TEST DATA OF DHS200A12

Regulated DC Power Supply
Aug 3, 2010

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Hou Ryou

COSEL CO.,LTD.

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Object	———————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——△—— Load 100%
---□--- Load 50%
—·—○—·— Load 0%

Input Voltage [V]

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

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
40	0.000	0.000	0.000
50	0.000	0.000	0.000
55	0.000	0.000	0.000
56	0.014	2.034	4.147
60	0.013	1.888	3.880
66	0.011	1.706	3.482
80	0.009	1.412	2.864
95	0.007	1.193	2.412
110	0.007	1.034	2.105
125	0.006	0.914	1.832
140	0.006	0.821	1.636
160	0.006	0.725	1.453
170	0.006	0.687	1.358
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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| Model	DHS200A12
Item	Input Current (by Load Current)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

△———— Input Volt.   60V
---◻--- Input Volt.   110V
—·—⊖—·— Input Volt.   160V

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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0.0	0.013	0.007	0.006
3.0	0.699	0.383	0.271
6.0	1.356	0.748	0.529
9.0	2.030	1.113	0.780
12.0	2.724	1.486	1.035
15.0	3.440	1.870	1.294
16.7	3.880	2.105	1.453
18.4	4.278	2.312	1.595
--	-	-	-
--	-	-	-
--	-	-	-

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Model	DHS200A12
Item	Input Power (by Load Current)
Object	
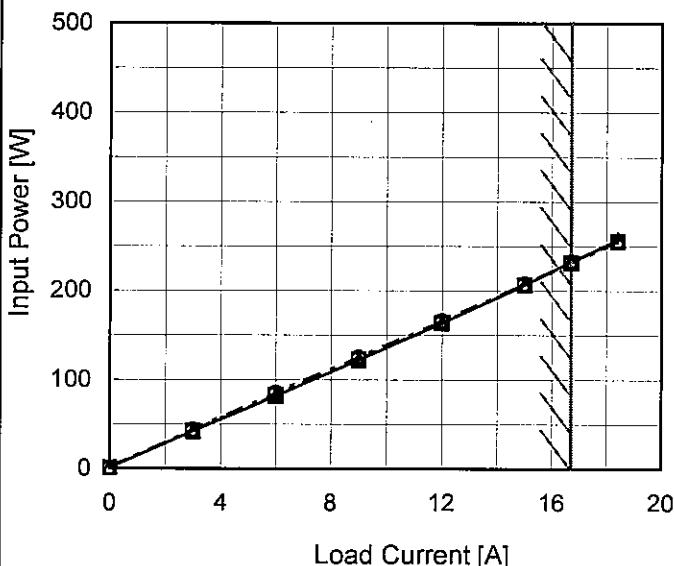
Temperature   25°C
Testing Circuitry   Figure A

1.Graph

△ Input Volt.   60V
--☐-- Input Volt.   110V
--○-- Input Volt.   160V

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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0.0	0.8	0.8	0.8
3.0	42.1	42.3	43.5
6.0	81.5	82.6	85.0
9.0	122.2	122.8	125.0
12.0	163.8	163.7	166.0
15.0	206.7	206.4	207.5
16.7	232.8	231.5	232.5
18.4	257.2	255.2	255.8
--	-	-	-
--	-	-	-
--	-	-	-

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COSEL

Model	DHS200A12
Item	Efficiency (by Input Voltage)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

- - -□- - -   Load 50%
——△——   Load 100%

Input Voltage [V]

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

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
56	88.0	86.3
60	88.5	86.9
66	89.3	87.0
90	88.8	87.3
110	88.3	87.5
125	88.0	87.3
140	87.4	87.4
160	86.6	87.1
170	85.9	86.7

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参考資料

COSEL

Model	DHS200A12
Item	Efficiency (by Load Current)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

————△———— Input Volt.   60V
－－－日－－－ Input Volt.   110V
—·—○—·— Input Volt.   160V

Efficiency [%]

Load Current [A]

