

# TEST DATA OF GT5-5

Regulated DC Power Supply  
July 23, 2010

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Eiyoshi Wakamatsu Design Manager

Prepared by : Satoshi Kinoshita  
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**COSEL CO.,LTD.**

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Model

GT5-5

Item

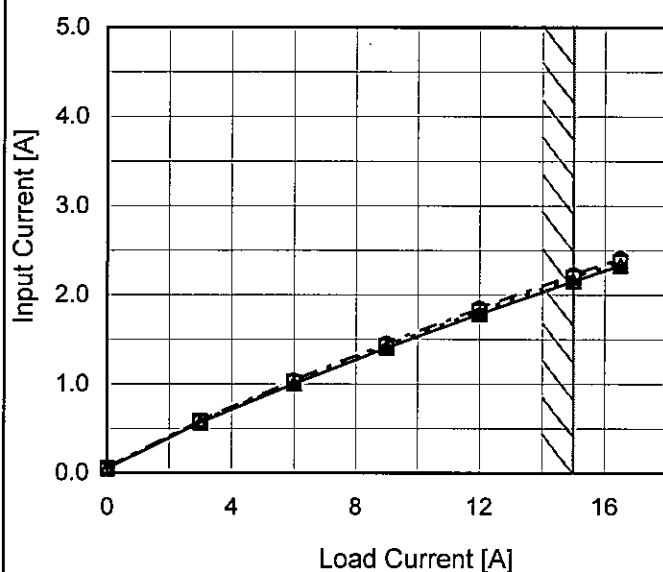
Input Current (by Load Current)

Object

Temperature  
Testing Circuitry25°C  
Figure A

## 1. Graph

—△— Input Volt. 90V  
 ---□--- Input Volt. 100V  
 ---○--- Input Volt. 110V



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

## 2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.0	0.051	0.055	0.058
3.0	0.568	0.578	0.589
6.0	1.003	1.021	1.037
9.0	1.407	1.431	1.454
12.0	1.790	1.822	1.850
15.0	2.156	2.194	2.228
16.5	2.336	2.376	2.410
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Temperature 25°C  
Testing Circuitry Figure A



Load Current [A]	Input Power [W]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.0	3.3	3.9	4.5
3.0	33.4	37.4	41.4
6.0	63.1	70.7	77.8
9.0	92.8	103.3	114.1
12.0	122.4	136.5	150.6
15.0	151.5	168.6	186.3
16.5	165.9	184.8	203.0
--	-	-	-
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--	-	-	-
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Model

GT5-5

Item

Efficiency (by Input Voltage)

Object

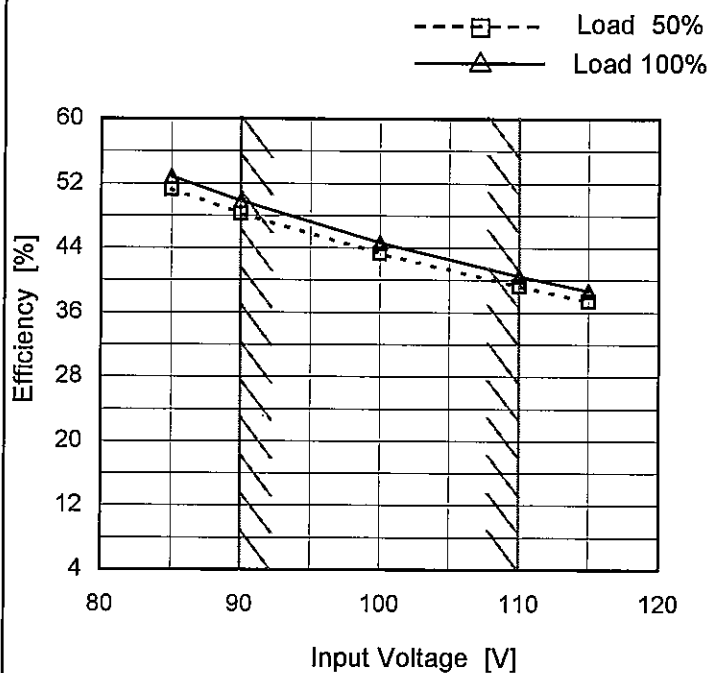
Temperature

25°C

Testing Circuitry

Figure A

### 1. Graph



### 2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
85	51.3	52.9
90	48.2	49.8
100	43.3	44.7
110	39.2	40.5
115	37.4	38.7
--	-	-
--	-	-
--	-	-
--	-	-

