tr> <td>40</td><td>85.1</td><td>88.6</td> </tr> <tr> <td>--</td><td>-</td><td>-</td> </tr> <tr> <td>--</td><td>-</td><td>-</td> </tr> </tbody> </table> |                               |  | Input Voltage<br>[V] | Efficiency [%] |  | Load 50% | Load 100% | 17 | 87.5 | 88.3 | 18 | 88.3 | 89.0 | 20 | 89.0 | 89.5 | 24 | 88.9 | 89.9 | 30 | 87.6 | 89.5 | 36 | 86.2 | 89.0 | 40 | 85.1 | 88.6 | -- | - | - | -- | - | - |
| Input Voltage<br>[V]   | Efficiency [%]                |  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
|  | Load 50%                      | Load 100%  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 17   | 87.5                          | 88.3   |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 18   | 88.3                          | 89.0   |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 20   | 89.0                          | 89.5   |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 24   | 88.9                          | 89.9   |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 30   | 87.6                          | 89.5   |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 36   | 86.2                          | 89.0   |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| 40   | 85.1                          | 88.6   |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| --   | -                             | -  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| --   | -                             | -  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |
| <p>Note: Slanted line shows the range of the rated input voltage.</p>  |                               |  |                      |                |  |          |           |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |      |      |    |   |   |    |   |   |

| Model                 | MGW302415  |                                  |                      |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
|-----------------------|--|----------------------------------|----------------------|-----------------------|--------------------|--------------------|--------------------|----------------------|----------------------|----------------------|------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|----|---|---|---|----|---|---|---|----|---|---|---|----|---|---|---|
| Item                  | Efficiency (by Load Current)   | Temperature<br>Testing Circuitry | 25°C<br>Figure A     |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| Object                | _____  |                                  |                      |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.Graph               | <p>Legend:</p> <ul style="list-style-type: none"> <li>Input Volt. 18V (solid line with open triangle markers)</li> <li>Input Volt. 24V (dashed line with open square markers)</li> <li>Input Volt. 36V (dash-dot line with open circle markers)</li> </ul> <table border="1"> <thead> <tr> <th>Load Ration [%]</th> <th>18V [Efficiency %]</th> <th>24V [Efficiency %]</th> <th>36V [Efficiency %]</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>82.3</td> <td>81.7</td> <td>76.4</td> </tr> <tr> <td>40</td> <td>87.5</td> <td>87.7</td> <td>84.3</td> </tr> <tr> <td>60</td> <td>89.0</td> <td>89.5</td> <td>87.3</td> </tr> <tr> <td>80</td> <td>89.2</td> <td>89.9</td> <td>88.7</td> </tr> <tr> <td>100</td> <td>89.0</td> <td>89.9</td> <td>89.0</td> </tr> <tr> <td>110</td> <td>88.8</td> <td>89.8</td> <td>89.1</td> </tr> </tbody> </table>   |                                  |                      | Load Ration [%]       | 18V [Efficiency %] | 24V [Efficiency %] | 36V [Efficiency %] | 20                   | 82.3                 | 81.7                 | 76.4 | 40 | 87.5 | 87.7 | 84.3 | 60   | 89.0 | 89.5 | 87.3 | 80   | 89.2 | 89.9 | 88.7 | 100  | 89.0 | 89.9 | 89.0 | 110  | 88.8 | 89.8 | 89.1 |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| Load Ration [%]       | 18V [Efficiency %]   | 24V [Efficiency %]               | 36V [Efficiency %]   |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 20                    | 82.3   | 81.7                             | 76.4                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 40                    | 87.5   | 87.7                             | 84.3                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 60                    | 89.0   | 89.5                             | 87.3                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 80                    | 89.2   | 89.9                             | 88.7                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 100                   | 89.0   | 89.9                             | 89.0                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 110                   | 88.8   | 89.8                             | 89.1                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 2.Values              | <table border="1"> <thead> <tr> <th rowspan="2">Load<br/>Ration<br/>[%]</th> <th colspan="3">Efficiency [%]</th> </tr> <tr> <th>Input Volt.<br/>18[V]</th> <th>Input Volt.<br/>24[V]</th> <th>Input Volt.<br/>36[V]</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>20</td> <td>82.3</td> <td>81.7</td> <td>76.4</td> </tr> <tr> <td>40</td> <td>87.5</td> <td>87.7</td> <td>84.3</td> </tr> <tr> <td>60</td> <td>89.0</td> <td>89.5</td> <td>87.3</td> </tr> <tr> <td>80</td> <td>89.2</td> <td>89.9</td> <td>88.7</td> </tr> <tr> <td>100</td> <td>89.0</td> <td>89.9</td> <td>89.0</td> </tr> <tr> <td>110</td> <td>88.8</td> <td>89.8</td> <td>89.1</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table> |                                  |                      | Load<br>Ration<br>[%] | Efficiency [%]     |                    |                    | Input Volt.<br>18[V] | Input Volt.<br>24[V] | Input Volt.<br>36[V] | 0    | -  | -    | -    | 20   | 82.3 | 81.7 | 76.4 | 40   | 87.5 | 87.7 | 84.3 | 60   | 89.0 | 89.5 | 87.3 | 80   | 89.2 | 89.9 | 88.7 | 100  | 89.0 | 89.9 | 89.0 | 110 | 88.8 | 89.8 | 89.1 | -- | - | - | - | -- | - | - | - | -- | - | - | - | -- | - | - | - |
| Load<br>Ration<br>[%] | Efficiency [%]   |                                  |                      |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
|                       | Input Volt.<br>18[V]   | Input Volt.<br>24[V]             | Input Volt.<br>36[V] |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 0                     | -  | -                                | -                    |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 20                    | 82.3   | 81.7                             | 76.4                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 40                    | 87.5   | 87.7                             | 84.3                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 60                    | 89.0   | 89.5                             | 87.3                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 80                    | 89.2   | 89.9                             | 88.7                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 100                   | 89.0   | 89.9                             | 89.0                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| 110                   | 88.8   | 89.8                             | 89.1                 |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --                    | -  | -                                | -                    |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --                    | -  | -                                | -                    |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --                    | -  | -                                | -                    |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |
| --                    | -  | -                                | -                    |                       |                    |                    |                    |                      |                      |                      |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |      |      |      |    |   |   |   |    |   |   |   |    |   |   |   |    |   |   |   |

| Model  | MGW302415          | Temperature<br>Testing Circuitry<br>25°C<br>Figure A   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
|--|--------------------|--|----------------------|--------------------|--|----------|-----------|----|---------|---------|----|---------|---------|----|---------|---------|----|---------|---------|----|---------|---------|----|---------|---------|----|---------|---------|----|---|---|----|---|---|
| Item   | Line Regulation    |  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| Object   | +15V1A             |  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 1.Graph  |                    | 2.Values   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
|  |                    | <table border="1"> <thead> <tr> <th rowspan="2">Input Voltage<br/>[V]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>17</td><td>15.091</td><td>15.000</td></tr> <tr><td>18</td><td>15.090</td><td>15.000</td></tr> <tr><td>20</td><td>15.089</td><td>15.000</td></tr> <tr><td>24</td><td>15.086</td><td>14.999</td></tr> <tr><td>30</td><td>15.083</td><td>14.998</td></tr> <tr><td>36</td><td>15.082</td><td>14.997</td></tr> <tr><td>40</td><td>15.082</td><td>14.997</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table> <p>-15V: Rated output current</p>               | Input Voltage<br>[V] | Output Voltage [V] |  | Load 50% | Load 100% | 17 | 15.091  | 15.000  | 18 | 15.090  | 15.000  | 20 | 15.089  | 15.000  | 24 | 15.086  | 14.999  | 30 | 15.083  | 14.998  | 36 | 15.082  | 14.997  | 40 | 15.082  | 14.997  | -- | - | - | -- | - | - |
| Input Voltage<br>[V]   | Output Voltage [V] |  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
|  | Load 50%           | Load 100%  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 17   | 15.091             | 15.000   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 18   | 15.090             | 15.000   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 20   | 15.089             | 15.000   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 24   | 15.086             | 14.999   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 30   | 15.083             | 14.998   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 36   | 15.082             | 14.997   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 40   | 15.082             | 14.997   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| --   | -                  | -  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| --   | -                  | -  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| Object -15V1A  |                    | 2.Values   |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
|  |                    | <table border="1"> <thead> <tr> <th rowspan="2">Input Voltage<br/>[V]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>17</td><td>-15.105</td><td>-15.008</td></tr> <tr><td>18</td><td>-15.104</td><td>-15.009</td></tr> <tr><td>20</td><td>-15.104</td><td>-15.010</td></tr> <tr><td>24</td><td>-15.103</td><td>-15.011</td></tr> <tr><td>30</td><td>-15.103</td><td>-15.013</td></tr> <tr><td>36</td><td>-15.104</td><td>-15.015</td></tr> <tr><td>40</td><td>-15.104</td><td>-15.015</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table> <p>+15V: Rated output current</p> | Input Voltage<br>[V] | Output Voltage [V] |  | Load 50% | Load 100% | 17 | -15.105 | -15.008 | 18 | -15.104 | -15.009 | 20 | -15.104 | -15.010 | 24 | -15.103 | -15.011 | 30 | -15.103 | -15.013 | 36 | -15.104 | -15.015 | 40 | -15.104 | -15.015 | -- | - | - | -- | - | - |
| Input Voltage<br>[V]   | Output Voltage [V] |  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
|  | Load 50%           | Load 100%  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 17   | -15.105            | -15.008  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 18   | -15.104            | -15.009  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 20   | -15.104            | -15.010  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 24   | -15.103            | -15.011  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 30   | -15.103            | -15.013  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 36   | -15.104            | -15.015  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| 40   | -15.104            | -15.015  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| --   | -                  | -  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| --   | -                  | -  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |
| Note: Slanted line shows the range of the rated input voltage. |                    |  |                      |                    |  |          |           |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |         |         |    |   |   |    |   |   |

