



# TEST DATA OF DHS250B05

Regulated DC Power Supply  
November 19, 2009

Approved by : Tatsuya Mano  
Tatsuya Mano Design Manager

Prepared by : Noriaki Nakase  
Noriaki Nakase Design Engineer

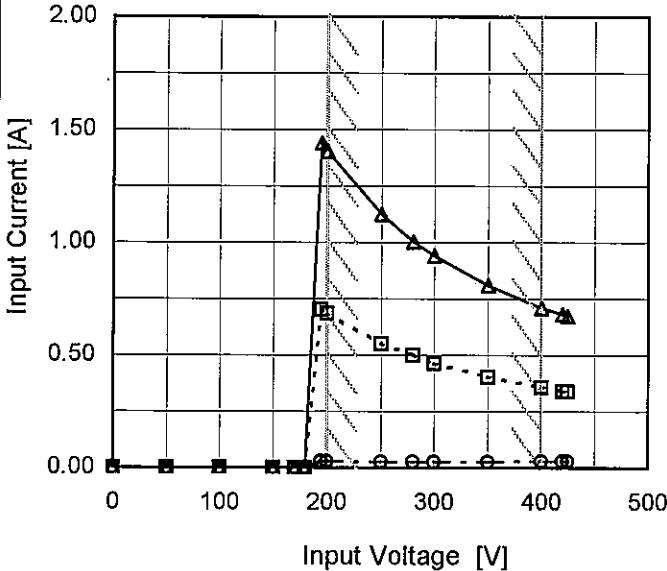
**COSEL CO.,LTD.**

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Model	DHS250B05	Temperature	25°C
Item	Input Current (by Input Voltage)	Testing Circuitry	Figure A
Object	—		
1.Graph		△ Load 100% -□--- Load 50% -○--- Load 0%	
			2.Values
Note: Slanted line shows the range of the rated input voltage.			
Input Voltage [V]	Input Current [A]		
[V]	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
50	0.000	0.000	0.000
100	0.000	0.000	0.000
150	0.000	0.000	0.000
170	0.000	0.000	0.000
180	0.000	0.000	0.000
195	0.029	0.702	1.441
200	0.027	0.686	1.402
250	0.025	0.552	1.124
280	0.025	0.501	1.002
300	0.025	0.464	0.939
350	0.026	0.403	0.809
400	0.027	0.357	0.710
420	0.028	0.342	0.681
425	0.028	0.338	0.674
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Model	DHS250B05	Temperature	25°C																																																			
Item	Input Current (by Load Current)	Testing Circuitry	Figure A																																																			
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1. Graph	<p>Input Current [A]</p> <p>Load Current [A]</p> <ul style="list-style-type: none"> <li>— ▲ — Input Volt. 200V</li> <li>- - ■ - - Input Volt. 280V</li> <li>- · ○ - - Input Volt. 400V</li> </ul>																																																					
	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 200[V]</th> <th>Input Volt. 280[V]</th> <th>Input Volt. 400[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.027</td><td>0.025</td><td>0.027</td></tr> <tr><td>10</td><td>0.284</td><td>0.210</td><td>0.157</td></tr> <tr><td>20</td><td>0.550</td><td>0.400</td><td>0.290</td></tr> <tr><td>30</td><td>0.827</td><td>0.596</td><td>0.426</td></tr> <tr><td>40</td><td>1.110</td><td>0.795</td><td>0.566</td></tr> <tr><td>50</td><td>1.402</td><td>1.002</td><td>0.710</td></tr> <tr><td>55</td><td>1.554</td><td>1.109</td><td>0.786</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 Current [A]	Input Current [A]			Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]	0	0.027	0.025	0.027	10	0.284	0.210	0.157	20	0.550	0.400	0.290	30	0.827	0.596	0.426	40	1.110	0.795	0.566	50	1.402	1.002	0.710	55	1.554	1.109	0.786	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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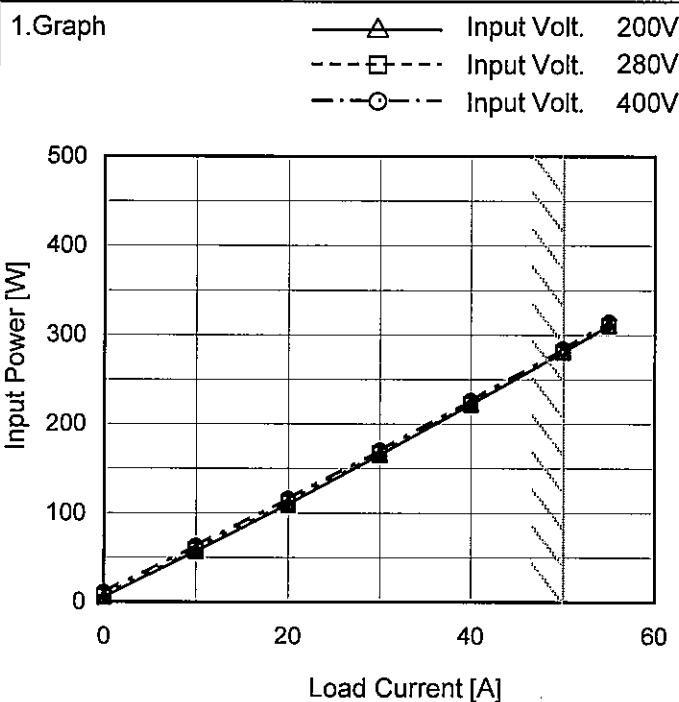
Note: Slanted line shows the range of the rated load current.

