



# TEST DATA OF CES48018-30

Regulated DC Power Supply  
Jul.18. 2003

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Kazuyoshi Shimano Design Manager

Prepared by : *Junichi Hatagishi*  
Junichi Hatagishi Design Engineer

**COSEL CO.,LTD.**



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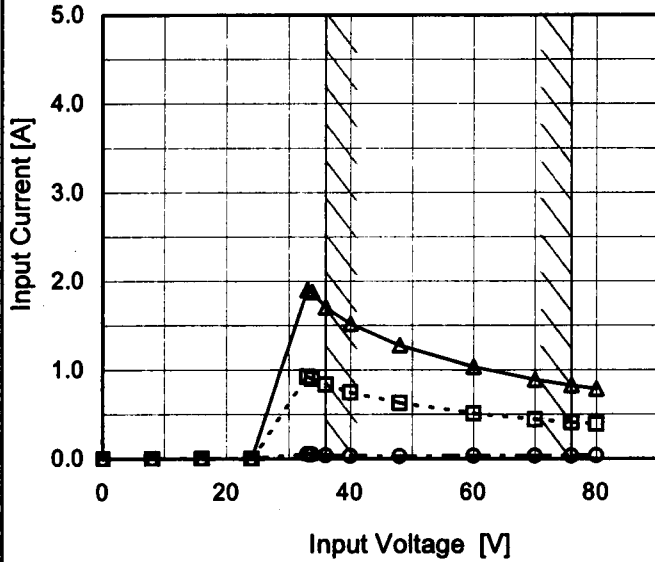


Model	CES48018-30
Item	Input Current (by Input Voltage)
Object	_____

Temperature 25°C  
Testing Circuitry Figure A

1. Graph

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



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
8	0.000	0.000	0.000
16	0.000	0.000	0.000
24	0.000	0.000	0.000
33	0.054	0.928	1.904
34	0.050	0.901	1.881
36	0.041	0.838	1.706
40	0.032	0.747	1.524
48	0.030	0.628	1.279
60	0.032	0.509	1.035
70	0.033	0.442	0.891
76	0.034	0.410	0.825
80	0.034	0.392	0.788
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<b>Model</b> CES48018-30		<b>Temperature</b> 25°C <b>Testing Circuitry</b> Figure A
<b>Item</b>	Dynamic Load Response	
<b>Object</b>	+1.8V30A	

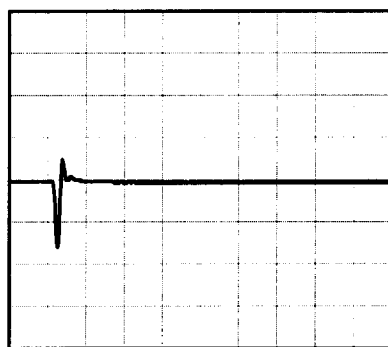
Input Volt. 48 V  
Cycle 10 ms

Load Current

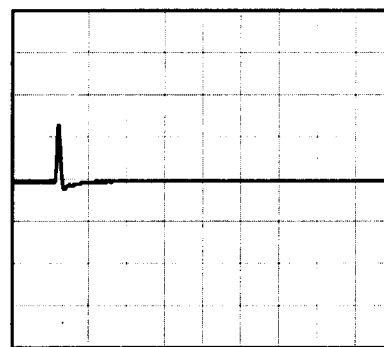
1.1A/μs

Min. Load (0A) ←→  
Load 100% (30A)