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Model		GT5-5		Temperature 25°C																																																				
Item		Efficiency (by Load Current)		Testing Circuitry Figure A																																																				
Object																																																								
1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>90V</div></div><div><div>---□---</div><div>Input Volt.</div><div>100V</div></div><div><div>---○---</div><div>Input Volt.</div><div>110V</div></div></div> <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 90[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 110[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.0</td><td>45.0</td><td>40.2</td><td>36.3</td></tr><tr><td>6.0</td><td>47.7</td><td>42.6</td><td>38.7</td></tr><tr><td>9.0</td><td>48.7</td><td>43.7</td><td>39.6</td></tr><tr><td>12.0</td><td>49.2</td><td>44.1</td><td>40.0</td></tr><tr><td>15.0</td><td>49.7</td><td>44.7</td><td>40.4</td></tr><tr><td>16.5</td><td>50.0</td><td>44.8</td><td>40.8</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></table>		Load Current [A]	Efficiency [%]			Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]	0.0	-	-	-	3.0	45.0	40.2	36.3	6.0	47.7	42.6	38.7	9.0	48.7	43.7	39.6	12.0	49.2	44.1	40.0	15.0	49.7	44.7	40.4	16.5	50.0	44.8	40.8	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	2.Values	
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Model

GT5-5

Item

Power Factor (by Input Voltage)

Object

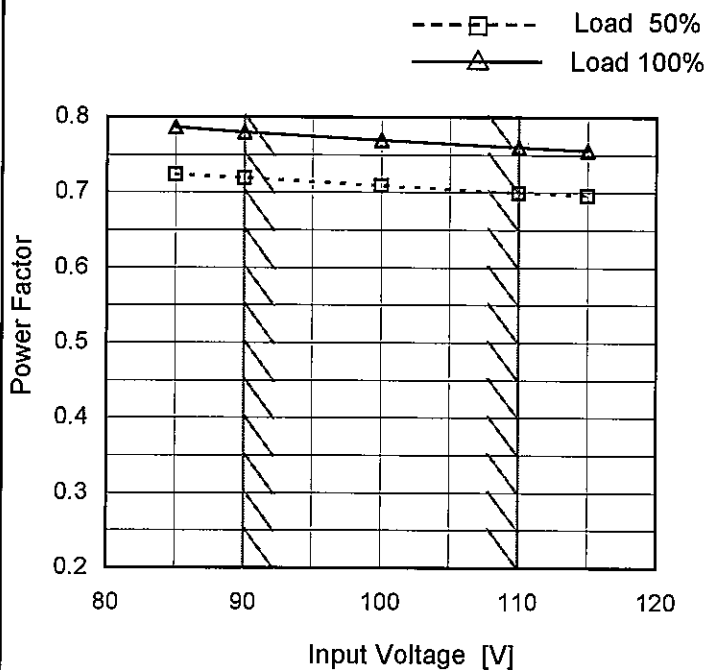
Temperature

25°C

Testing Circuitry

Figure A

### 1. Graph

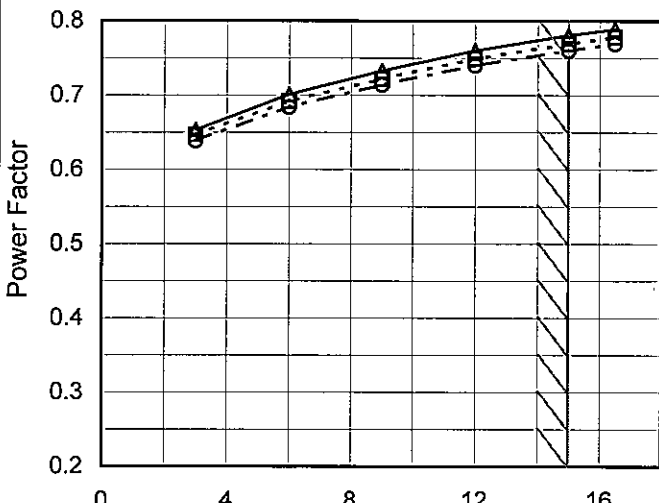


Note: Slanted line shows the range of the rated input voltage.

