

# TEST DATA OF SUTS6243R3

Regulated DC Power Supply  
March 13, 2009

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

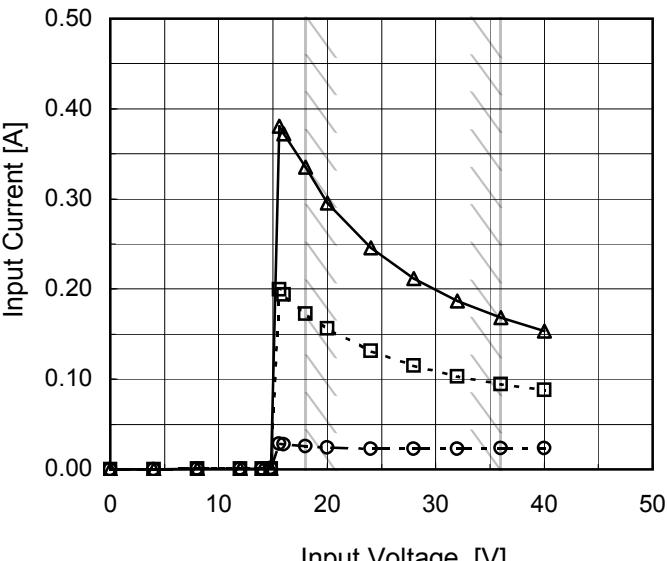
Prepared by : Sho Saito  
Sho Saito Design Engineer

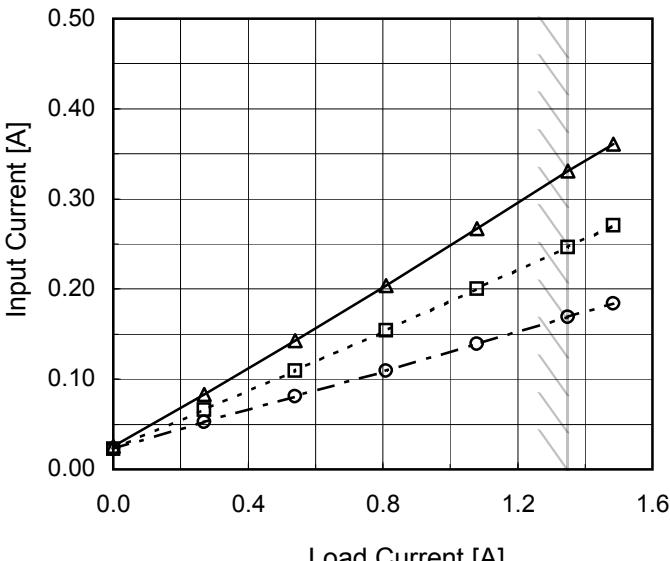
**COSEL CO.,LTD.**

## CONTENTS

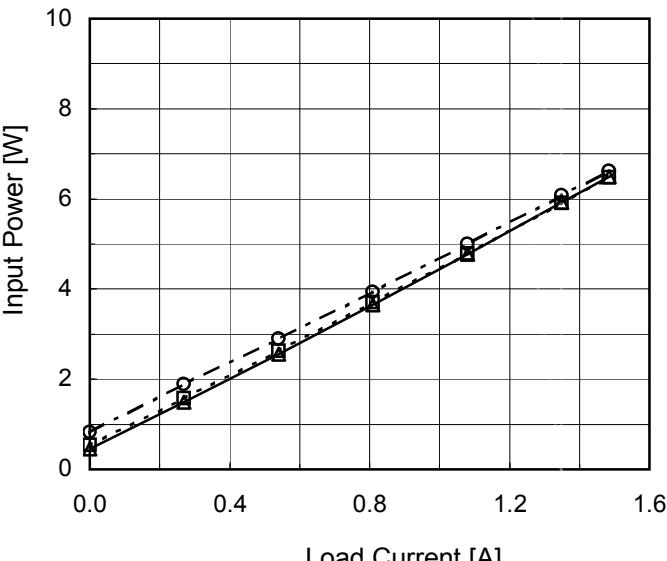
1. Input Current (by Input Voltage) · · · · ·	1
2. Input Current (by Load Current) · · · · ·	2
3. Input Power (by Load Current) · · · · ·	3
4. Efficiency (by Input Voltage) · · · · ·	4
5. Efficiency (by Load Current) · · · · ·	5
6. Line Regulation · · · · ·	6
7. Load Regulation · · · · ·	7
8. Dynamic Load Response · · · · ·	8
9. Ripple Voltage (by Load Current) · · · · ·	9
10. Ripple-Noise · · · · ·	10
11. Ripple Voltage (by Ambient Temperature) · · · · ·	11
12. Ambient Temperature Drift · · · · ·	12
13. Output Voltage Accuracy · · · · ·	13
14. Time Lapse Drift · · · · ·	14
15. Rise and Fall Time · · · · ·	15
16. Minimum Input Voltage for Regulated Output Voltage · · · · ·	16
17. Overcurrent Protection · · · · ·	17
18. Figure of Testing Circuitry · · · · ·	18