| Model            | MGW302415   | Temperature<br>Testing Circuitry      25°C<br>Figure A |                          |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
|------------------|---|--|--------------------------|--------------------------|--------------------------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|------|---------|---------|---------|----|---|---|---|----|---|---|---|----|---|---|---|
| Item             | Load Regulation   |  |                          |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| Object           | +15V1A  |  |                          |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.Graph          | <p>—△— Input Volt. 18V<br/>     - - -□- - Input Volt. 24V<br/>     - · -○- - Input Volt. 36V</p> <table border="1"> <caption>Data for +15V1A at 25°C</caption> <thead> <tr> <th>Load Current [A]</th> <th>Output Voltage [V] (18V)</th> <th>Output Voltage [V] (24V)</th> <th>Output Voltage [V] (36V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>15.367</td><td>15.396</td><td>15.479</td></tr> <tr><td>0.05</td><td>15.272</td><td>15.301</td><td>15.332</td></tr> <tr><td>0.20</td><td>15.181</td><td>15.179</td><td>15.176</td></tr> <tr><td>0.40</td><td>15.126</td><td>15.121</td><td>15.117</td></tr> <tr><td>0.60</td><td>15.083</td><td>15.079</td><td>15.075</td></tr> <tr><td>0.80</td><td>15.043</td><td>15.041</td><td>15.037</td></tr> <tr><td>1.00</td><td>15.000</td><td>14.999</td><td>14.997</td></tr> <tr><td>1.10</td><td>14.985</td><td>14.984</td><td>14.982</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>                         | Load Current [A]                                       | Output Voltage [V] (18V) | Output Voltage [V] (24V) | Output Voltage [V] (36V) | 0.00 | 15.367  | 15.396  | 15.479  | 0.05 | 15.272  | 15.301  | 15.332  | 0.20 | 15.181  | 15.179  | 15.176  | 0.40 | 15.126  | 15.121  | 15.117  | 0.60 | 15.083  | 15.079  | 15.075  | 0.80 | 15.043  | 15.041  | 15.037  | 1.00 | 15.000  | 14.999  | 14.997  | 1.10 | 14.985  | 14.984  | 14.982  | -- | - | - | - | -- | - | - | - | -- | - | - | - |
| Load Current [A] | Output Voltage [V] (18V)  | Output Voltage [V] (24V)                               | Output Voltage [V] (36V) |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.00             | 15.367  | 15.396   | 15.479                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.05             | 15.272  | 15.301   | 15.332                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.20             | 15.181  | 15.179   | 15.176                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.40             | 15.126  | 15.121   | 15.117                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.60             | 15.083  | 15.079   | 15.075                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.80             | 15.043  | 15.041   | 15.037                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.00             | 15.000  | 14.999   | 14.997                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.10             | 14.985  | 14.984   | 14.982                   |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| --               | -   | -  | -                        |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| --               | -   | -  | -                        |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| --               | -   | -  | -                        |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 2.Values         |   |  |                          |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| Object           | -15V1A  | Temperature<br>Testing Circuitry      25°C<br>Figure A |                          |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.Graph          | <p>—△— Input Volt. 18V<br/>     - - -□- - Input Volt. 24V<br/>     - · -○- - Input Volt. 36V</p> <table border="1"> <caption>Data for -15V1A at 25°C</caption> <thead> <tr> <th>Load Current [A]</th> <th>Output Voltage [V] (18V)</th> <th>Output Voltage [V] (24V)</th> <th>Output Voltage [V] (36V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>-15.325</td><td>-15.321</td><td>-15.317</td></tr> <tr><td>0.05</td><td>-15.230</td><td>-15.233</td><td>-15.236</td></tr> <tr><td>0.20</td><td>-15.183</td><td>-15.179</td><td>-15.177</td></tr> <tr><td>0.40</td><td>-15.133</td><td>-15.131</td><td>-15.130</td></tr> <tr><td>0.60</td><td>-15.090</td><td>-15.090</td><td>-15.090</td></tr> <tr><td>0.80</td><td>-15.050</td><td>-15.051</td><td>-15.053</td></tr> <tr><td>1.00</td><td>-15.009</td><td>-15.011</td><td>-15.015</td></tr> <tr><td>1.10</td><td>-14.992</td><td>-14.995</td><td>-14.998</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> | Load Current [A]                                       | Output Voltage [V] (18V) | Output Voltage [V] (24V) | Output Voltage [V] (36V) | 0.00 | -15.325 | -15.321 | -15.317 | 0.05 | -15.230 | -15.233 | -15.236 | 0.20 | -15.183 | -15.179 | -15.177 | 0.40 | -15.133 | -15.131 | -15.130 | 0.60 | -15.090 | -15.090 | -15.090 | 0.80 | -15.050 | -15.051 | -15.053 | 1.00 | -15.009 | -15.011 | -15.015 | 1.10 | -14.992 | -14.995 | -14.998 | -- | - | - | - | -- | - | - | - | -- | - | - | - |
| Load Current [A] | Output Voltage [V] (18V)  | Output Voltage [V] (24V)                               | Output Voltage [V] (36V) |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.00             | -15.325   | -15.321  | -15.317                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.05             | -15.230   | -15.233  | -15.236                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.20             | -15.183   | -15.179  | -15.177                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.40             | -15.133   | -15.131  | -15.130                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.60             | -15.090   | -15.090  | -15.090                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 0.80             | -15.050   | -15.051  | -15.053                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.00             | -15.009   | -15.011  | -15.015                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 1.10             | -14.992   | -14.995  | -14.998                  |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| --               | -   | -  | -                        |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| --               | -   | -  | -                        |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| --               | -   | -  | -                        |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| 2.Values         |   |  |                          |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |
| Note:            | Slanted line shows the range of the rated load current.   |  |                          |                          |                          |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |      |         |         |         |    |   |   |   |    |   |   |   |    |   |   |   |



**COSSEL**

**COSEL**

| Model  | MGW302415                        | Temperature        | 25°C   |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|--|----------------------------------|--------------------|--|------------------|---------------------|--|--------------------|--------------------|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|----|---|---|----|---|---|----|---|---|----|---|---|
| Item   | Ripple Voltage (by Load Current) | Testing Circuitry  | Figure B   |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Object   | +15V1A                           |                    |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.Graph  |                                  |                    | 2.Values   |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  |                                  |                    | <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 36 [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>13</td><td>21</td></tr> <tr><td>0.2</td><td>16</td><td>25</td></tr> <tr><td>0.4</td><td>16</td><td>25</td></tr> <tr><td>0.6</td><td>16</td><td>25</td></tr> <tr><td>0.8</td><td>16</td><td>23</td></tr> <tr><td>1.0</td><td>16</td><td>23</td></tr> <tr><td>1.1</td><td>16</td><td>23</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table> <p>-15V: Rated output current</p> | Load Current [A] | Ripple Voltage [mV] |  | Input Volt. 18 [V] | Input Volt. 36 [V] | 0.0 | 13 | 21 | 0.2 | 16 | 25 | 0.4 | 16 | 25 | 0.6 | 16 | 25 | 0.8 | 16 | 23 | 1.0 | 16 | 23 | 1.1 | 16 | 23 | -- | - | - | -- | - | - | -- | - | - | -- | - | - |
| Load Current [A]   | Ripple Voltage [mV]              |                    |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  | Input Volt. 18 [V]               | Input Volt. 36 [V] |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.0  | 13                               | 21                 |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.2  | 16                               | 25                 |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.4  | 16                               | 25                 |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.6  | 16                               | 25                 |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.8  | 16                               | 23                 |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.0  | 16                               | 23                 |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.1  | 16                               | 23                 |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                                | -                  |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                                | -                  |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                                | -                  |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                                | -                  |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <p>Ripple Voltage is shown as p-p in the figure below.<br/>Note: Slanted line shows the range of the rated load current.</p> |                                  |                    |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <p>Ripple [mVp-p]</p>  |                                  |                    |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <p>Fig.Complex Ripple Wave Form</p>  |                                  |                    |  |                  |                     |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |

| Model  | MGW302415                             | Temperature                           | 25°C                       |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
|--|---------------------------------------|---------------------------------------|----------------------------|------------------|---------------------------------------|---------------------------------------|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|
| Item   | Ripple Voltage (by Load Current)      | Testing Circuitry                     | Figure B                   |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| Object   | -15V1A                                |                                       |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 1.Graph  |                                       |                                       | 2.Values                   |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| <p>The graph plots Ripple Voltage [mV] on the Y-axis (0 to 120) against Load Current [A] on the X-axis (0.0 to 1.2). Two sets of data points are shown: Input Volt. 18V (solid triangles) and Input Volt. 36V (dashed circles). A slanted line indicates the range of rated load current.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (Input Volt. 18V)</th> <th>Ripple Voltage [mV] (Input Volt. 36V)</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>15</td><td>23</td></tr> <tr><td>0.2</td><td>21</td><td>31</td></tr> <tr><td>0.4</td><td>21</td><td>31</td></tr> <tr><td>0.6</td><td>21</td><td>31</td></tr> <tr><td>0.8</td><td>19</td><td>29</td></tr> <tr><td>1.0</td><td>19</td><td>29</td></tr> <tr><td>1.1</td><td>19</td><td>29</td></tr> </tbody> </table> |                                       |                                       |                            | Load Current [A] | Ripple Voltage [mV] (Input Volt. 18V) | Ripple Voltage [mV] (Input Volt. 36V) | 0.0 | 15 | 23 | 0.2 | 21 | 31 | 0.4 | 21 | 31 | 0.6 | 21 | 31 | 0.8 | 19 | 29 | 1.0 | 19 | 29 | 1.1 | 19 | 29 |
| Load Current [A]   | Ripple Voltage [mV] (Input Volt. 18V) | Ripple Voltage [mV] (Input Volt. 36V) |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 0.0  | 15                                    | 23                                    |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 0.2  | 21                                    | 31                                    |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 0.4  | 21                                    | 31                                    |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 0.6  | 21                                    | 31                                    |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 0.8  | 19                                    | 29                                    |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 1.0  | 19                                    | 29                                    |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| 1.1  | 19                                    | 29                                    |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| <p>Ripple Voltage is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p>   |                                       |                                       | +15V: Rated output current |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |
| <p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>  |                                       |                                       |                            |                  |                                       |                                       |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |

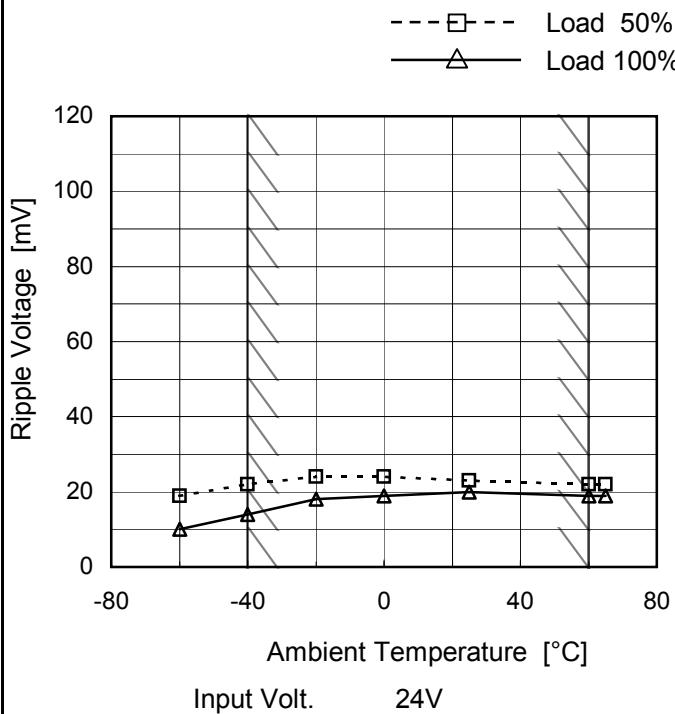
**COSEL**

| Model  | MGW302415          | Temperature        | 25°C   |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|--|--------------------|--------------------|--|--|--|------------------|-------------------|--|--------------------|--------------------|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|----|---|---|----|---|---|----|---|---|----|---|---|
| Item   | Ripple-Noise       | Testing Circuitry  | Figure B   |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Object   | +15V1A             | 2. Values          |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1. Graph   |                    |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  |                    |                    | <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple-Noise [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 36 [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>15</td><td>25</td></tr> <tr><td>0.2</td><td>20</td><td>30</td></tr> <tr><td>0.4</td><td>20</td><td>30</td></tr> <tr><td>0.6</td><td>20</td><td>30</td></tr> <tr><td>0.8</td><td>20</td><td>30</td></tr> <tr><td>1.0</td><td>20</td><td>30</td></tr> <tr><td>1.1</td><td>20</td><td>30</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table> |  |  | Load Current [A] | Ripple-Noise [mV] |  | Input Volt. 18 [V] | Input Volt. 36 [V] | 0.0 | 15 | 25 | 0.2 | 20 | 30 | 0.4 | 20 | 30 | 0.6 | 20 | 30 | 0.8 | 20 | 30 | 1.0 | 20 | 30 | 1.1 | 20 | 30 | -- | - | - | -- | - | - | -- | - | - | -- | - | - |
| Load Current [A]   | Ripple-Noise [mV]  |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  | Input Volt. 18 [V] | Input Volt. 36 [V] |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.0  | 15                 | 25                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.2  | 20                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.4  | 20                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.6  | 20                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.8  | 20                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.0  | 20                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.1  | 20                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  |                    |                    | <p>-15V: Rated output current</p>  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <p>Ripple-Noise is shown as p-p in the figure below.<br/>Note: Slanted line shows the range of the rated load current.</p> |                    |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <p>Fig.Complex Ripple Noise Wave Form</p>  |                    |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |

| Model  | MGW302415          | Temperature        | 25°C   |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|--|--------------------|--------------------|--|--|--|------------------|-------------------|--|--------------------|--------------------|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|----|---|---|----|---|---|----|---|---|----|---|---|
| Item   | Ripple-Noise       | Testing Circuitry  | Figure B   |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| Object   | -15V1A             | 2. Values          |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1. Graph   |                    |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  |                    |                    | <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple-Noise [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 36 [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>20</td><td>25</td></tr> <tr><td>0.2</td><td>25</td><td>35</td></tr> <tr><td>0.4</td><td>25</td><td>35</td></tr> <tr><td>0.6</td><td>25</td><td>35</td></tr> <tr><td>0.8</td><td>25</td><td>30</td></tr> <tr><td>1.0</td><td>25</td><td>30</td></tr> <tr><td>1.1</td><td>25</td><td>30</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table> |  |  | Load Current [A] | Ripple-Noise [mV] |  | Input Volt. 18 [V] | Input Volt. 36 [V] | 0.0 | 20 | 25 | 0.2 | 25 | 35 | 0.4 | 25 | 35 | 0.6 | 25 | 35 | 0.8 | 25 | 30 | 1.0 | 25 | 30 | 1.1 | 25 | 30 | -- | - | - | -- | - | - | -- | - | - | -- | - | - |
| Load Current [A]   | Ripple-Noise [mV]  |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  | Input Volt. 18 [V] | Input Volt. 36 [V] |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.0  | 20                 | 25                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.2  | 25                 | 35                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.4  | 25                 | 35                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.6  | 25                 | 35                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 0.8  | 25                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.0  | 25                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| 1.1  | 25                 | 30                 |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| --   | -                  | -                  |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
|  |                    |                    | +15V: Rated output current   |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <p>Ripple-Noise is shown as p-p in the figure below.<br/>Note: Slanted line shows the range of the rated load current.</p> |                    |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |
| <p>Fig.Complex Ripple Noise Wave Form</p>  |                    |                    |  |  |  |                  |                   |  |                    |                    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |    |   |   |    |   |   |    |   |   |    |   |   |

|        |                                   |
|--------|-----------------------------------|
| Model  | MGW302415                         |
| Item   | Ripple Voltage (by Ambient Temp.) |
| Object | +15V1A                            |