200 mV/div



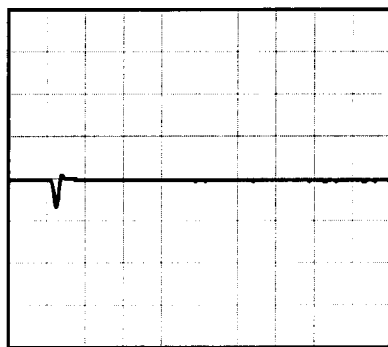
200 μs/div



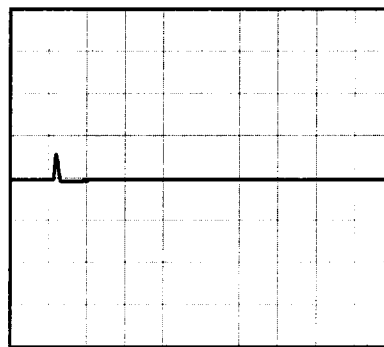
200 μs/div

Min. Load (0A) ←→  
Load 50% (15A)

200 mV/div



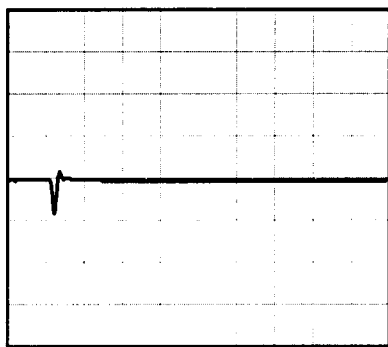
200 μs/div



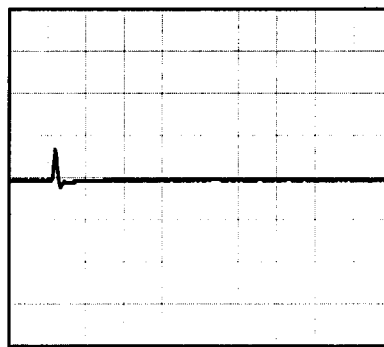
200 μs/div

Load 50% (15A) ←→  
Load 100% (30A)

200 mV/div



200 μs/div



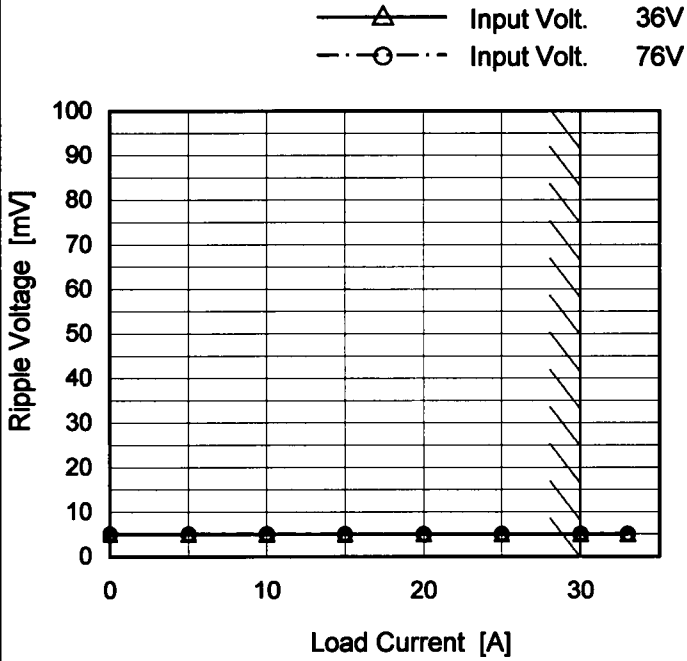
200 μs/div



Model	CES48018-30
Item	Ripple Voltage (by Load Current)
Object	+1.8V30A

Temperature 25°C  
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	5	5
5	5	5
10	5	5
15	5	5
20	5	5
25	5	5
30	5	5
33	5	5
-	-	-
-	-	-
-	-	-

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.