(Final Page 18)

Model	SUTS6243R3	Temperature Testing Circuitry      25°C Figure A																																																																																	
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1.Graph	<p style="text-align: center;"> <span style="color: black;">—△—</span> Load 100%  <span style="color: black;">---□---</span> Load 50%  <span style="color: black;">---○---</span> Load 0%     </p>  <p>Note: Slanted line shows the range of the rated input voltage.</p>	<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Load 0%</th> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>4.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>8.0</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>12.0</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>14.0</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>14.8</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>15.6</td><td>0.028</td><td>0.200</td><td>0.381</td></tr> <tr><td>16.0</td><td>0.028</td><td>0.194</td><td>0.372</td></tr> <tr><td>18.0</td><td>0.026</td><td>0.173</td><td>0.335</td></tr> <tr><td>20.0</td><td>0.024</td><td>0.156</td><td>0.295</td></tr> <tr><td>24.0</td><td>0.023</td><td>0.132</td><td>0.246</td></tr> <tr><td>28.0</td><td>0.023</td><td>0.115</td><td>0.212</td></tr> <tr><td>32.0</td><td>0.023</td><td>0.103</td><td>0.187</td></tr> <tr><td>36.0</td><td>0.023</td><td>0.095</td><td>0.168</td></tr> <tr><td>40.0</td><td>0.023</td><td>0.088</td><td>0.154</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>			Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	4.0	0.000	0.000	0.000	8.0	0.001	0.001	0.001	12.0	0.001	0.001	0.001	14.0	0.001	0.001	0.001	14.8	0.001	0.001	0.001	15.6	0.028	0.200	0.381	16.0	0.028	0.194	0.372	18.0	0.026	0.173	0.335	20.0	0.024	0.156	0.295	24.0	0.023	0.132	0.246	28.0	0.023	0.115	0.212	32.0	0.023	0.103	0.187	36.0	0.023	0.095	0.168	40.0	0.023	0.088	0.154	--	-	-	-	--	-	-	-	--	-	-	-