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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0.0	-	-	-
3.0	85.9	85.6	82.8
6.0	88.8	87.6	85.0
9.0	89.5	88.5	86.8
12.0	88.4	88.5	87.2
15.0	87.6	87.7	87.4
16.7	86.9	87.5	87.1
18.4	86.4	87.0	86.8
--	-	-	-
--	-	-	-
--	-	-	-

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Model	DHS200A12
Item	Line Regulation
Object	+12V16.7A
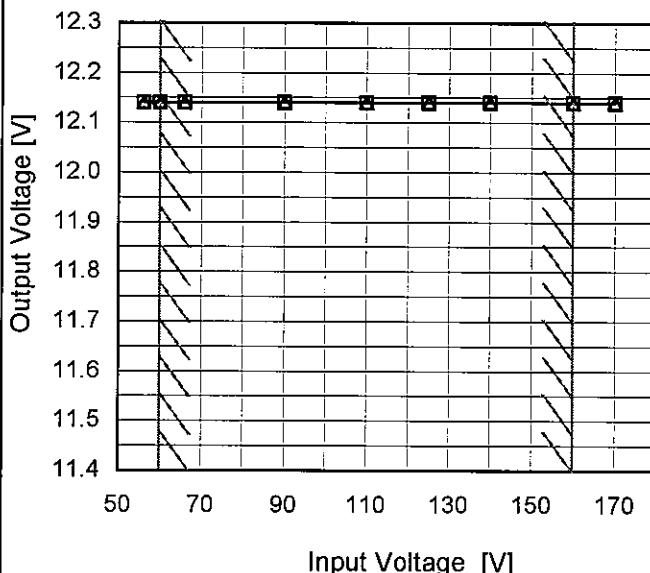
Temperature   25°C
Testing Circuitry   Figure A

1.Graph

--- ⊟ --- Load 50%
——— △ ——— Load 100%

Output Voltage [V] vs Input Voltage [V]

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
56	12.141	12.140
60	12.141	12.140
66	12.140	12.140
90	12.140	12.140
110	12.140	12.140
125	12.140	12.140
140	12.140	12.140
160	12.140	12.140
170	12.140	12.140

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

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COSEL

Model	DHS200A12
Item	Load Regulation
Object	+12V16.7A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

———△——— Input Volt.   60V
———⊟——— Input Volt.   110V
———○——— Input Volt.   160V
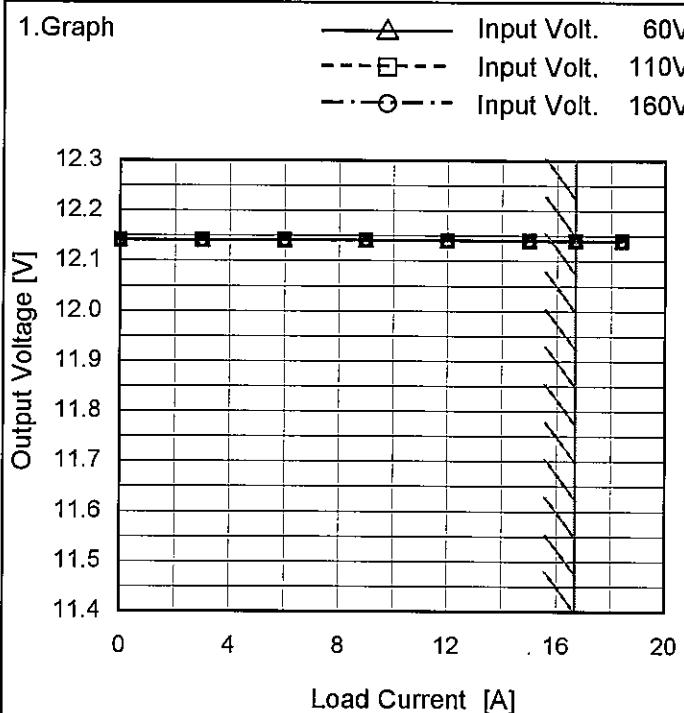
Load Current [A]