## 1.Graph



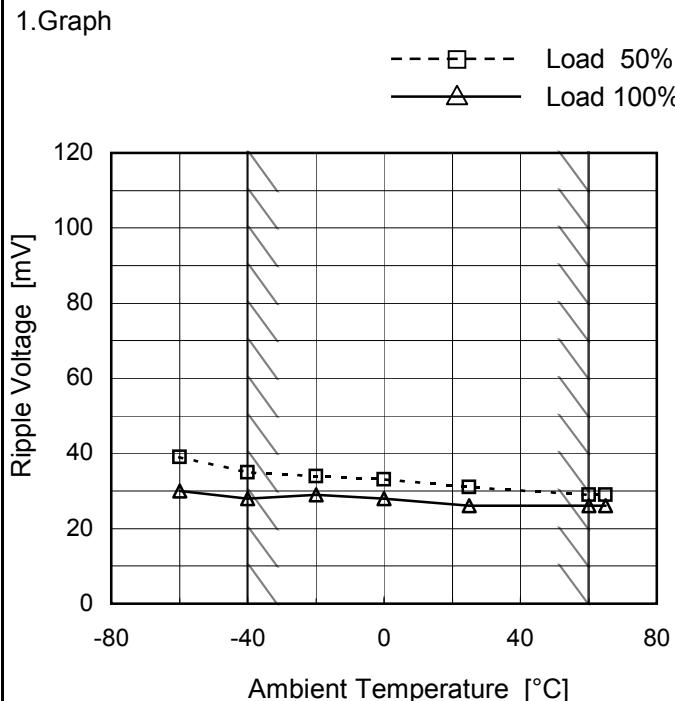
Testing Circuitry Figure A

## 2.Values

| Ambient Temperature [°C] | Ripple Voltage [mV] |           |
|--------------------------|---------------------|-----------|
|                          | Load 50%            | Load 100% |
| -60                      | 19                  | 10        |
| -40                      | 22                  | 14        |
| -20                      | 24                  | 18        |
| 0                        | 24                  | 19        |
| 25                       | 23                  | 20        |
| 60                       | 22                  | 19        |
| 65                       | 22                  | 19        |
| --                       | -                   | -         |
| --                       | -                   | -         |
| --                       | -                   | -         |
| --                       | -                   | -         |

-15V: Rated output current

## 1.Graph



## 2.Values

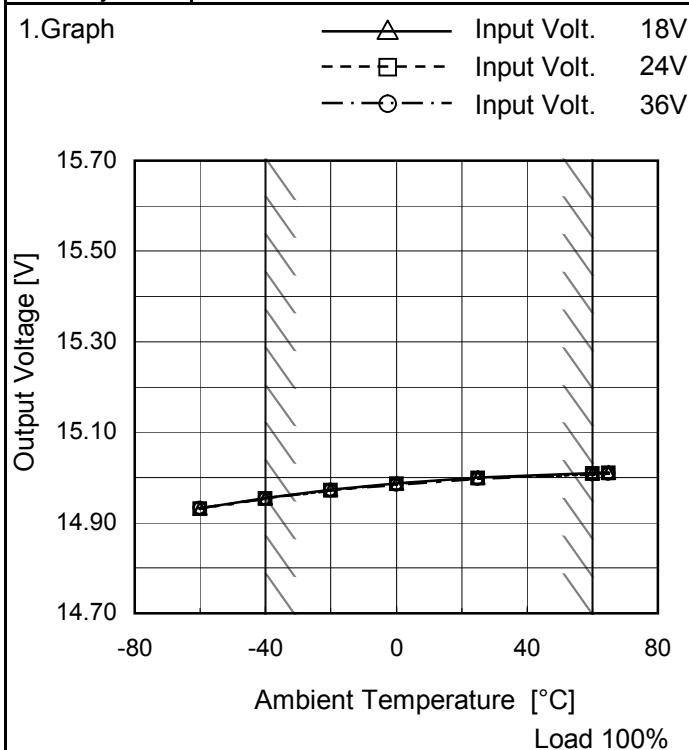
| Ambient Temperature [°C] | Ripple Voltage [mV] |           |
|--------------------------|---------------------|-----------|
|                          | Load 50%            | Load 100% |
| -60                      | 39                  | 30        |
| -40                      | 35                  | 28        |
| -20                      | 34                  | 29        |
| 0                        | 33                  | 28        |
| 25                       | 31                  | 26        |
| 60                       | 29                  | 26        |
| 65                       | 29                  | 26        |
| --                       | -                   | -         |
| --                       | -                   | -         |
| --                       | -                   | -         |
| --                       | -                   | -         |

+15V: Rated output current

Measured by 100 MHz Oscilloscope.

Note: Slanted line shows the range of the rated ambient temperature.

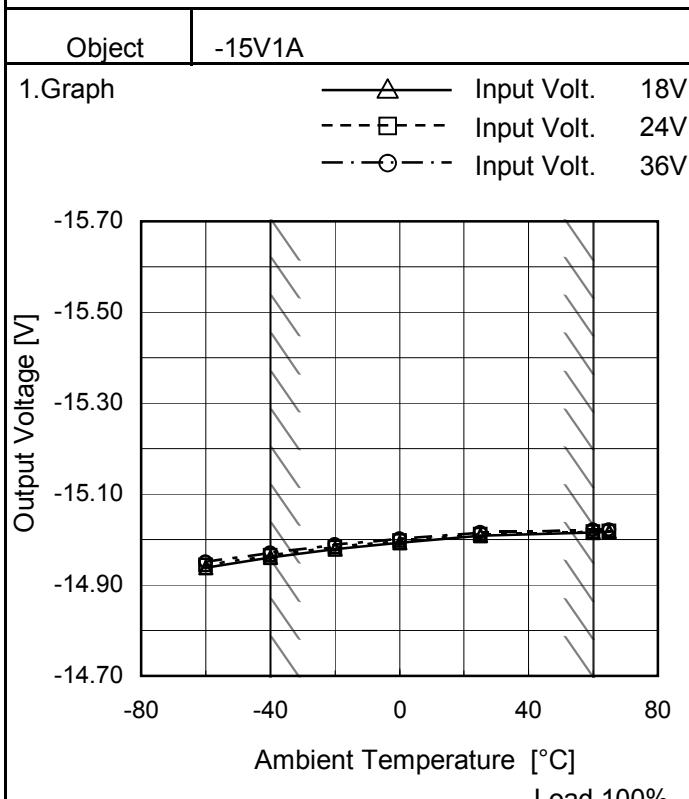
|        |                           |
|--------|---------------------------|
| Model  | MGW302415                 |
| Item   | Ambient Temperature Drift |
| Object | +15V1A                    |



Testing Circuitry Figure A

## 2.Values

| Ambient Temperature [°C] | Output Voltage [V] |                   |                   |
|--------------------------|--------------------|-------------------|-------------------|
|                          | Input Volt. 18[V]  | Input Volt. 24[V] | Input Volt. 36[V] |
| -60                      | 14.931             | 14.931            | 14.932            |
| -40                      | 14.954             | 14.953            | 14.953            |
| -20                      | 14.973             | 14.972            | 14.971            |
| 0                        | 14.987             | 14.986            | 14.985            |
| 25                       | 15.000             | 14.999            | 14.997            |
| 60                       | 15.010             | 15.009            | 15.007            |
| 65                       | 15.011             | 15.010            | 15.008            |
| --                       | -                  | -                 | -                 |
| --                       | -                  | -                 | -                 |
| --                       | -                  | -                 | -                 |
| --                       | -                  | -                 | -                 |



## 2.Values

| Ambient Temperature [°C] | Output Voltage [V] |                   |                   |
|--------------------------|--------------------|-------------------|-------------------|
|                          | Input Volt. 18[V]  | Input Volt. 24[V] | Input Volt. 36[V] |
| -60                      | -14.938            | -14.943           | -14.950           |
| -40                      | -14.960            | -14.965           | -14.971           |
| -20                      | -14.979            | -14.983           | -14.988           |
| 0                        | -14.993            | -14.997           | -15.001           |
| 25                       | -15.009            | -15.011           | -15.015           |
| 60                       | -15.015            | -15.018           | -15.021           |
| 65                       | -15.016            | -15.019           | -15.022           |
| --                       | -                  | -                 | -                 |
| --                       | -                  | -                 | -                 |
| --                       | -                  | -                 | -                 |
| --                       | -                  | -                 | -                 |