### 2. Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
85	0.723	0.786
90	0.719	0.779
100	0.708	0.770
110	0.700	0.760
115	0.696	0.756
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Model		GT5-5		Temperature 25°C Testing Circuitry Figure A																																																			
Item		Power Factor (by Load Current)																																																					
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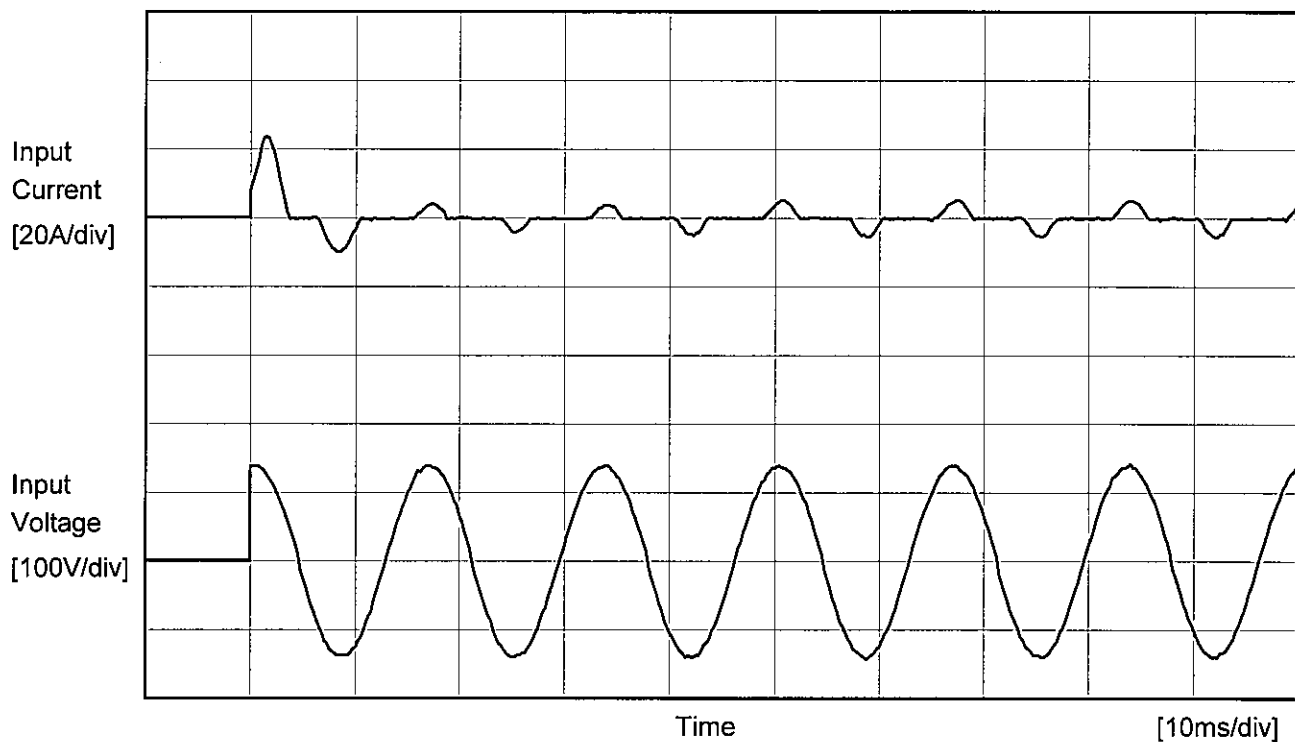
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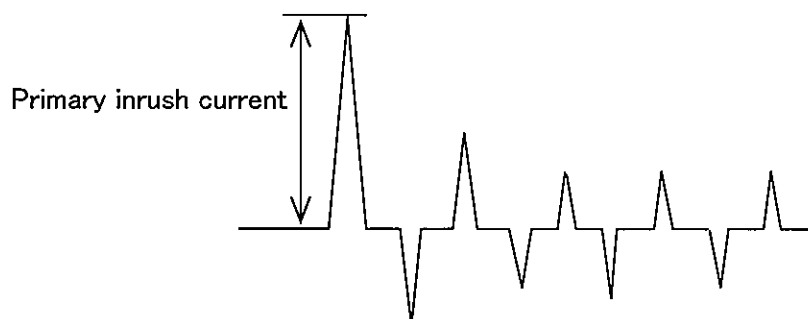
**COSEL**

Model	GT5-5	Temperature 25°C Testing Circuitry Figure A
Item	Inrush Current	
Object	_____	