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0.0	12.141	12.141	12.141
3.0	12.141	12.141	12.141
6.0	12.141	12.141	12.141
9.0	12.141	12.141	12.141
12.0	12.141	12.141	12.141
15.0	12.140	12.141	12.141
16.7	12.140	12.140	12.140
18.4	12.141	12.140	12.140
--	-	-	-
--	-	-	-
--	-	-	-

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

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Model	DHS200A12
Item	Dynamic Load Response
Object	+12V16.7A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 110 V
Cycle ms

Load Current

16.7A / 50μs

Min. Load (0A) ⟵⟶
Load 100% (16.7A)

1V/div
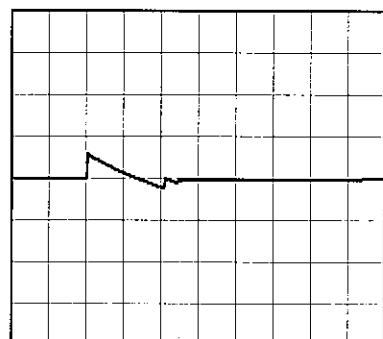
200 μs/div

50 ms/div

Min. Load (0A) ⟵⟶
Load 50% (8.35A)

1V/div
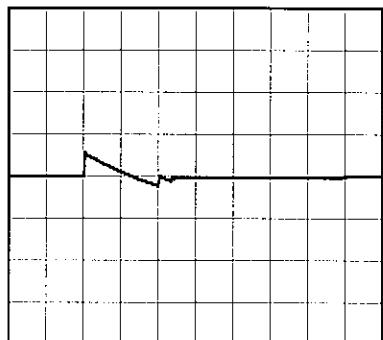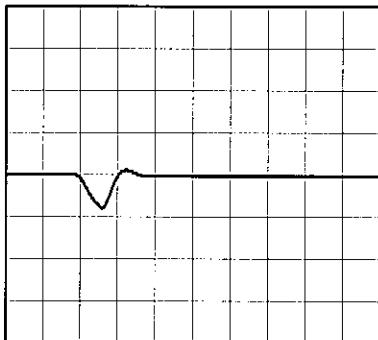
200 μs/div

50 ms/div

Load 10% (1.67A) ⟵⟶
Load 100% (16.7A)

1V/div

200 μs/div

500 μs/div

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Model	DHS200A12
Item	Ripple Voltage (by Load Current)
Object	+12V16.7A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

—△— Input Volt. 60V
—·—○—·— Input Volt. 160V

Measured by 100 MHz Oscilloscope.
Ripple Voltage 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 Voltage [mV]	
	Input Volt. 60 [V]	Input Volt. 160 [V]
0.0	5	5
3.0	25	35
6.0	25	35
9.0	25	35
12.0	25	40
15.0	25	40
16.7	25	40
18.4	25	40
--	-	-
--	-	-
--	-	-

Ripple [mVp-p]

Fig.Complex Ripple Wave Form

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Model	DHS200A12
Item	Ripple-Noise
Object	+12V16.7A

Temperature   25°C
Testing Circuitry   Figure B

1.Graph

△ Input Volt.   60V
○ Input Volt.   160V

Ripple Voltage [mV] vs Load Current [A]
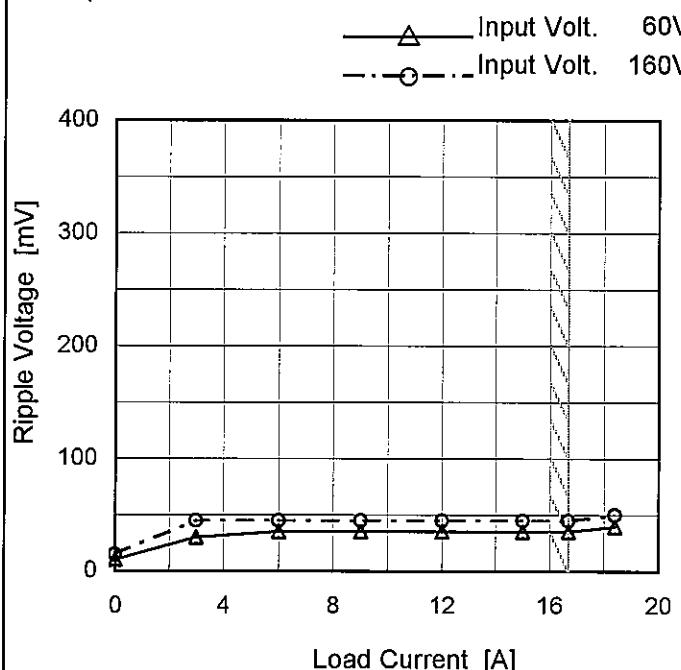
2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 60 [V]	Input Volt. 160 [V]
0.0	10	15
3.0	30	45
6.0	35	45
9.0	35	45
12.0	35	45
15.0	35	45
16.7	35	45
18.4	40	50
--	-	-
--	-	-
--	-	-