Note: Slanted line shows the range of the rated ambient temperature.



|       |                         |                               |
|-------|-------------------------|-------------------------------|
| Model | MGW302415               | Testing Circuitry<br>Figure A |
| Item  | Output Voltage Accuracy |                               |

### 1. Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -40 - 60°C

Input Voltage : 18 - 36V

Load Current (AVR 1) : 0 - 1A (AVR 2) : 0 - 1A

\* Other Output : Rated Load

\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

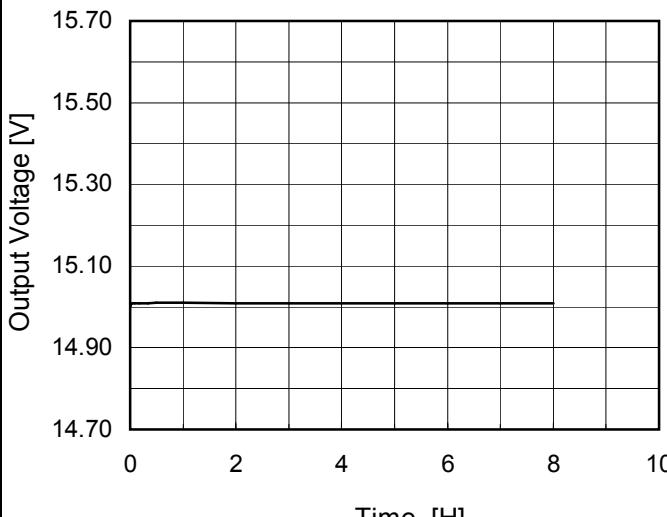
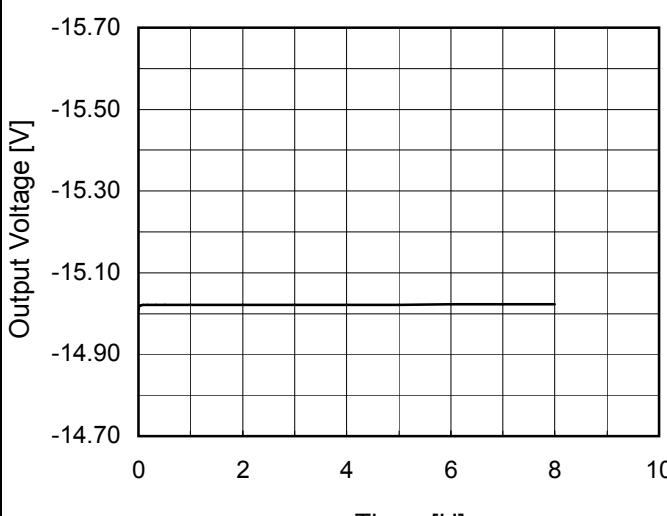
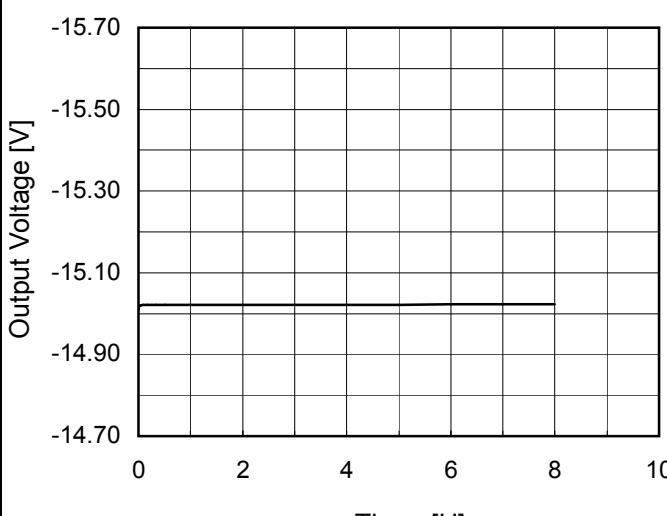
$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

### 2. Values

| Object          | +15V1A           |                  | Output     |            | Output Voltage Accuracy |            |
|-----------------|------------------|------------------|------------|------------|-------------------------|------------|
| Item            | Temperature [°C] | Input Voltage[V] | Current[A] | Voltage[V] | Value [mV]              | Ration [%] |
| Maximum Voltage | 60               | 36               |            | 0          | 15.482                  |            |
| Minimum Voltage | -40              | 24               | 1          | 14.953     | ±265                    | ±1.8       |

| Object          | -15V1A           |                  | Output     |            | Output Voltage Accuracy |            |
|-----------------|------------------|------------------|------------|------------|-------------------------|------------|
| Item            | Temperature [°C] | Input Voltage[V] | Current[A] | Voltage[V] | Value [mV]              | Ration [%] |
| Maximum Voltage | 60               | 18               |            | 0          | -15.331                 |            |
| Minimum Voltage | -40              | 18               | 1          | -14.960    | ±186                    | ±1.2       |

**COSEL**

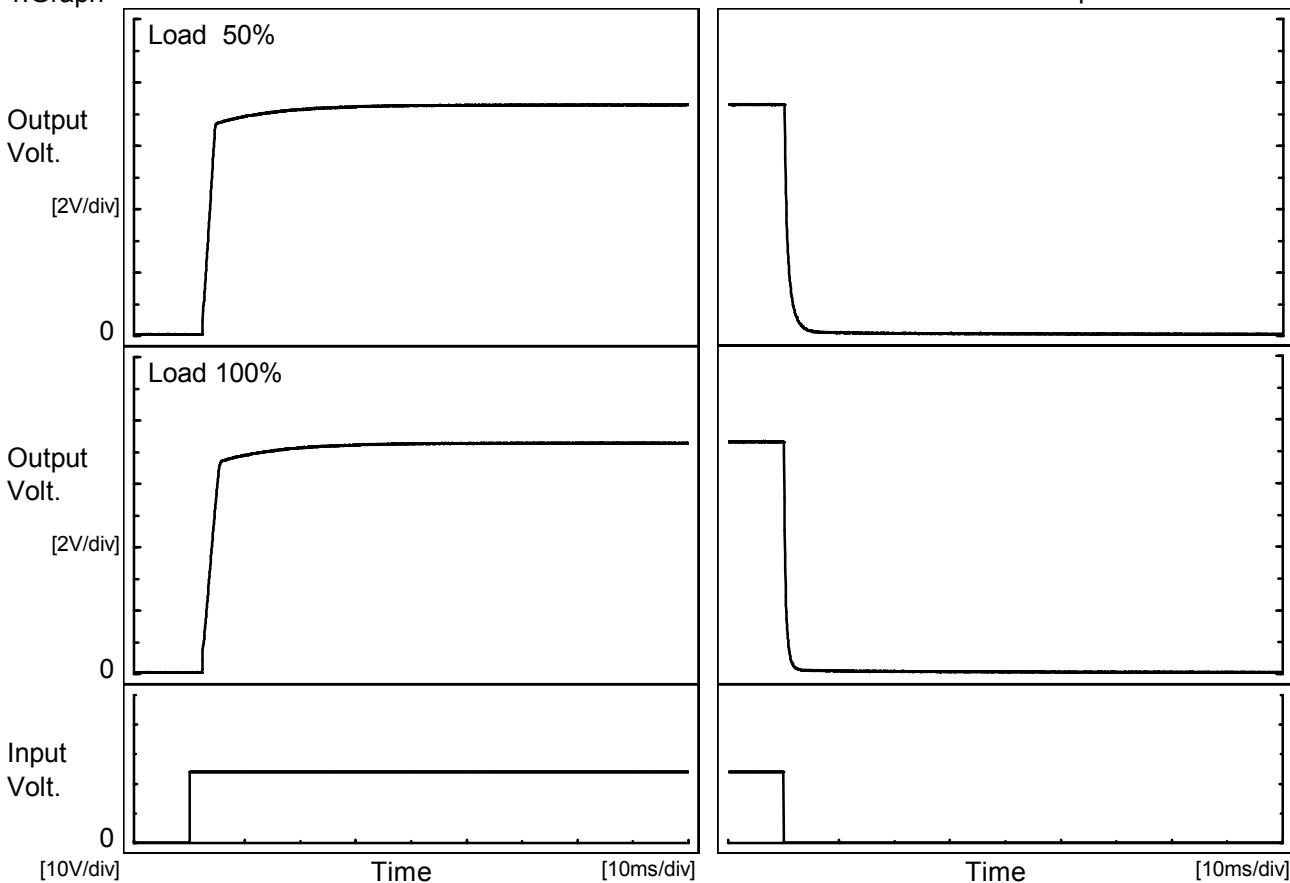
| Model  | MGW302415          | Temperature<br>Testing Circuitry | 25°C<br>Figure A   |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
|--|--------------------|----------------------------------|--|----------------------|--------------------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|
| Item   | Time Lapse Drift   |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| Object   | +15V1A             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 1.Graph  |                    |                                  | 2.Values   |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
|  <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 12V<br/>Load 100%</p>  |                    |                                  | <table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>14.999</td></tr> <tr><td>0.5</td><td>15.010</td></tr> <tr><td>1.0</td><td>15.010</td></tr> <tr><td>2.0</td><td>15.010</td></tr> <tr><td>3.0</td><td>15.009</td></tr> <tr><td>4.0</td><td>15.009</td></tr> <tr><td>5.0</td><td>15.009</td></tr> <tr><td>6.0</td><td>15.009</td></tr> <tr><td>7.0</td><td>15.009</td></tr> <tr><td>8.0</td><td>15.009</td></tr> </tbody> </table>           | Time since start [H] | Output Voltage [V] | 0.0 | 14.999  | 0.5 | 15.010  | 1.0 | 15.010  | 2.0 | 15.010  | 3.0 | 15.009  | 4.0 | 15.009  | 5.0 | 15.009  | 6.0 | 15.009  | 7.0 | 15.009  | 8.0 | 15.009  |
| Time since start [H]   | Output Voltage [V] |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 0.0  | 14.999             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 0.5  | 15.010             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 1.0  | 15.010             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 2.0  | 15.010             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 3.0  | 15.009             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 4.0  | 15.009             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 5.0  | 15.009             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 6.0  | 15.009             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 7.0  | 15.009             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 8.0  | 15.009             |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| Object   |                    |                                  | 2.Values   |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 1.Graph  |                    |                                  |  <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 12V<br/>Load 100%</p>   |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
|  <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 12V<br/>Load 100%</p> |                    |                                  | <table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>-15.011</td></tr> <tr><td>0.5</td><td>-15.022</td></tr> <tr><td>1.0</td><td>-15.022</td></tr> <tr><td>2.0</td><td>-15.022</td></tr> <tr><td>3.0</td><td>-15.022</td></tr> <tr><td>4.0</td><td>-15.022</td></tr> <tr><td>5.0</td><td>-15.022</td></tr> <tr><td>6.0</td><td>-15.022</td></tr> <tr><td>7.0</td><td>-15.022</td></tr> <tr><td>8.0</td><td>-15.022</td></tr> </tbody> </table> | Time since start [H] | Output Voltage [V] | 0.0 | -15.011 | 0.5 | -15.022 | 1.0 | -15.022 | 2.0 | -15.022 | 3.0 | -15.022 | 4.0 | -15.022 | 5.0 | -15.022 | 6.0 | -15.022 | 7.0 | -15.022 | 8.0 | -15.022 |
| Time since start [H]   | Output Voltage [V] |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 0.0  | -15.011            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 0.5  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 1.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 2.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 3.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 4.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 5.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 6.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 7.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |
| 8.0  | -15.022            |                                  |  |                      |                    |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |     |         |