Input Voltage 100 V  
Frequency 60 Hz  
Load 100 %

Primary inrush current 23.7 A



Model	GT5-5																																
Item	Line Regulation	Temperature	25°C																														
Object	+5V15A	Testing Circuitry	Figure A																														
1.Graph		2.Values																															
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th>Input Voltage [V]</th><th>Output Voltage [V] Load 50%</th><th>Output Voltage [V] Load 100%</th></tr></thead><tbody><tr><td>85</td><td>5.026</td><td>5.026</td></tr><tr><td>90</td><td>5.026</td><td>5.026</td></tr><tr><td>100</td><td>5.026</td><td>5.026</td></tr><tr><td>110</td><td>5.026</td><td>5.026</td></tr><tr><td>115</td><td>5.026</td><td>5.026</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>		Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%	85	5.026	5.026	90	5.026	5.026	100	5.026	5.026	110	5.026	5.026	115	5.026	5.026	--	-	-	--	-	-	--	-	-	--	-	-		
Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
85	5.026	5.026																															
90	5.026	5.026																															
100	5.026	5.026																															
110	5.026	5.026																															
115	5.026	5.026																															
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Note: Slanted line shows the range of the rated input voltage.																																	

# COSEL

Model

GT5-5

Item

Load Regulation

Object

+5V15A

Temperature

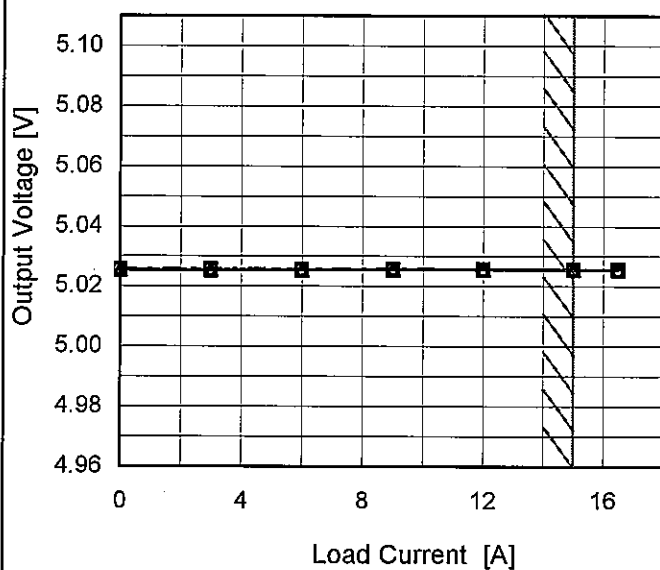
25°C

Testing Circuitry

Figure A

1.Graph

—△— Input Volt. 90V  
 ---□--- Input Volt. 100V  
 -·-○-·- Input Volt. 110V



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.0	5.026	5.026	5.026
3.0	5.026	5.026	5.026
6.0	5.026	5.026	5.026
9.0	5.026	5.026	5.026
12.0	5.026	5.026	5.026
15.0	5.026	5.026	5.026
16.5	5.026	5.026	5.026
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

# COSEL

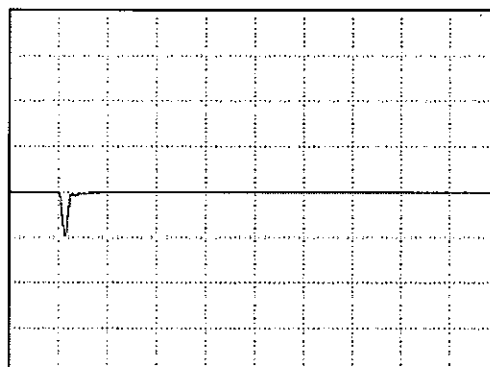
Model	GT5-5	Temperature Testing Circuitry	25°C Figure A
Item	Dynamic Load Response		
Object	+5V15A		

Input Volt. 100 V  
Cycle 1000 ms

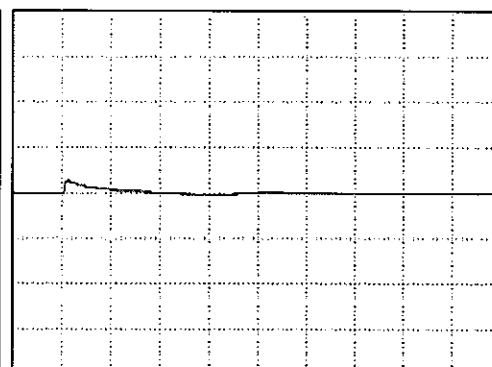
Load Current

Min. Load (0A) ↔  
Load 100% (15A)