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<p>The graph plots Efficiency [%] on the y-axis (30 to 100) against Input Voltage [V] on the x-axis (10 to 50). 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. A slanted line on the graph indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>16</td><td>72.1</td><td>75.1</td></tr> <tr><td>18</td><td>72.0</td><td>75.6</td></tr> <tr><td>20</td><td>71.7</td><td>75.7</td></tr> <tr><td>24</td><td>70.7</td><td>75.7</td></tr> <tr><td>30</td><td>68.4</td><td>74.9</td></tr> <tr><td>36</td><td>65.4</td><td>73.5</td></tr> <tr><td>40</td><td>63.1</td><td>72.4</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>		Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	16	72.1	75.1	18	72.0	75.6	20	71.7	75.7	24	70.7	75.7	30	68.4	74.9	36	65.4	73.5	40	63.1	72.4	--	-	-	--	-	-
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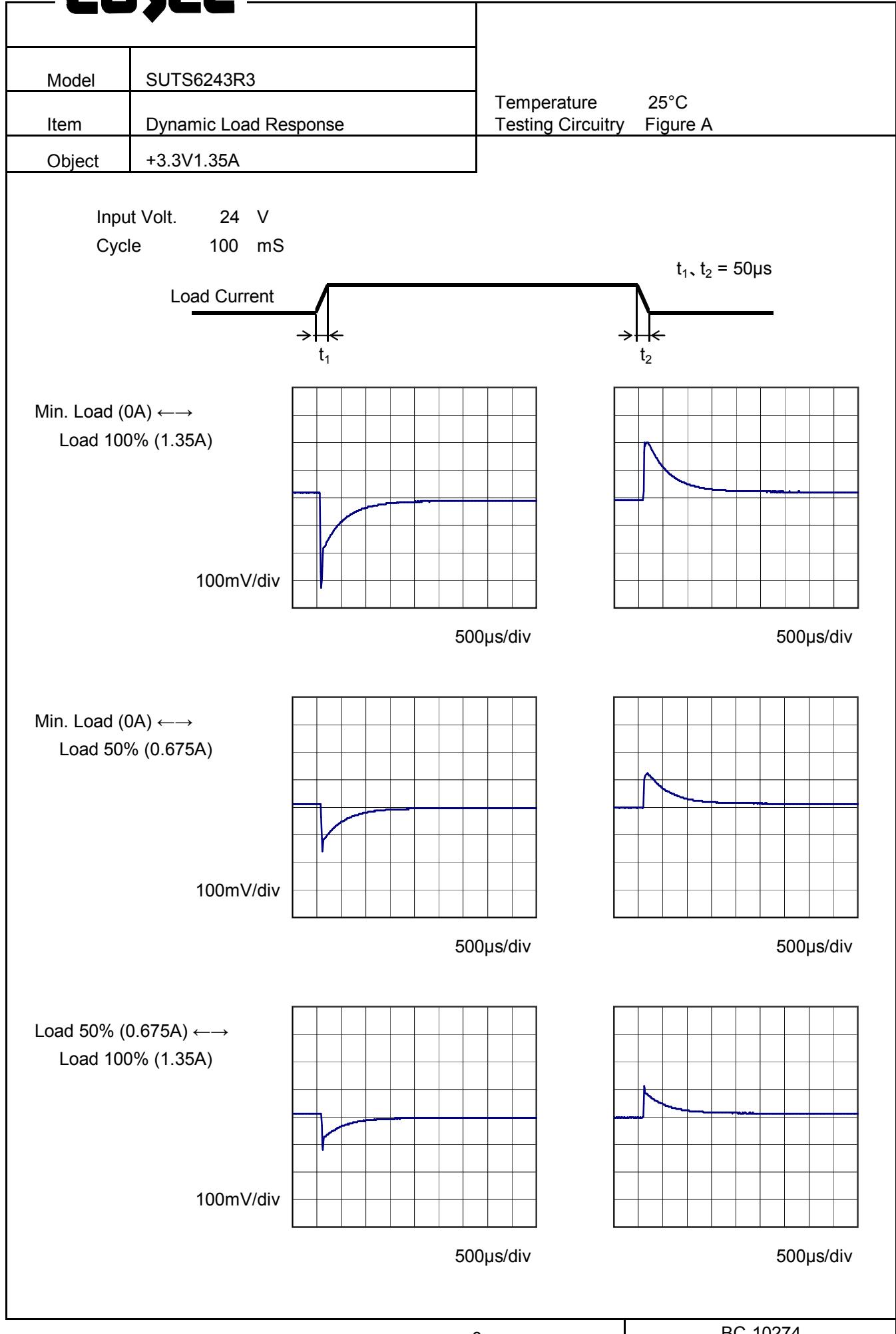
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1.Graph	<p style="text-align: center;"> <span style="color: black;">—△—</span> Input Volt. 18V  <span style="color: gray;">---□---</span> Input Volt. 24V  <span style="color: gray;">---○---</span> Input Volt. 36V         </p> <table border="1"> <caption>Data points estimated from the graph</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>0.0</td><td>3.32</td><td>3.32</td><td>3.32</td></tr> <tr><td>0.4</td><td>3.31</td><td>3.31</td><td>3.31</td></tr> <tr><td>0.8</td><td>3.30</td><td>3.30</td><td>3.30</td></tr> <tr><td>1.2</td><td>3.29</td><td>3.29</td><td>3.29</td></tr> <tr><td>1.6</td><td>3.28</td><td>3.28</td><td>3.28</td></tr> </tbody> </table>	Load Current [A]	Output Voltage [V] (18V)	Output Voltage [V] (24V)	Output Voltage [V] (36V)	0.0	3.32	3.32	3.32	0.4	3.31	3.31	3.31	0.8	3.30	3.30	3.30	1.2	3.29	3.29	3.29	1.6	3.28	3.28	3.28																													
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Note: Slanted line shows the range of the rated load current.