**COSEL**

|        |                    |
|--------|--------------------|
| Model  | MGW302415          |
| Item   | Rise and Fall Time |
| Object | +15V1A             |

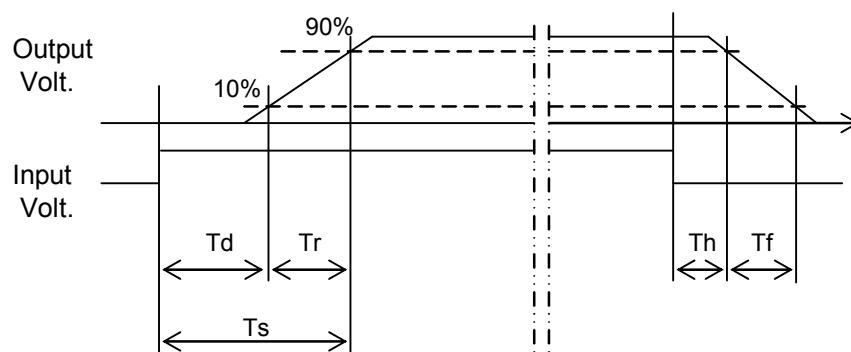
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

| Load  | Time | Td  | Tr  | Ts  | Th  | Tf  | [ms] |
|-------|------|-----|-----|-----|-----|-----|------|
| 50 %  |      | 2.5 | 4.0 | 6.5 | 0.1 | 1.8 |      |
| 100 % |      | 2.5 | 4.7 | 7.2 | 0.1 | 0.8 |      |

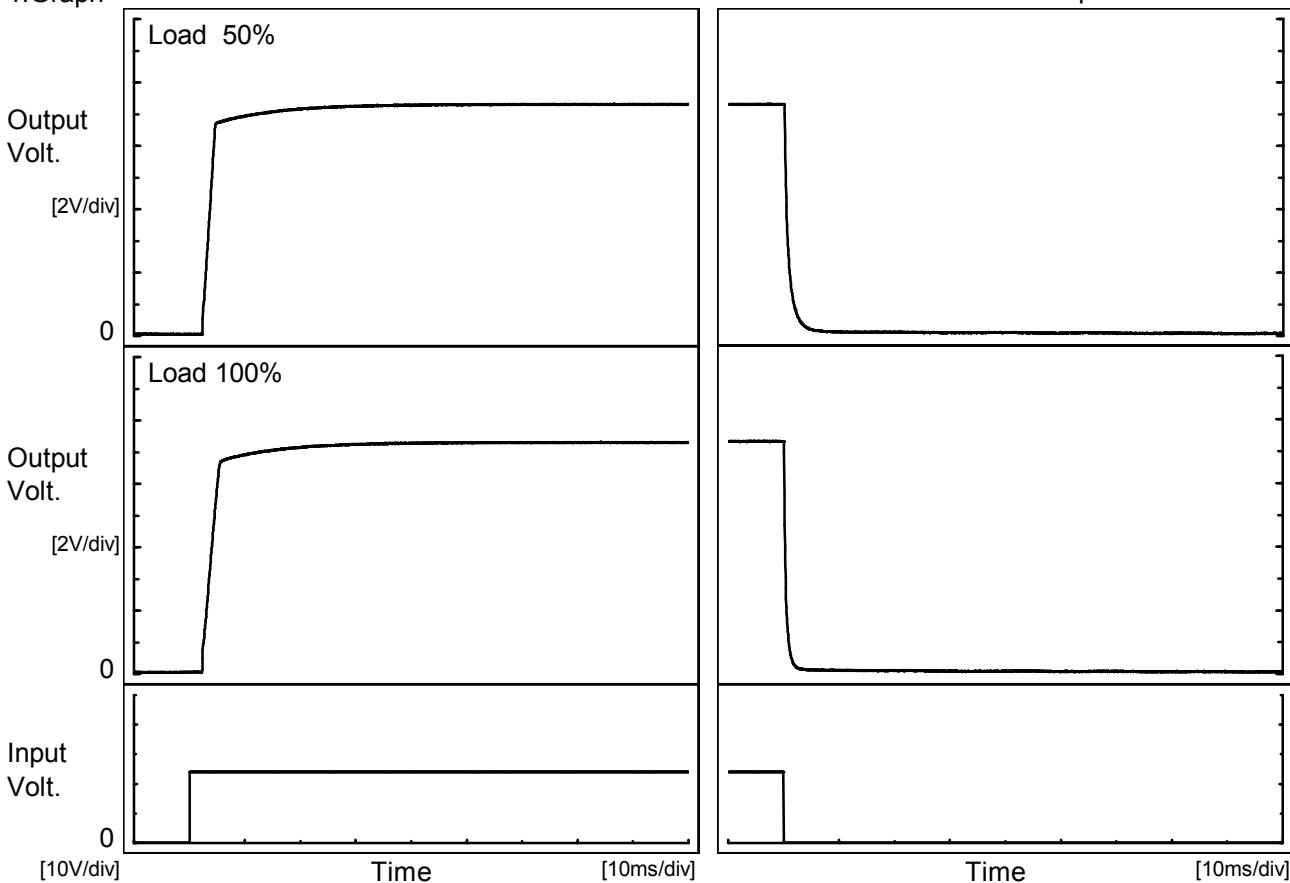


**COSEL**

|        |                    |
|--------|--------------------|
| Model  | MGW302415          |
| Item   | Rise and Fall Time |
| Object | -15V1A             |