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.
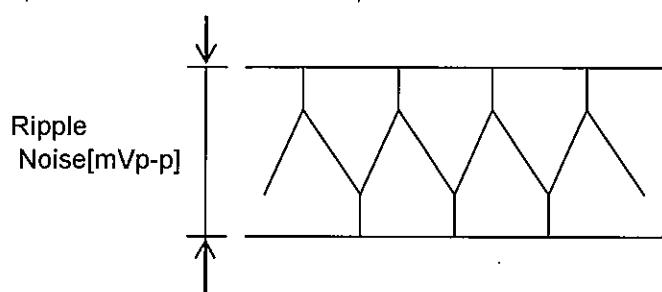
Ripple
Noise[mVp-p]

Fig.Complex Ripple Noise Wave Form

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Model	DHS200A12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V16.7A

Testing Circuitry   Figure B

1.Graph

--- 日 --- Load 50%
——— △ ——— Load 100%

Ambient Temperature [°C]

Input Volt.   110V
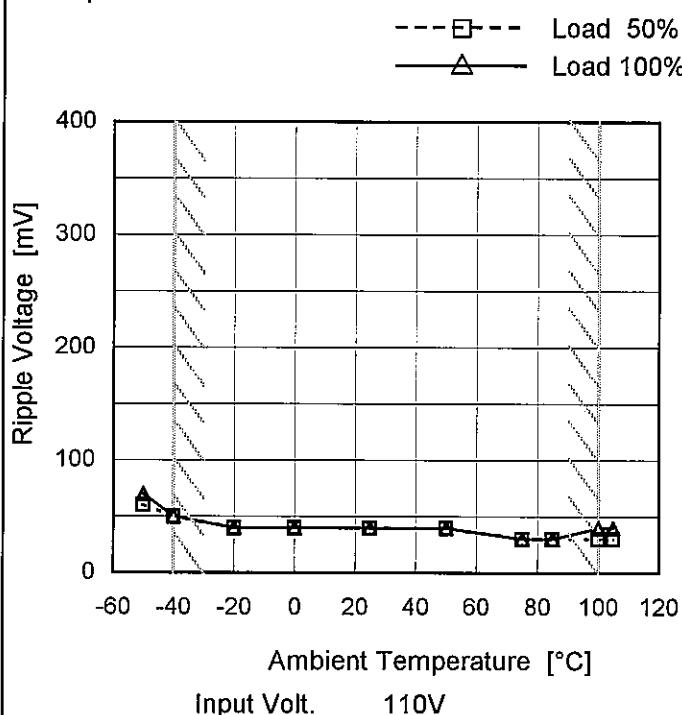
Measured by 100 MHz Oscilloscope.
Note: Slanted line shows the range of the rated
ambient temperature.