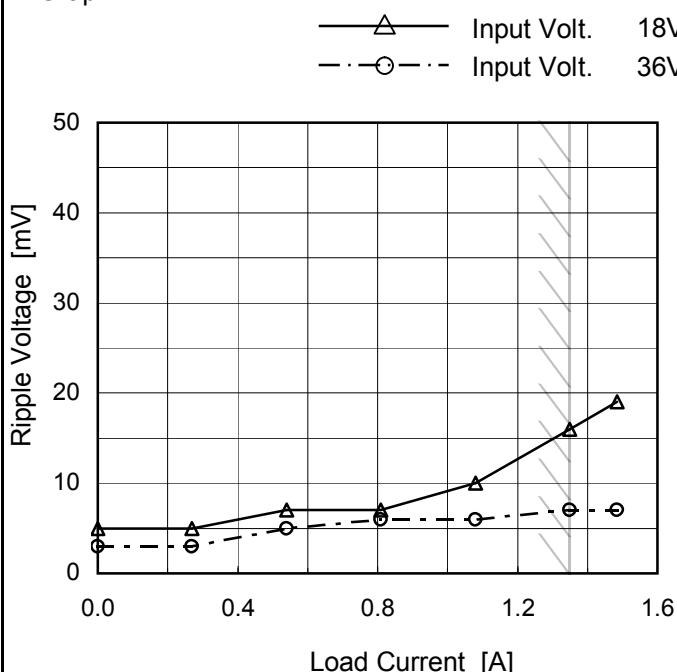
**COSEL**



Model	SUTS6243R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V1.35A

Temperature 25°C  
Testing Circuitry Figure B

## 1. Graph



## 2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.000	5	3
0.270	5	3
0.540	7	5
0.810	7	6
1.080	10	6
1.350	16	7
1.485	19	7
--	-	-
--	-	-
--	-	-
--	-	-

Ripple Voltage is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

Ripple [mVp-p]

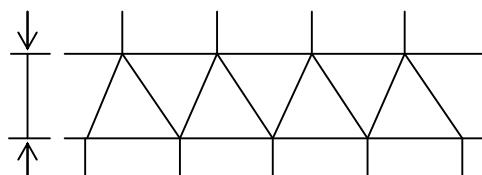
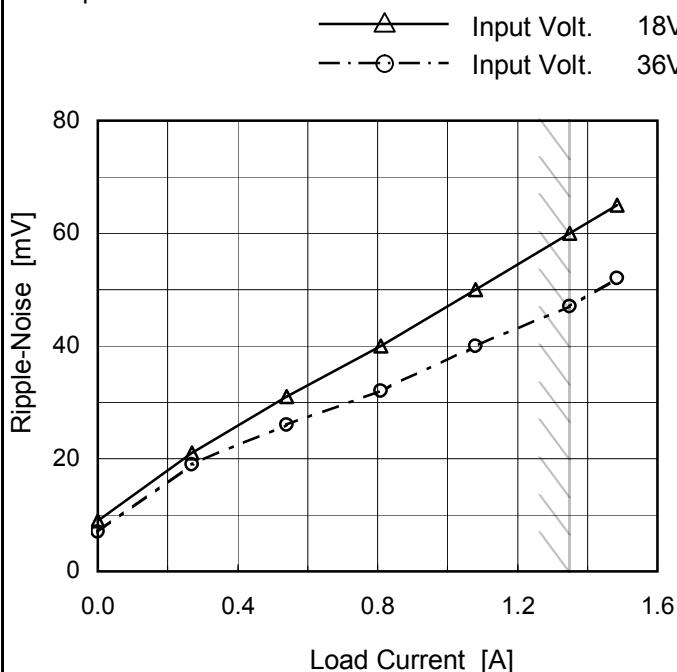


Fig.Complex Ripple Wave Form

Model	SUTS6243R3
Item	Ripple-Noise
Object	+3.3V1.35A

Temperature 25°C  
Testing Circuitry Figure B

## 1. Graph



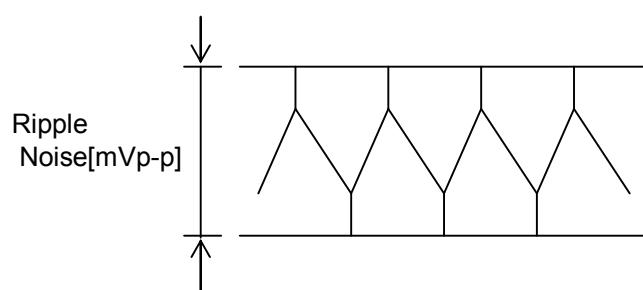
Measured by 100 MHz Oscilloscope.