Ripple [mVp-p]

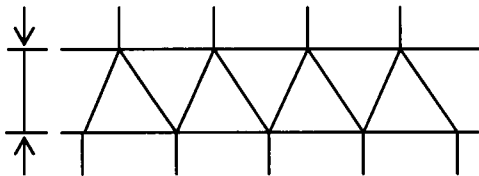


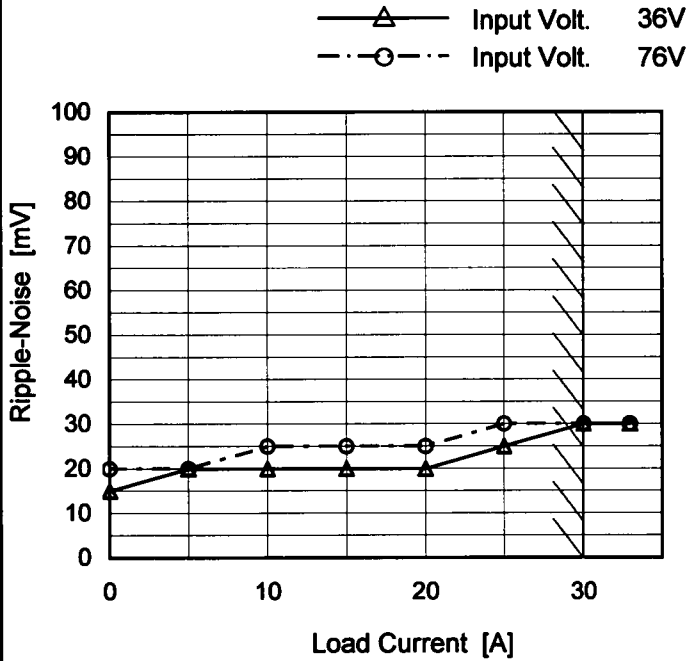
Fig. Complex Ripple Wave Form



Model	CES48018-30
Item	Ripple-Noise
Object	+1.8V30A

Temperature 25°C  
Testing Circuitry Figure B

1.Graph



2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	15	20
5	20	20
10	20	25
15	20	25
20	20	25
25	25	30
30	30	30
33	30	30
--	-	-
--	-	-
--	-	-

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.