200 mV/div



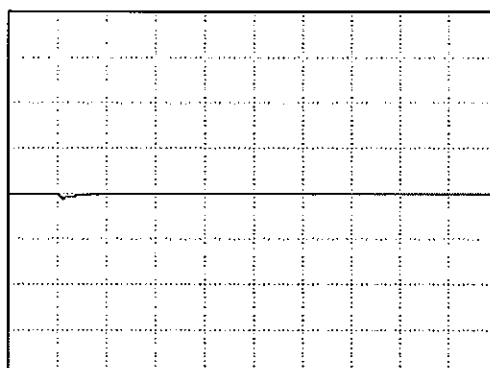
100 μs/div



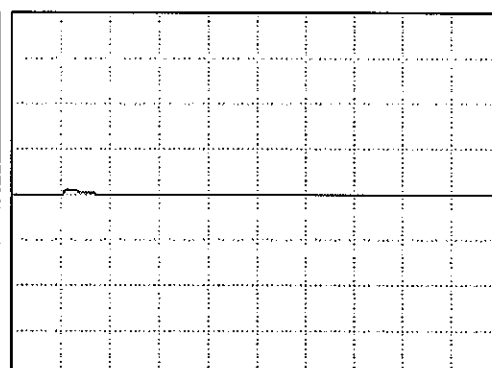
100 μs/div

Load 50% (7.5A) ↔  
Load 100% (15A)

200 mV/div



100 μs/div



100 μs/div

# COSEL

Model	GT5-5		
Item	Ripple Voltage (by Load Current)	Temperature	25°C
Object	+5V15A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div><div></div><div>—△—</div><div>Input Volt. 90V</div></div><div><div></div><div>-·-○--</div><div>Input Volt. 110V</div></div></div><div><div><div><div>4.0</div><div>3.5</div><div>3.0</div><div>2.5</div><div>2.0</div><div>1.5</div><div>1.0</div><div>0.5</div><div>0.0</div></div><div><div>Ripple Voltage [mV]</div></div></div><div><div><div><div>0.0</div><div>4.0</div><div>8.0</div><div>12.0</div><div>16.0</div></div><div>Load Current [A]</div></div></div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></d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Model

GT5-5

Item

Ripple Voltage (by Ambient Temp.)

Object

+5V15A

1.Graph

Load 50%

Load 100%

Ambient Temperature [°C]

Input Volt. 100V

Measured by 20 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%
-20	1.2	1.2
-10	1.0	1.0
25	1.0	1.0
50	1.0	1.0
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

- 12 -

BC-10207

Model GT5-5

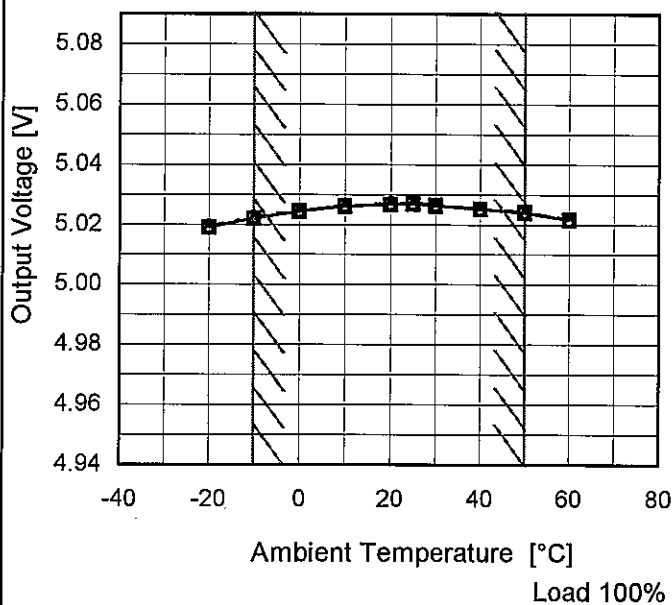
Item Ambient Temperature Drift

Object +5V/15A

Testing Circuitry Figure A

1. Graph

—△— Input Volt. 90V  
 ---□--- Input Volt. 100V  
 -·-○-·- Input Volt. 110V



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

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	5.019	5.019	5.019
-10	5.022	5.022	5.022
0	5.024	5.024	5.025
10	5.026	5.026	5.026
20	5.027	5.027	5.027
25	5.027	5.027	5.027
30	5.026	5.026	5.026
40	5.025	5.025	5.025
50	5.024	5.024	5.024
60	5.022	5.022	5.022
--	-	-	-