Ripple-Noise is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

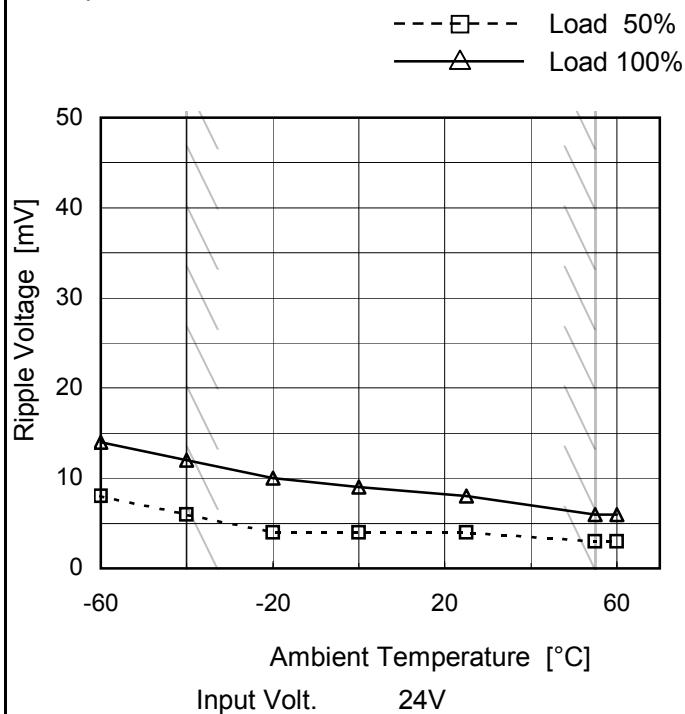
## 2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.000	9	7
0.270	21	19
0.540	31	26
0.810	40	32
1.080	50	40
1.350	60	47
1.485	65	52
--	-	-
--	-	-
--	-	-
--	-	-



Model	SUTS6243R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V1.35A

## 1. Graph



Measured by 100 MHz Oscilloscope.

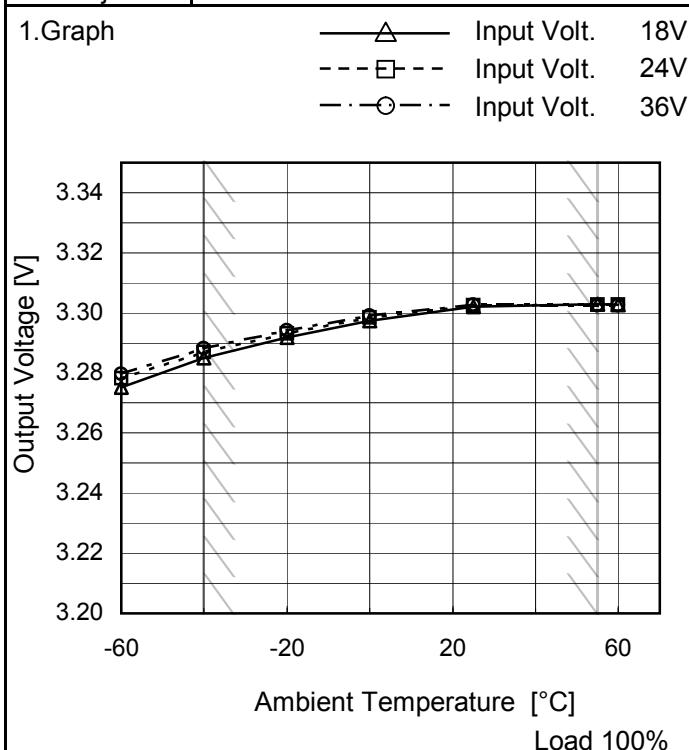
Note: Slanted line shows the range of the rated ambient temperature.

## Testing Circuitry Figure B

## 2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	8	14
-40	6	12
-20	4	10
0	4	18
25	4	8
55	3	6
60	3	6
--	-	-
--	-	-
--	-	-
--	-	-

Model	SUTS6243R3
Item	Ambient Temperature Drift
Object	+3.3V1.35A



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	3.275	3.278	3.280
-40	3.285	3.287	3.288
-20	3.292	3.293	3.294
0	3.297	3.299	3.299
25	3.302	3.303	3.303
55	3.303	3.303	3.303
60	3.303	3.303	3.302
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	SUTS6243R3	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+3.3V1.35A	