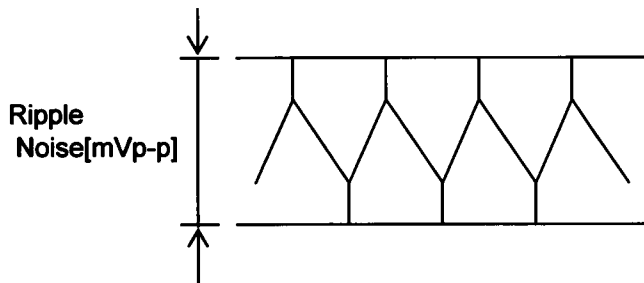


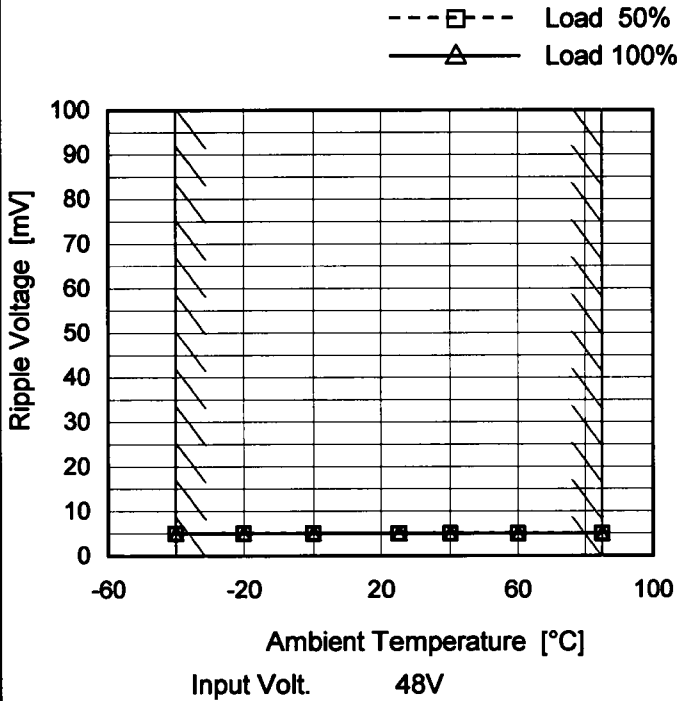
Fig.Complex Ripple Noise Wave Form



Model	CES48018-30
Item	Ripple Voltage (by Ambient Temp.)
Object	+1.8V30A

Testing Circuitry Figure B

1. Graph



2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	5	5
-20	5	5
0	5	5
25	5	5
40	5	5
60	5	5
85	5	5
--	-	-
--	-	-
--	-	-
--	-	-

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

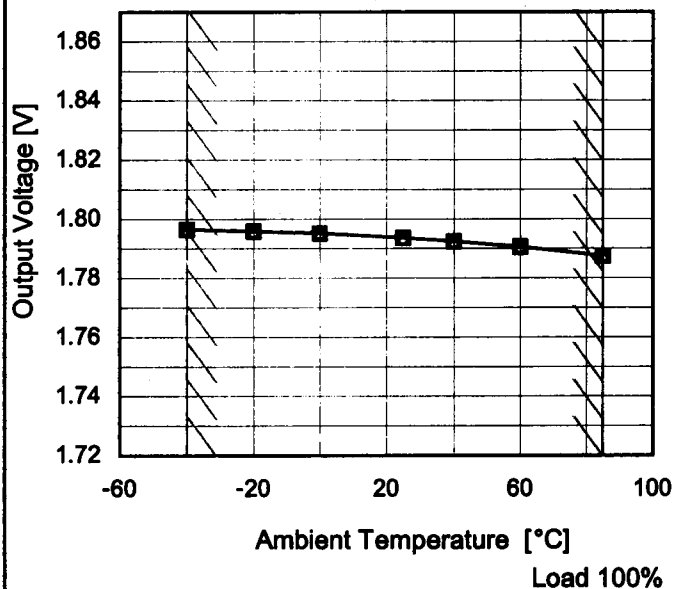


Model	CES48018-30
Item	Ambient Temperature Drift
Object	+1.8V30A

Testing Circuitry Figure A

1.Graph

- △— Input Volt. 36V
- - -□- - - Input Volt. 48V
- · -○- · - - Input Volt. 76V



2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	1.797	1.797	1.797
-20	1.796	1.796	1.796
0	1.795	1.795	1.795
25	1.794	1.794	1.794
40	1.793	1.792	1.792
60	1.791	1.791	1.791
85	1.788	1.788	1.788
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

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



<b>COSEL</b>		
Model	CES48018-30	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+1.8V30A	

**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 - 85°C

Input Voltage : 36 - 76V

Load Current : 0 - 30A

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

\* 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	-40	76	0	1.797	±5	±0.3
Minimum Voltage	85	76	30	1.788		