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	60	70
-40	50	50
-20	40	40
0	40	40
25	40	40
50	40	40
75	30	30
85	30	30
100	30	40
105	30	40
...	-	-

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Model	DHS200A12
Item	Ambient Temperature Drift
Object	+12V16.7A

Testing Circuitry   Figure A

1.Graph

— △ — Input Volt.   60V
--- ⊟ --- Input Volt.   110V
—·— ⊙ —·· — Input Volt.   160V

Output Voltage [V]

Ambient Temperature [°C]

Load 100%

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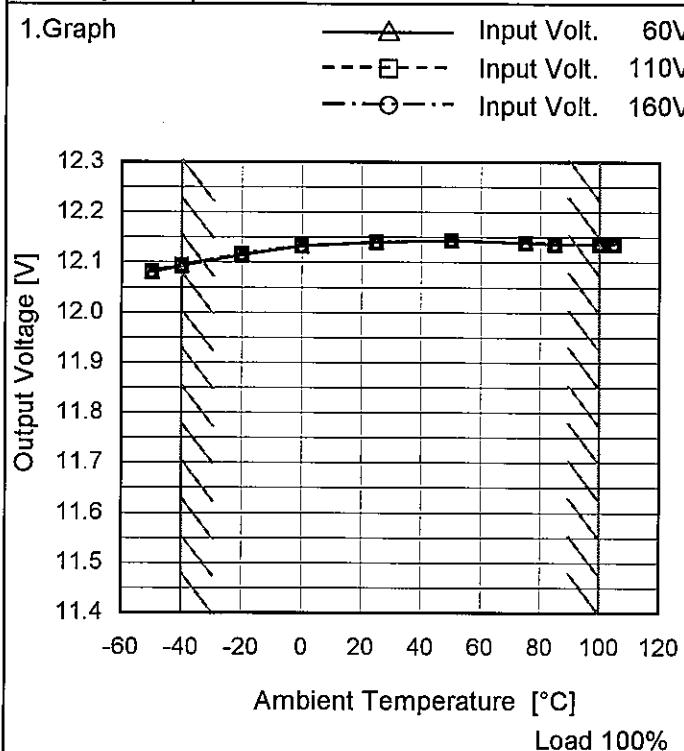
2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
-50	12.080	12.081	12.082
-40	12.093	12.094	12.094
-20	12.115	12.116	12.116
0	12.133	12.133	12.133
25	12.140	12.140	12.140
50	12.144	12.144	12.144
75	12.139	12.139	12.139
85	12.137	12.137	12.136
100	12.136	12.136	12.136
105	12.137	12.137	12.137
--	-	-	-

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Model	DHS200A12
Item	Output Voltage Accuracy
Object	+12V16.7A

Testing Circuitry   Figure A

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 - 100°C
Input Voltage : 60 - 160V
Load Current   : 0 - 16.7A

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

* Output Voltage Accuracy (Ration) = $\dfrac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}}$ × 100

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	50	60	0	12.144	±26	±0.2
Minimum Voltage	-40	60	16.7	12.093		

COSEL

Model	DHS200A12
Item	Time Lapse Drift
Object	+12V16.7A

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

Input Volt.   110V
Load   100%
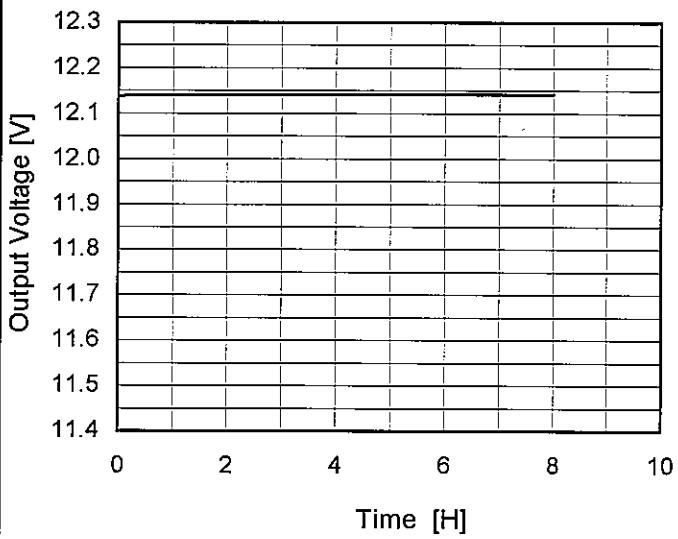
2.Values

Time since start [H]	Output Voltage [V]
0.0	12.138
0.5	12.141
1.0	12.141
2.0	12.141
3.0	12.141
4.0	12.142
5.0	12.142
6.0	12.142
7.0	12.142
8.0	12.142

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COSEL

Model	DHS200A12
Item	Rise and Fall Time
Object	+12V16.7A

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

Input Volt.   110 V

Load 50%

Output Volt.