### 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 - 55°C

Input Voltage : 18 - 36V

Load Current : 0 - 1.35A

\* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

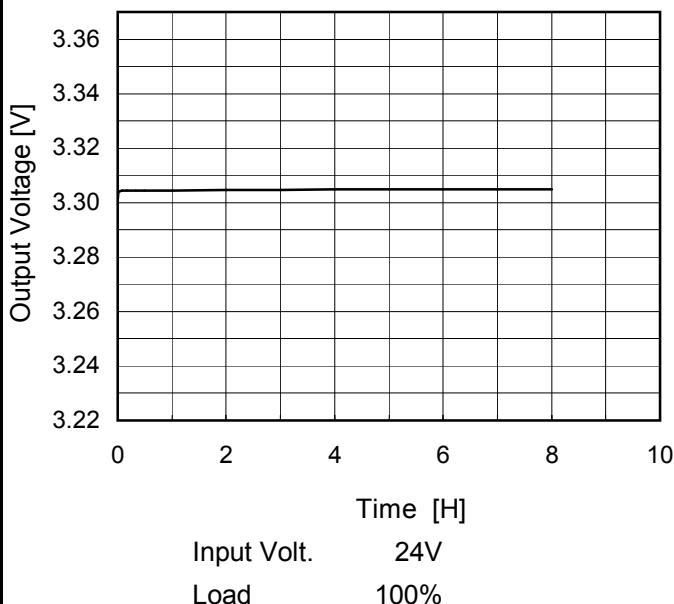
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	36	0	3.316	±16	±0.5
Minimum Voltage	-40	18	1.35	3.285		