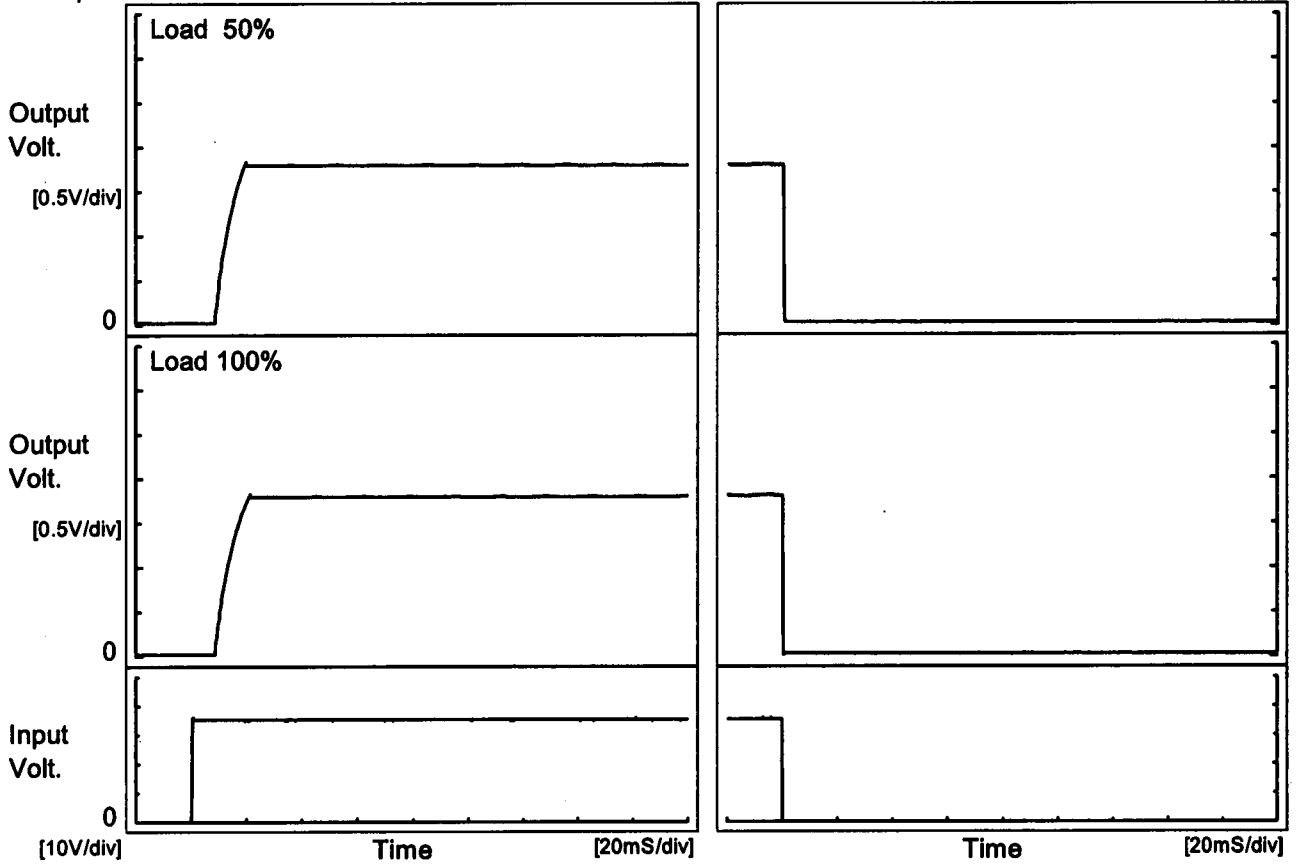
<b>COSEL</b>																								
<b>Model</b>	CES48018-30	Temperature    25°C Testing Circuitry    Figure A																						
<b>Item</b>	Time Lapse Drift																							
<b>Object</b>	+1.8V30A																							
<b>1.Graph</b>		<b>2.Values</b>																						
<p style="text-align: center;">Time [H]</p> <p>Input Volt.    48V 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>1.794</td></tr> <tr><td>0.5</td><td>1.793</td></tr> <tr><td>1.0</td><td>1.793</td></tr> <tr><td>2.0</td><td>1.793</td></tr> <tr><td>3.0</td><td>1.793</td></tr> <tr><td>4.0</td><td>1.793</td></tr> <tr><td>5.0</td><td>1.793</td></tr> <tr><td>6.0</td><td>1.793</td></tr> <tr><td>7.0</td><td>1.793</td></tr> <tr><td>8.0</td><td>1.793</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	1.794	0.5	1.793	1.0	1.793	2.0	1.793	3.0	1.793	4.0	1.793	5.0	1.793	6.0	1.793	7.0	1.793	8.0	1.793
Time since start [H]	Output Voltage [V]																							
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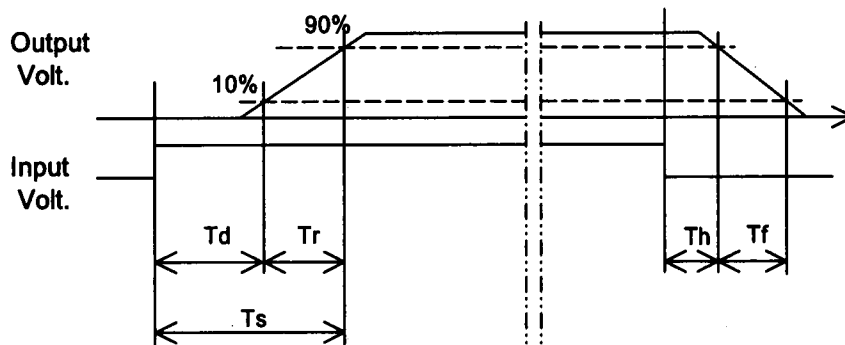
Model	CES48018-30	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+1.8V30A		