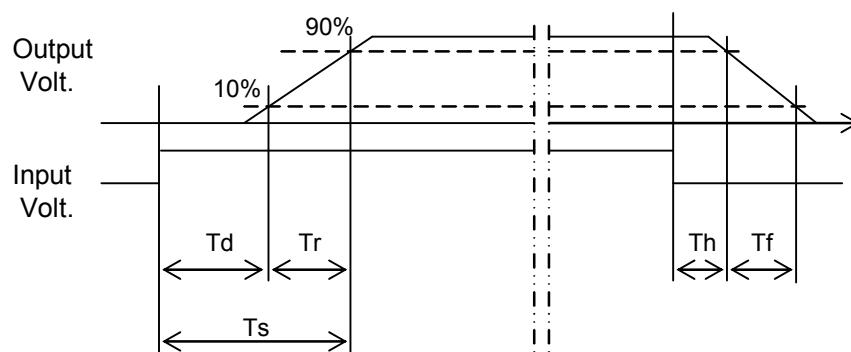
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

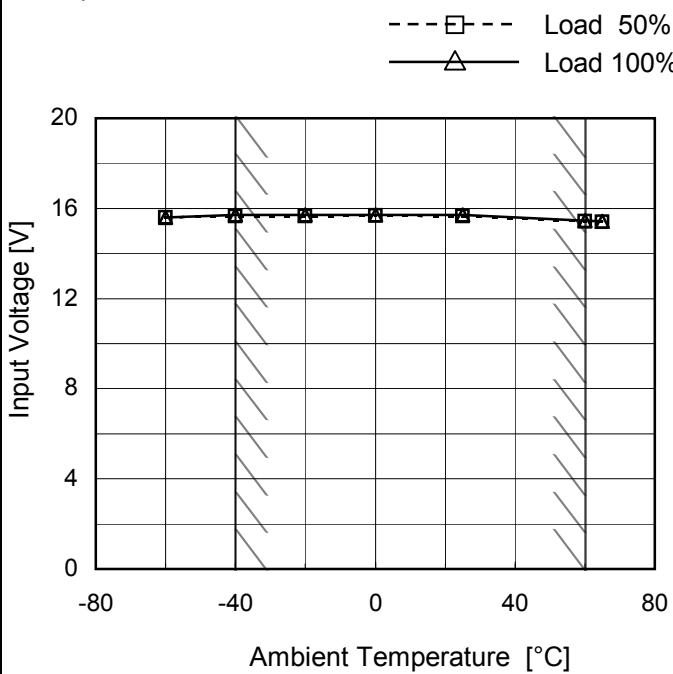
| Load  | Time | Td  | Tr  | Ts  | Th  | Tf  | [ms] |
|-------|------|-----|-----|-----|-----|-----|------|
| 50 %  |      | 2.5 | 3.7 | 6.2 | 0.1 | 1.9 |      |
| 100 % |      | 2.5 | 4.6 | 7.1 | 0.1 | 0.9 |      |



|        |   |
|--------|---|
| Model  | MGW302415   |
| Item   | Minimum Input Voltage<br>for Regulated Output Voltage |
| Object | +15V1A  |

Testing Circuitry Figure A

## 1.Graph

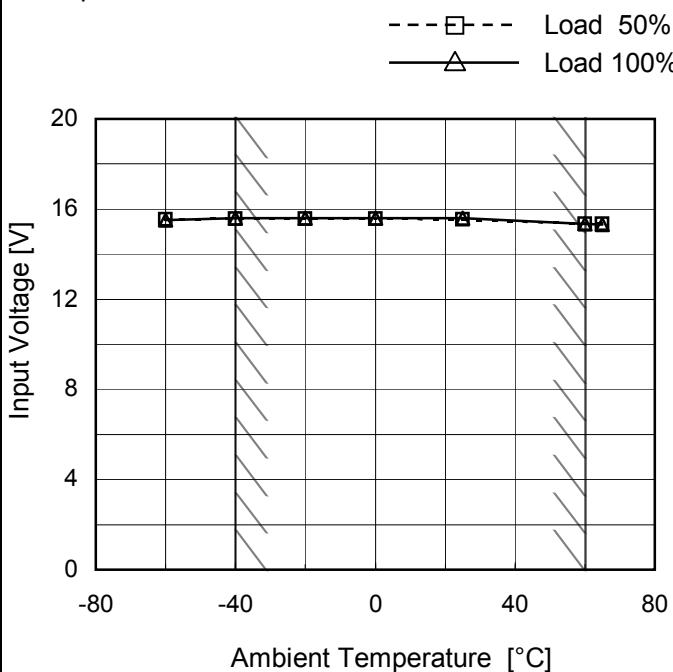


## 2.Values

| Ambient Temperature [°C] | Input Voltage [V] |           |
|--------------------------|-------------------|-----------|
|                          | Load 50%          | Load 100% |
| -60                      | 15.7              | 15.6      |
| -40                      | 15.7              | 15.7      |
| -20                      | 15.7              | 15.8      |
| 0                        | 15.7              | 15.7      |
| 25                       | 15.7              | 15.7      |
| 60                       | 15.5              | 15.5      |
| 65                       | 15.5              | 15.5      |
| --                       | -                 | -         |
| --                       | -                 | -         |
| --                       | -                 | -         |
| --                       | -                 | -         |

|        |        |
|--------|--------|
| Object | -15V1A |
|--------|--------|

## 1.Graph



## 2.Values

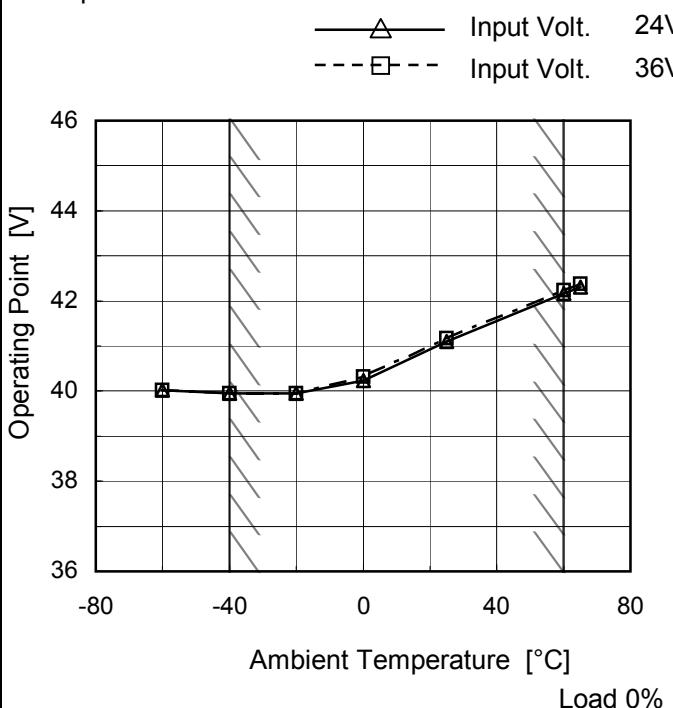
| Ambient Temperature [°C] | Input Voltage [V] |           |
|--------------------------|-------------------|-----------|
|                          | Load 50%          | Load 100% |
| -60                      | 15.6              | 15.5      |
| -40                      | 15.6              | 15.6      |
| -20                      | 15.6              | 15.7      |
| 0                        | 15.6              | 15.7      |
| 25                       | 15.6              | 15.6      |
| 60                       | 15.4              | 15.4      |
| 65                       | 15.4              | 15.4      |
| --                       | -                 | -         |
| --                       | -                 | -         |
| --                       | -                 | -         |
| --                       | -                 | -         |

Note: Slanted line shows the range of the rated ambient temperature.