[2V/div]

0

Load 100%

Output Volt.

[2V/div]

0

Input Volt.

0

[25V/div]

Time

[50mS/div]

Time

[20mS/div]
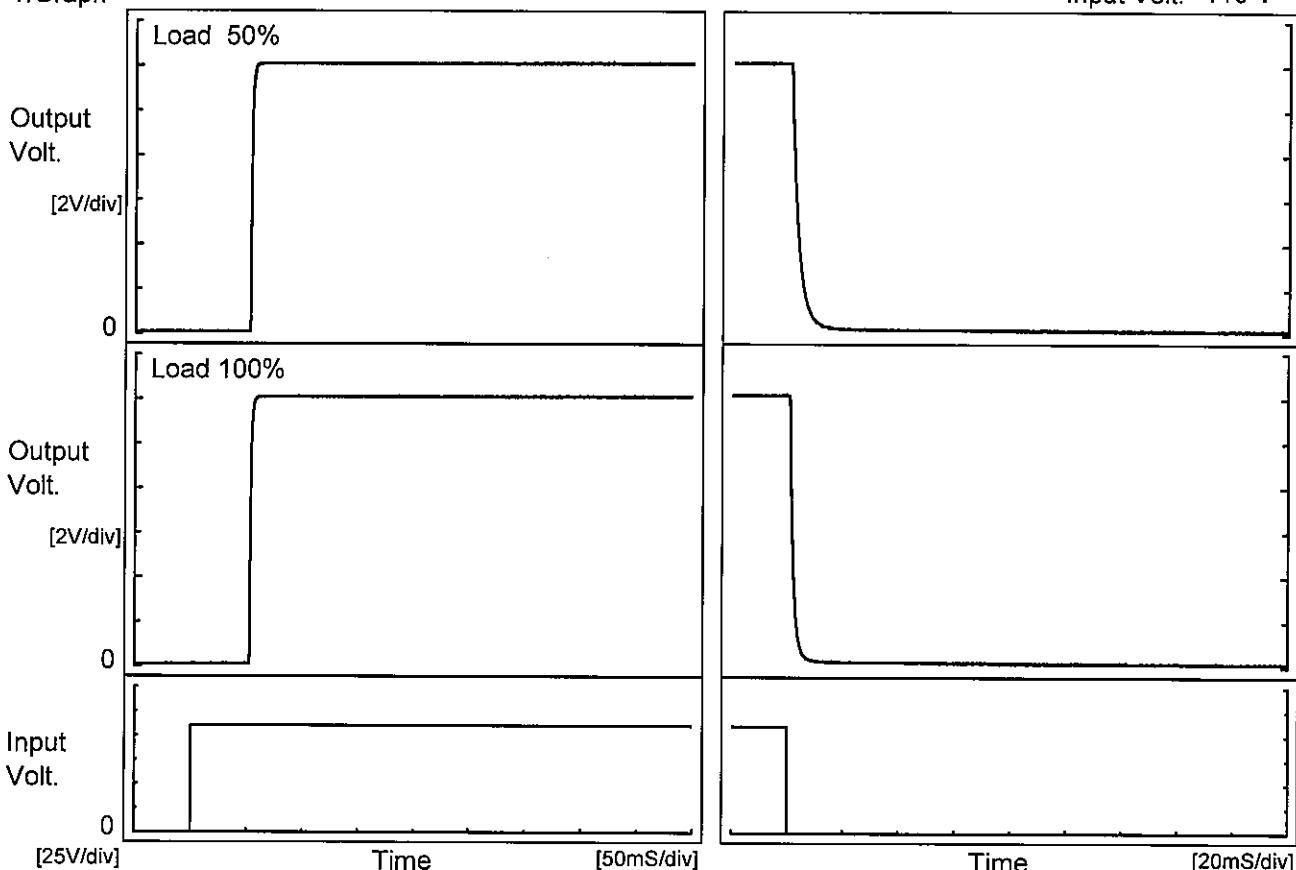
2.Values

[mS]