1. Graph



2. Values

Load	Time	Td	Tr	Ts	Th	Tf
50 %		9.3	8.5	17.8	0.2	0.3
100 %		9.3	9.6	18.9	0.2	0.2

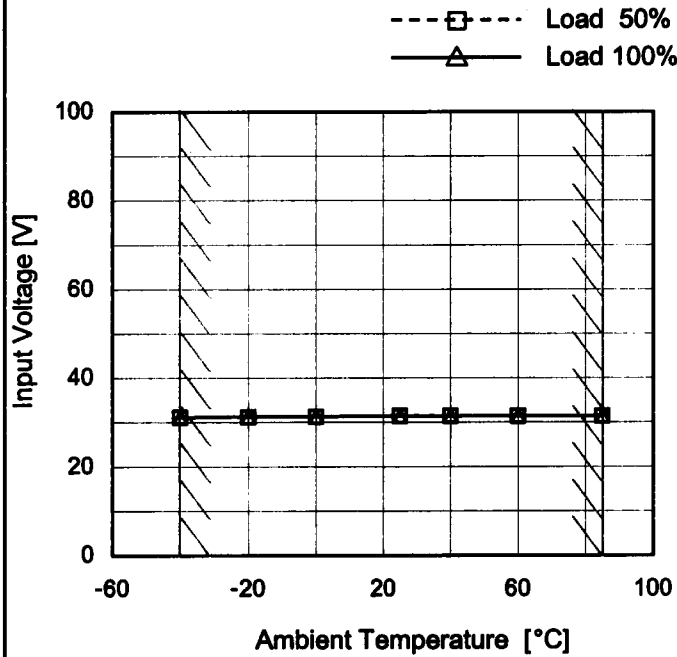




Model	CES48018-30
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.8V30A

Testing Circuitry Figure A

1.Graph



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

2.Values

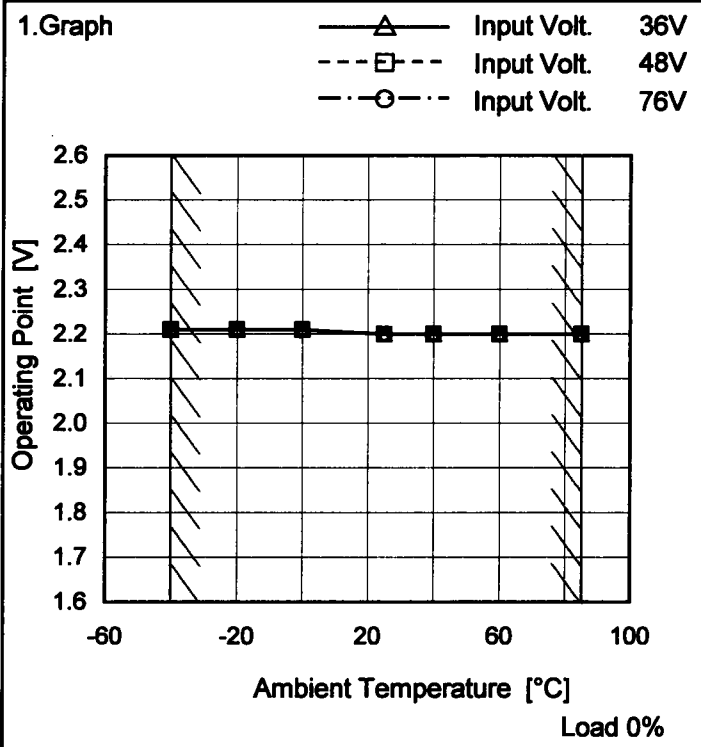
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	31.2	31.2
-20	31.3	31.3
0	31.3	31.3
25	31.5	31.5
40	31.5	31.5
60	31.5	31.5
85	31.5	31.5
-	-	-
-	-	-
-	-	-
-	-	-