**COSEL**

Model	SUTS6243R3
Item	Time Lapse Drift
Object	+3.3V1.35A

1. Graph



Temperature 25°C  
Testing Circuitry Figure A

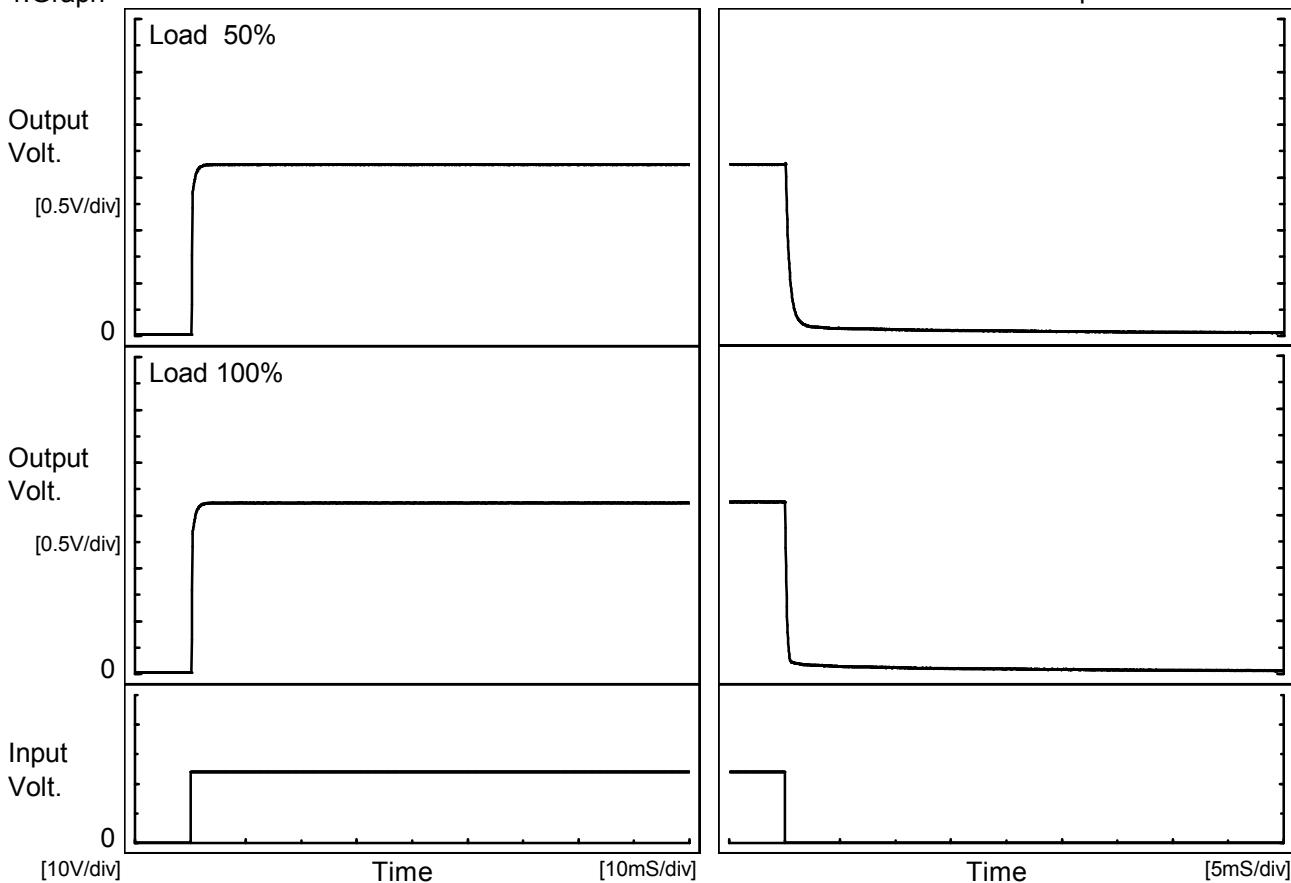
2. Values

Time since start [H]	Output Voltage [V]
0.0	3.301
0.5	3.304
1.0	3.305
2.0	3.305
3.0	3.305
4.0	3.305
5.0	3.305
6.0	3.305
7.0	3.305
8.0	3.305

**COSEL**

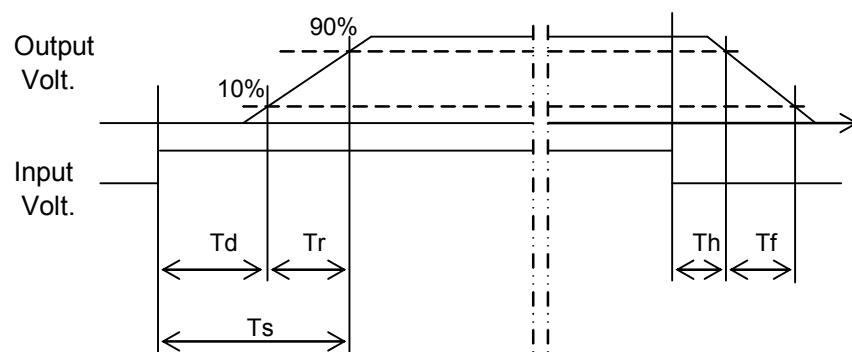
Model	SUTS6243R3	Temperature Testing Circuitry Figure A
Item	Rise and Fall Time	
Object	+3.3V1.35A	

## 1. Graph



## 2. Values

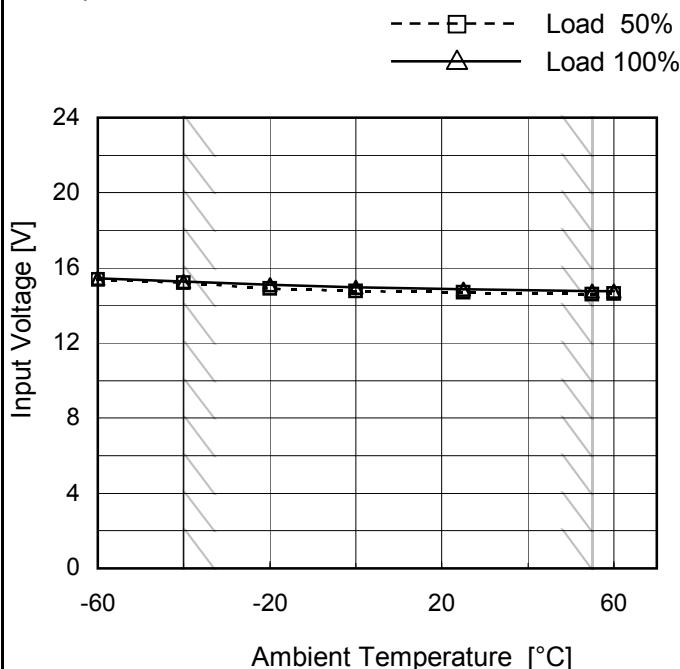
Load	Time	Td	Tr	Ts	Th	Tf	[mS]
50 %		0.3	0.6	0.9	0.1	1.0	
100 %		0.3	0.7	1.0	0.1	0.4	