Load⟍Time	Td	Tr	Ts	Th	Tf
50 %	52.8	2.0	54.8	1.2	5.6
100 %	52.8	2.0	54.8	1.0	2.8

Output Volt.

90%

10%

Input Volt.

Td   Tr

Th Tf

Ts

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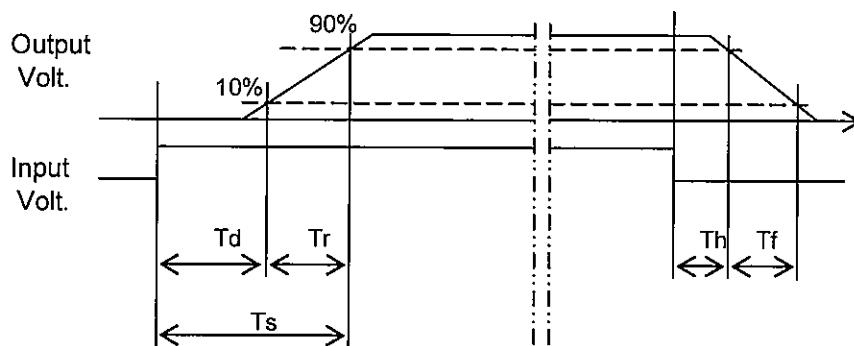
Model	DHS200A12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V16.7A

Testing Circuitry   Figure A

1.Graph

--- ☐ --- Load 50%
—— △ —— Load 100%

Input Voltage [V] vs Ambient Temperature [°C]

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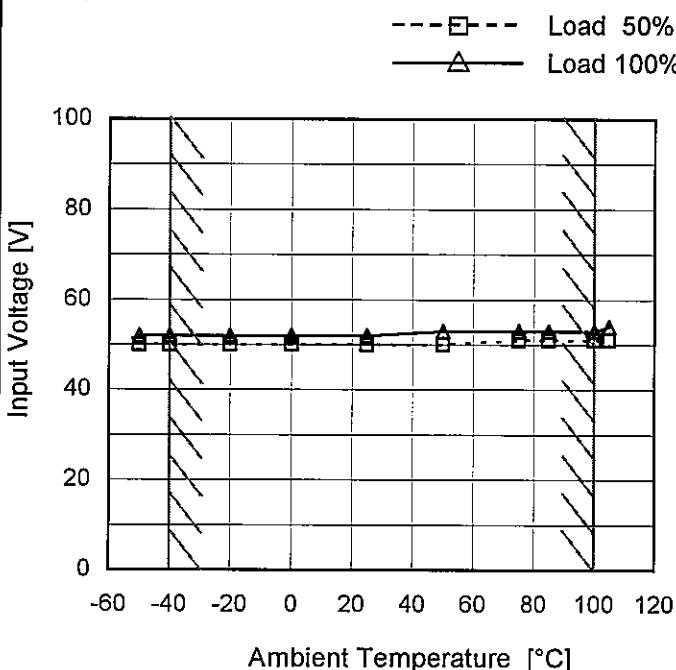
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	50	52
-40	50	52
-20	50	52
0	50	52
25	50	52
50	50	53
75	51	53
85	51	53
100	51	53
105	51	54
--	-	-