		Testing Circuitry Figure A
Model	GT5-5	
Item	Output Voltage Accuracy	
Object	+5V15A	

### 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 : -10 - 50°C

Input Voltage : 90 - 110V

Load Current : 0 - 15A

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

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

### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	110	0	5.027	±3	±0.1
Minimum Voltage	-10	90	0	5.022		



# COSEL

Model

GT5-5

Item

Time Lapse Drift

Object

+5V15A

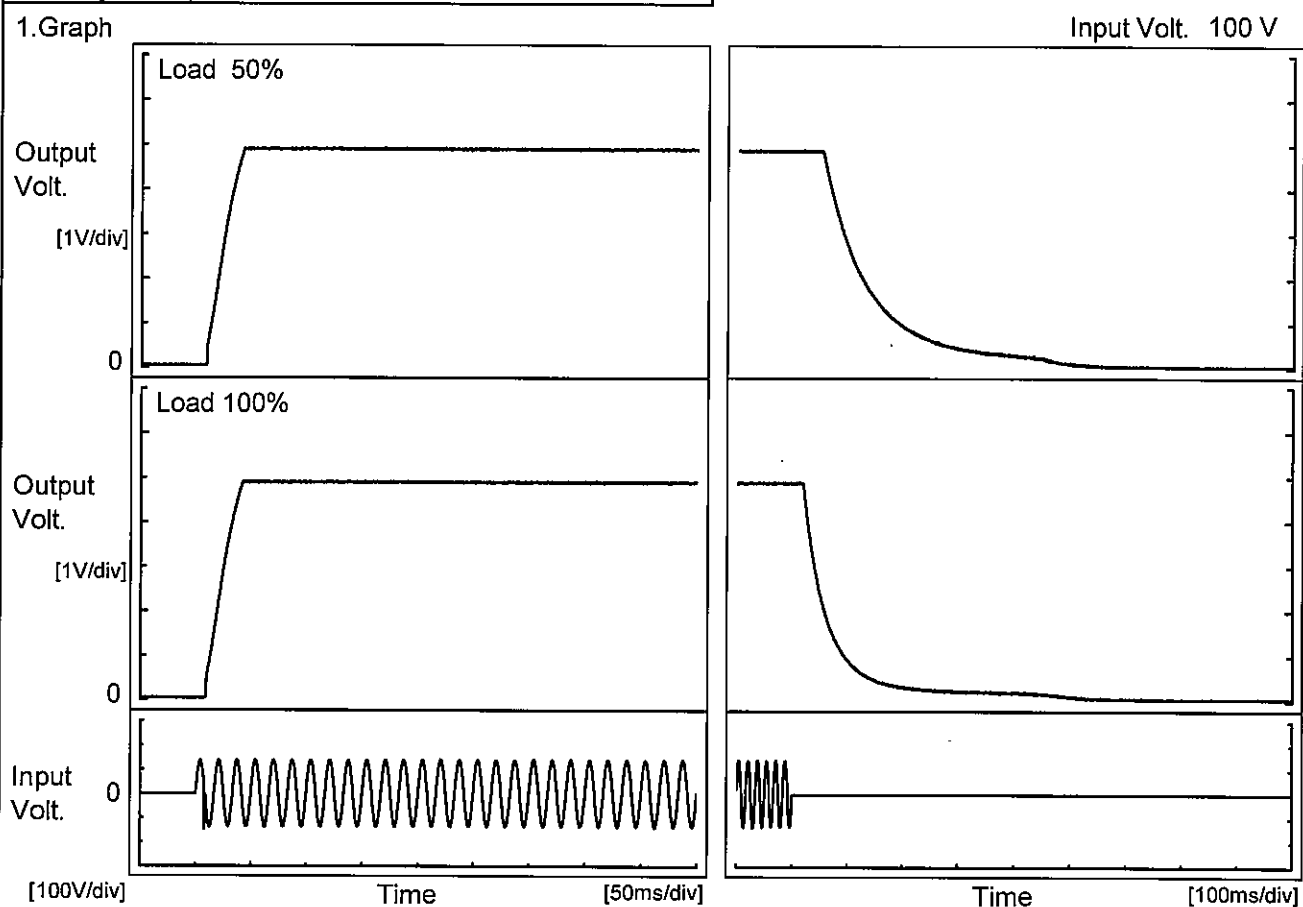
1.Graph

Output Voltage [V]