Model	SUTS6243R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V1.35A

Testing Circuitry Figure A

## 1. Graph



## 2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.4	15.5
-40	15.2	15.3
-20	14.9	15.1
0	14.8	15.0
25	14.7	14.9
55	14.6	14.8
60	14.7	14.8
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	SUTS6243R3	Temperature Testing Circuitry      25°C Figure A																																																									
Item	Overcurrent Protection																																																										
Object	+3.3V1.35A																																																										
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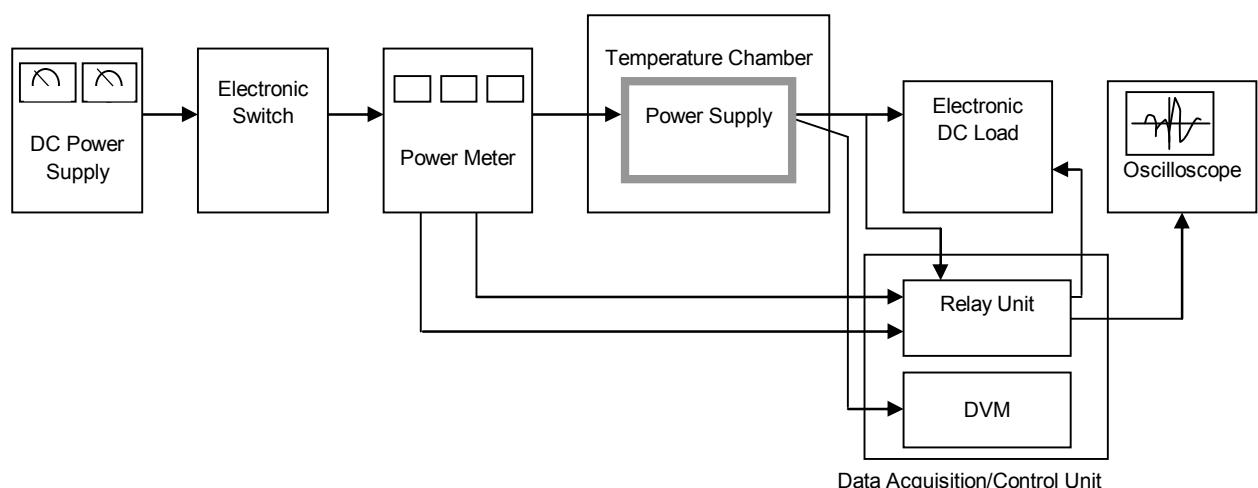


Figure A

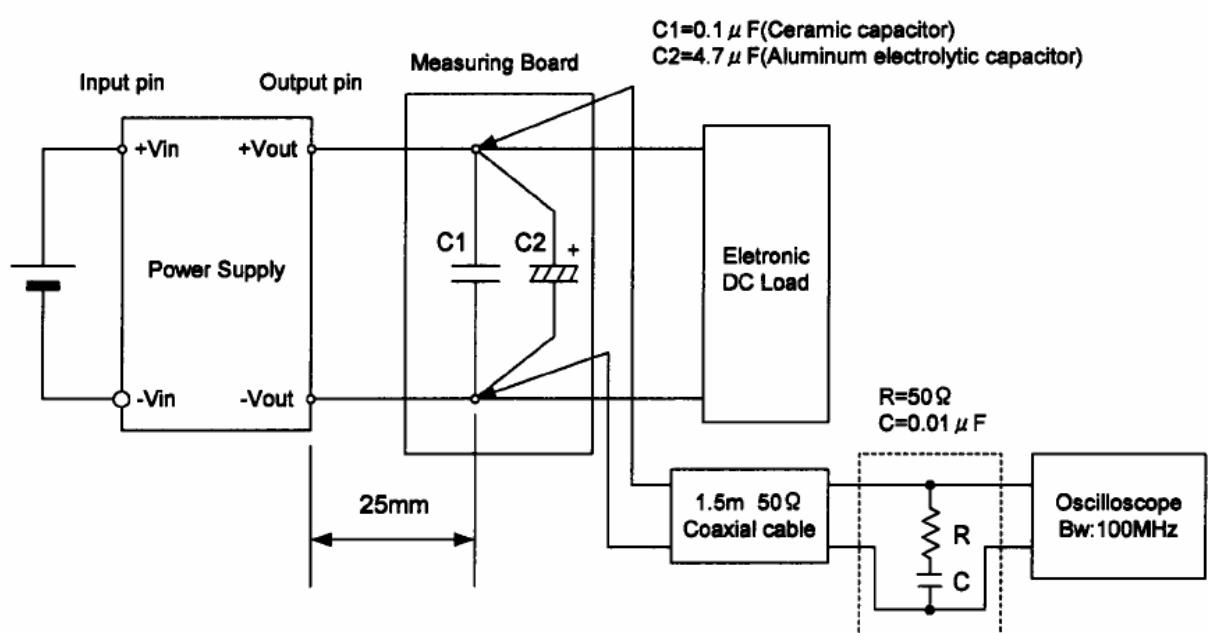


Figure B (Ripple and Ripple noise Characteristic)