CO$EL

Model	DHS200A12
Item	Overcurrent Protection
Object	+12V16.7A

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

———— Input Volt. 60V
———— Input Volt. 110V
———— Input Volt. 160V
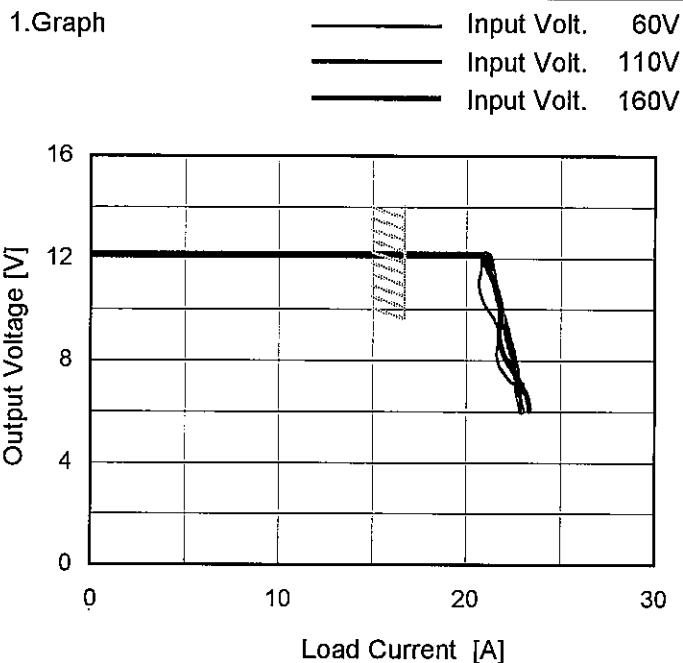
Note: Slanted line shows the range of the rated load current.

Intermittent operation occurs when the output voltage is from 6V to 0V.

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
11.4	20.78	21.26	21.44
10.8	20.69	21.61	21.59
9.6	21.49	21.83	21.98
8.4	21.66	21.92	22.41
7.2	22.32	22.83	22.72
6.0	22.32	22.83	22.72
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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COSEL

Model	DHS200A12
Item	Overvoltage Protection
Object	+12V16.7A

Testing Circuitry   Figure A

1.Graph

——△—— Input Volt.   60V
−−−□−−− Input Volt.   160V

Load 0%

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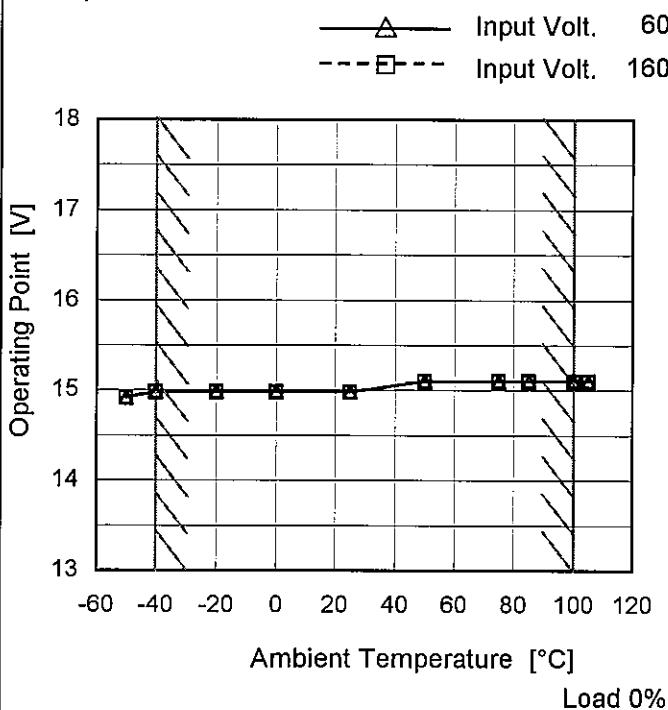
2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 60[V]	Input Volt. 160[V]
-50	14.92	14.92
-40	14.98	14.98
-20	14.98	14.98
0	14.98	14.98
25	14.98	14.98
50	15.10	15.10
75	15.10	15.10
85	15.10	15.10
100	15.10	15.10
105	15.10	15.10
--	-	-

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Figure A

C1	
DHS200A24	4.7µF
Others	10µF

Co	
DHS200A05	2200µF
DHS200A12	1000µF
DHS200A15	1000µF
DHS200A24	470µF

Figure B

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