# COSEL

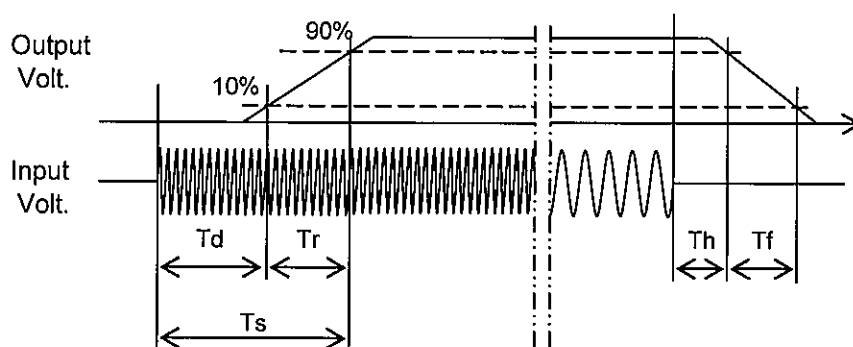
Model	GT5-5	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V15A		

## 1. Graph



## 2. Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		9.5	29.0	38.5	58.0	213.0
100 %		9.8	28.3	38.1	22.0	115.0





Model	GT5-5																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
Object	+5V15A	Testing Circuitry	Figure A																																																			
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt.</div><div>90V</div></div><div><div>---□---</div><div>Input Volt.</div><div>100V</div></div><div><div>---○---</div><div>Input Volt.</div><div>110V</div></div></div> <div>Instantaneous Compensation Time [ms]</div> <div>Load Current [A]</div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 90[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 110[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.0</td><td>120</td><td>158</td><td>196</td></tr><tr><td>6.0</td><td>53</td><td>72</td><td>91</td></tr><tr><td>9.0</td><td>30</td><td>43</td><td>56</td></tr><tr><td>12.0</td><td>20</td><td>29</td><td>38</td></tr><tr><td>15.0</td><td>13</td><td>21</td><td>28</td></tr><tr><td>16.5</td><td>11</td><td>18</td><td>24</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></table>		Load Current [A]	Time [ms]			Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]	0.0	-	-	-	3.0	120	158	196	6.0	53	72	91	9.0	30	43	56	12.0	20	29	38	15.0	13	21	28	16.5	11	18	24	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
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# COSEL

Model

GT5-5

Item

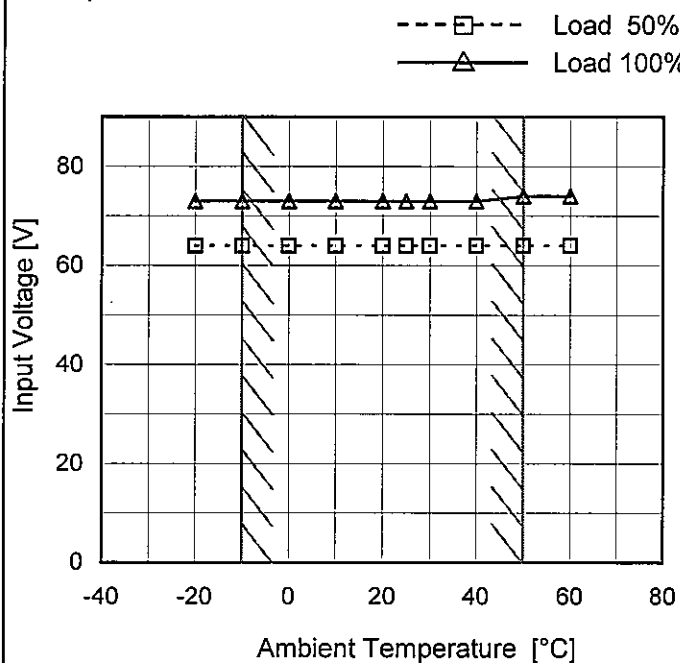
Minimum Input Voltage  
for Regulated Output Voltage