<b>Model</b> CES48018-30		<b>Temperature</b> 25°C <b>Testing Circuitry</b> Figure A																																																							
<b>Item</b>	Overcurrent Protection																																																								
<b>Object</b>	+1.8V30A																																																								
<b>1.Graph</b> <div style="display: flex; align-items: center; margin-left: 20px;"> <div style="margin-right: 10px;"> <p>———— Input Volt. 36V</p> <p>———— Input Volt. 48V</p> <p>———— Input Volt. 76V</p> </div> </div> <p style="margin-left: 20px;"><b>Note:</b> Slanted line shows the range of the rated load current.</p>		<b>2.Values</b> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>1.80</td><td>31.08</td><td>33.23</td><td>34.01</td></tr> <tr><td>1.71</td><td>37.42</td><td>36.33</td><td>36.01</td></tr> <tr><td>1.62</td><td>36.97</td><td>36.25</td><td>36.13</td></tr> <tr><td>1.44</td><td>36.55</td><td>36.16</td><td>36.49</td></tr> <tr><td>1.26</td><td>36.25</td><td>36.31</td><td>36.67</td></tr> <tr><td>1.08</td><td>36.20</td><td>36.33</td><td>36.56</td></tr> <tr><td>0.90</td><td>36.20</td><td>36.33</td><td>36.52</td></tr> <tr><td>0.72</td><td>36.20</td><td>36.33</td><td>36.52</td></tr> <tr><td>0.54</td><td>0.00</td><td>36.33</td><td>36.52</td></tr> <tr><td>0.36</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> <tr><td>0.18</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> <tr><td>0.00</td><td>0.00</td><td>0.00</td><td>0.00</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	1.80	31.08	33.23	34.01	1.71	37.42	36.33	36.01	1.62	36.97	36.25	36.13	1.44	36.55	36.16	36.49	1.26	36.25	36.31	36.67	1.08	36.20	36.33	36.56	0.90	36.20	36.33	36.52	0.72	36.20	36.33	36.52	0.54	0.00	36.33	36.52	0.36	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Output Voltage [V]	Load Current [A]																																																								
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Model	CES48018-30	Testing Circuitry Figure A
Item	Overvoltage Protection	
Object	+1.8V30A	



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

2. Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	2.21	2.21	2.21
-20	2.21	2.21	2.21
0	2.21	2.21	2.21
25	2.20	2.20	2.20
40	2.20	2.20	2.20
60	2.20	2.20	2.20
85	2.20	2.20	2.20
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