| Model   | MGW302415              |  |                   | Temperature 25°C           |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
|---|------------------------|--|-------------------|----------------------------|--------------------|------------------|--|--|-------------------|-------------------|-------------------|--------|------|------|------|--------|---|---|---|--------|---|---|---|--------|---|---|---|--------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|-------|---|---|---|------|---|---|---|
| Item  | Overcurrent Protection |  |                   | Testing Circuitry Figure A |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| Object  | +15V1A                 |  |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 1.Graph   |                        |  |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 2.Values  |                        | <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr> <tr> <th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr> </thead> <tbody> <tr><td>15.00</td><td>1.61</td><td>1.83</td><td>1.87</td></tr> <tr><td>14.25</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>13.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>12.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>10.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>9.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>6.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>4.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>3.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>1.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>            |                   |                            | Output Voltage [V] | Load Current [A] |  |  | Input Volt. 18[V] | Input Volt. 24[V] | Input Volt. 36[V] | 15.00  | 1.61 | 1.83 | 1.87 | 14.25  | - | - | - | 13.50  | - | - | - | 12.00  | - | - | - | 10.50  | - | - | - | 9.00  | - | - | - | 7.50  | - | - | - | 6.00  | - | - | - | 4.50  | - | - | - | 3.00  | - | - | - | 1.50  | - | - | - | 0.00 | - | - | - |
| Output Voltage [V]  | Load Current [A]       |  |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
|   | Input Volt. 18[V]      | Input Volt. 24[V]  | Input Volt. 36[V] |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 15.00   | 1.61                   | 1.83   | 1.87              |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 14.25   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 13.50   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 12.00   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 10.50   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 9.00  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 7.50  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 6.00  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 4.50  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 3.00  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 1.50  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 0.00  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| Object  |                        | -15V1A   |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 1.Graph   |                        |  |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 2.Values  |                        | <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr> <tr> <th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr> </thead> <tbody> <tr><td>-15.00</td><td>1.60</td><td>1.84</td><td>1.86</td></tr> <tr><td>-14.25</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-13.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-12.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-10.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-9.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-7.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-6.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-4.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-3.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-1.50</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table> |                   |                            | Output Voltage [V] | Load Current [A] |  |  | Input Volt. 18[V] | Input Volt. 24[V] | Input Volt. 36[V] | -15.00 | 1.60 | 1.84 | 1.86 | -14.25 | - | - | - | -13.50 | - | - | - | -12.00 | - | - | - | -10.50 | - | - | - | -9.00 | - | - | - | -7.50 | - | - | - | -6.00 | - | - | - | -4.50 | - | - | - | -3.00 | - | - | - | -1.50 | - | - | - | 0.00 | - | - | - |
| Output Voltage [V]  | Load Current [A]       |  |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
|   | Input Volt. 18[V]      | Input Volt. 24[V]  | Input Volt. 36[V] |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -15.00  | 1.60                   | 1.84   | 1.86              |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -14.25  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -13.50  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -12.00  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -10.50  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -9.00   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -7.50   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -6.00   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -4.50   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -3.00   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| -1.50   | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| 0.00  | -                      | -  | -                 |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| Note: Slanted line shows the range of the rated load current.           |                        |  |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |
| Intermittent operation occurs when overcurrent protection is activated. |                        |  |                   |                            |                    |                  |  |  |                   |                   |                   |        |      |      |      |        |   |   |   |        |   |   |   |        |   |   |   |        |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |       |   |   |   |      |   |   |   |

|        |                       |
|--------|-----------------------|
| Model  | MGW302415             |
| Item   | Oversupply Protection |
| Object | +30V1A                |

## 1. Graph



Note: Slanted line shows the range of the rated ambient temperature.

Measured as a single output(+30V).

## Testing Circuitry Figure A

## 2.Values

| Ambient Temperature [°C] | Operating Point [V] |                   |
|--------------------------|---------------------|-------------------|
|                          | Input Volt. 24[V]   | Input Volt. 36[V] |
| -60                      | 40.02               | 40.02             |
| -40                      | 39.95               | 39.95             |
| -20                      | 39.95               | 39.95             |
| 0                        | 40.24               | 40.32             |
| 25                       | 41.10               | 41.17             |
| 60                       | 42.16               | 42.23             |
| 65                       | 42.30               | 42.38             |
| --                       | -                   | -                 |
| --                       | -                   | -                 |
| --                       | -                   | -                 |
| --                       | -                   | -                 |

COSEL

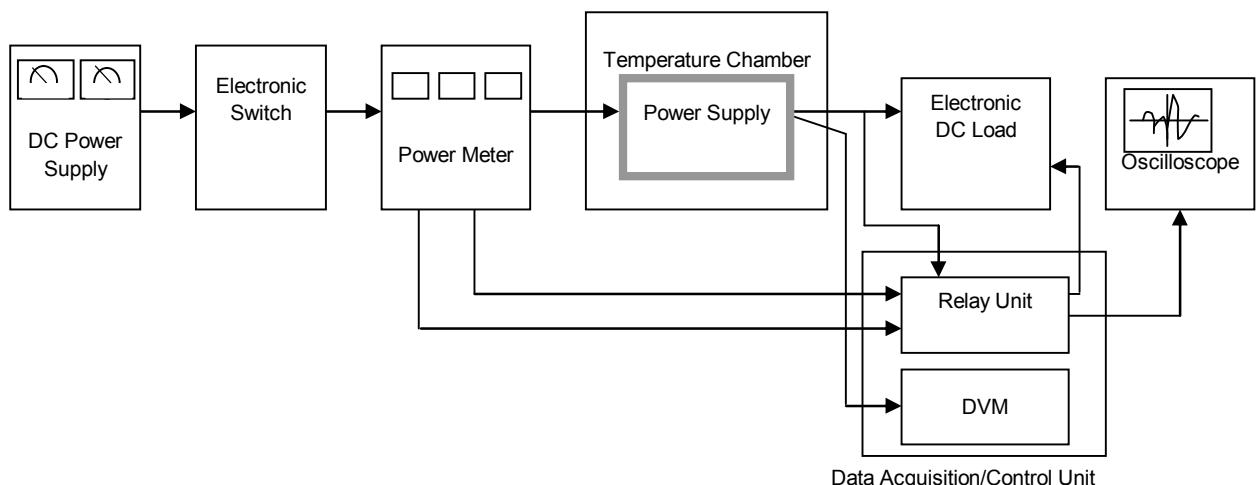


Figure A

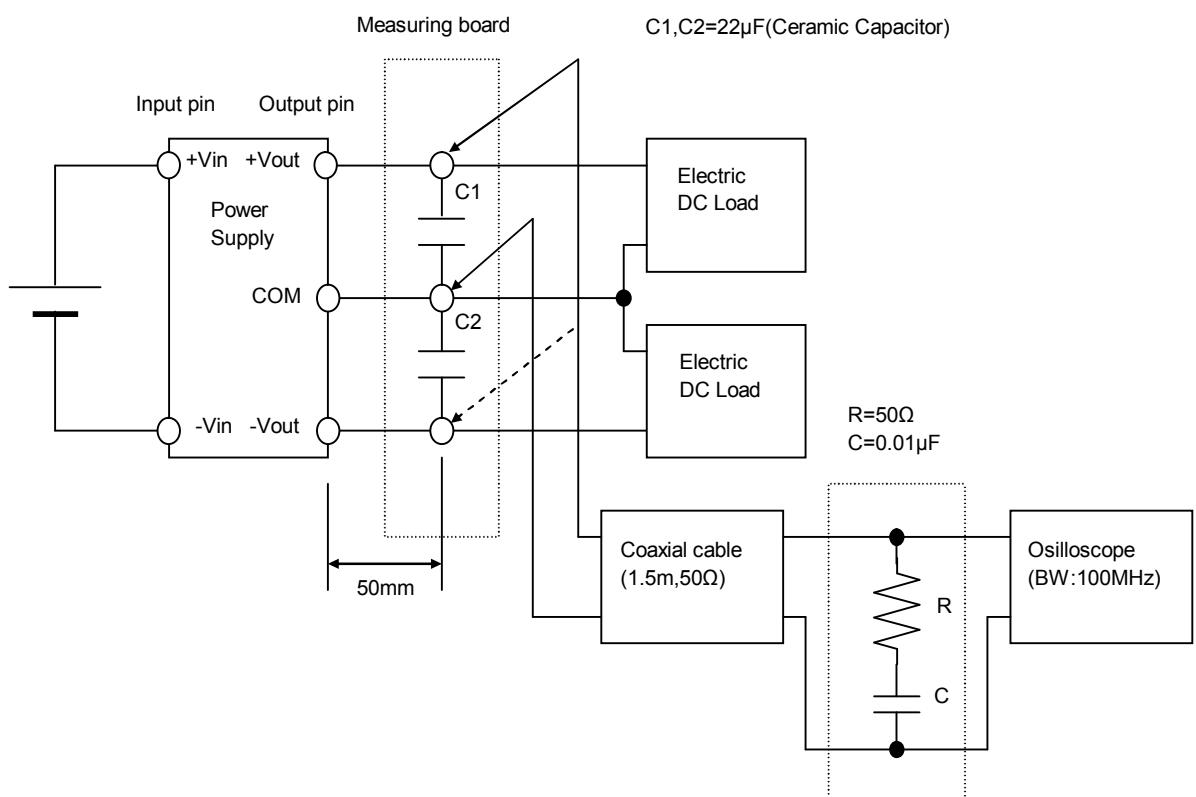


Figure B (Ripple and Ripple noise Characteristic)