Object

+5V15A

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%
-20	64	73
-10	64	73
0	64	73
10	64	73
20	64	73
25	64	73
30	64	73
40	64	73
50	64	74
60	64	74
--	-	-

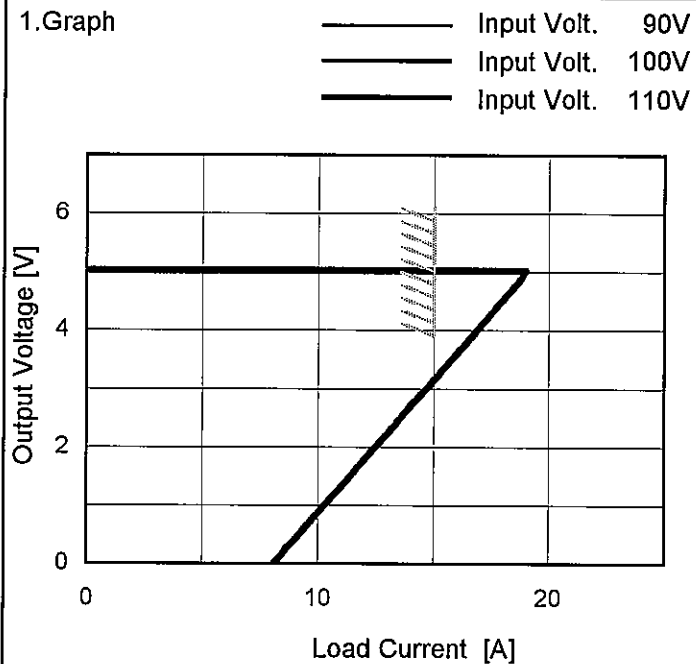
Model GT5-5

Item Overcurrent Protection

Object +5V15A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



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

## 2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
5.00	19.01	19.00	19.00
4.75	18.86	18.80	18.73
4.50	18.02	18.01	18.01
4.00	17.28	17.23	17.17
3.50	15.87	15.83	15.78
3.00	14.72	15.29	15.24
2.50	13.83	13.80	13.76
2.00	12.66	12.63	12.60
1.50	11.46	11.44	11.42
1.00	10.48	10.46	10.44
0.50	9.26	9.25	9.23
0.00	8.07	8.06	8.05

**COSEL**

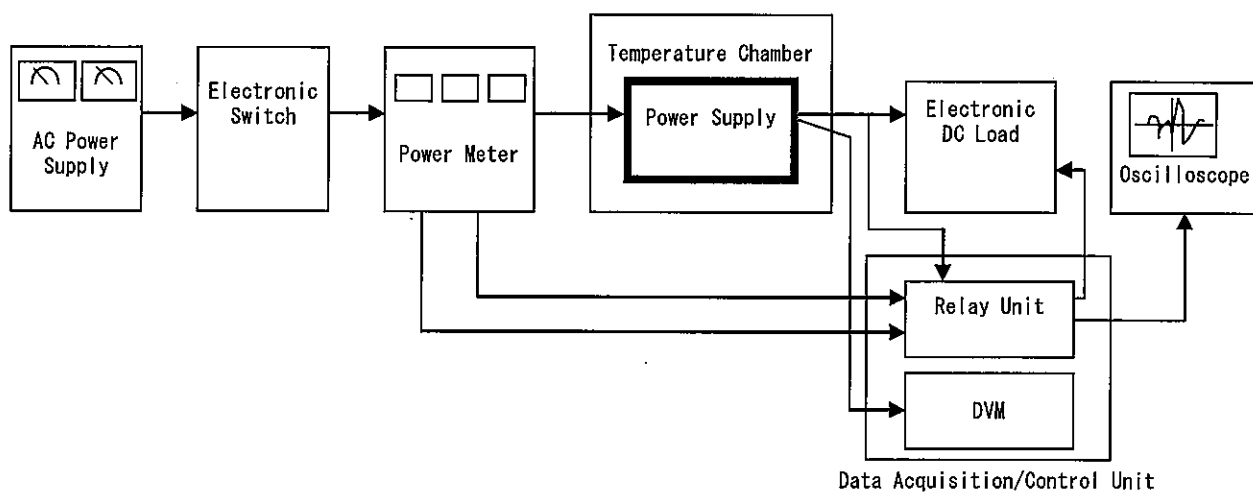


Figure A