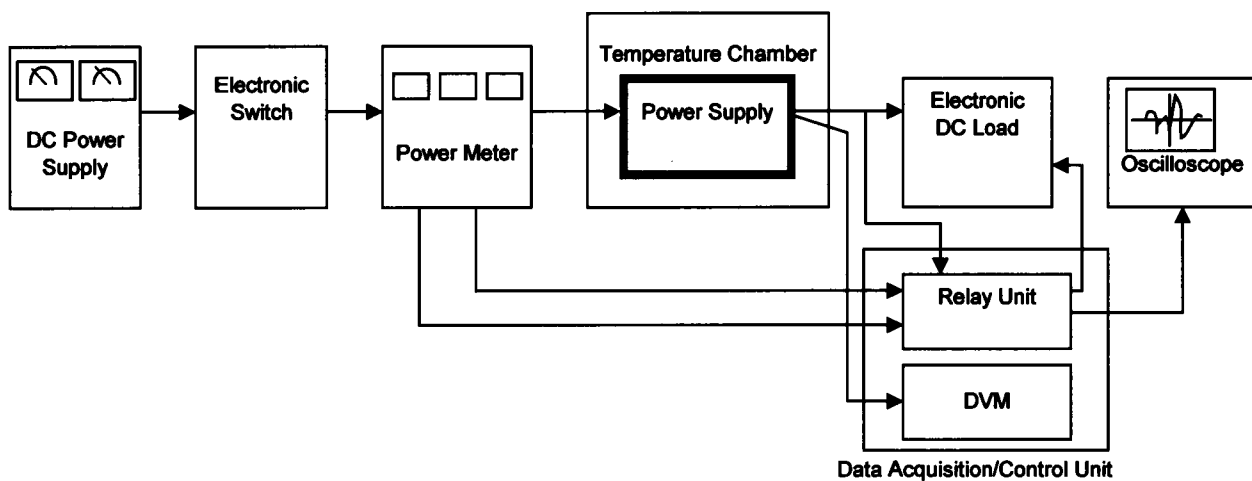


Figure A

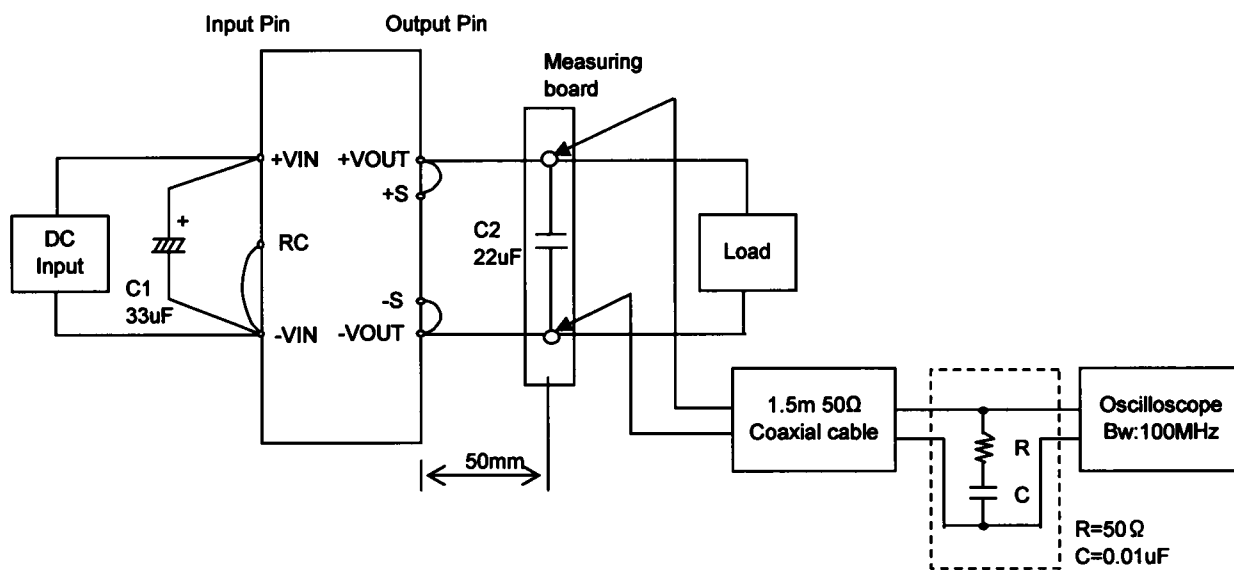


Figure B