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Model DHS250B05

Item Input Power (by Load Current)

Object \_\_\_\_\_



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

Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

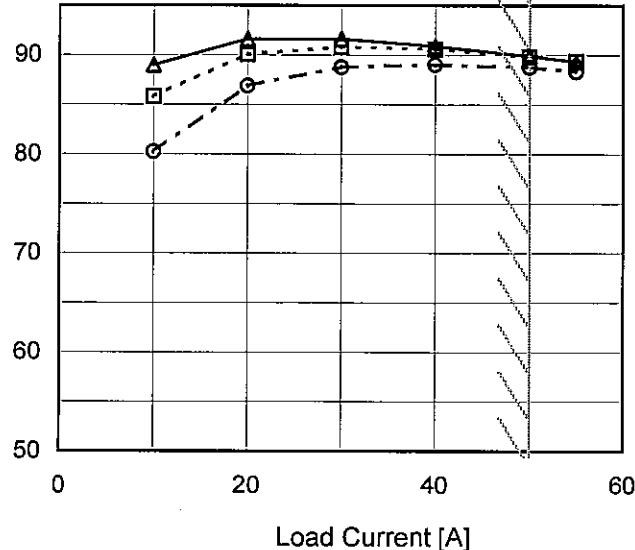
Load Current [A]	Input Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	5.4	7.0	10.8
10	56.8	58.8	62.8
20	110.0	112.0	116.0
30	165.4	166.9	170.4
40	222.0	222.6	226.4
50	280.4	280.6	284.0
55	310.8	310.5	314.4
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-

Model	DHS250B05	Temperature	25°C																																
Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A																																
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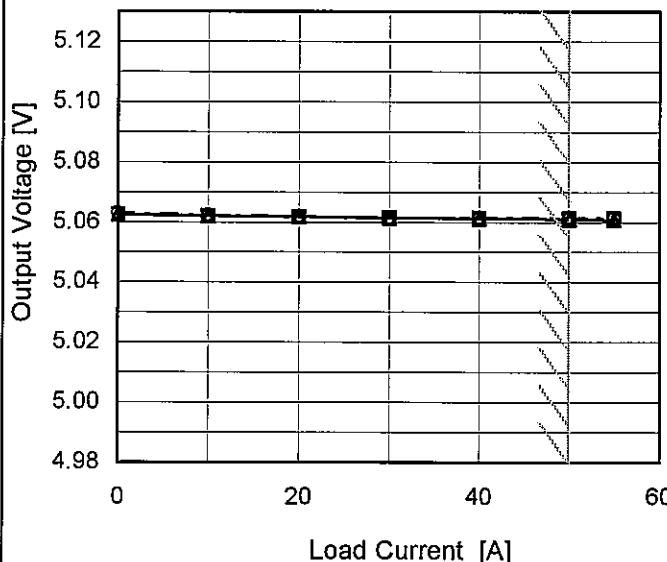
Efficiency [%]



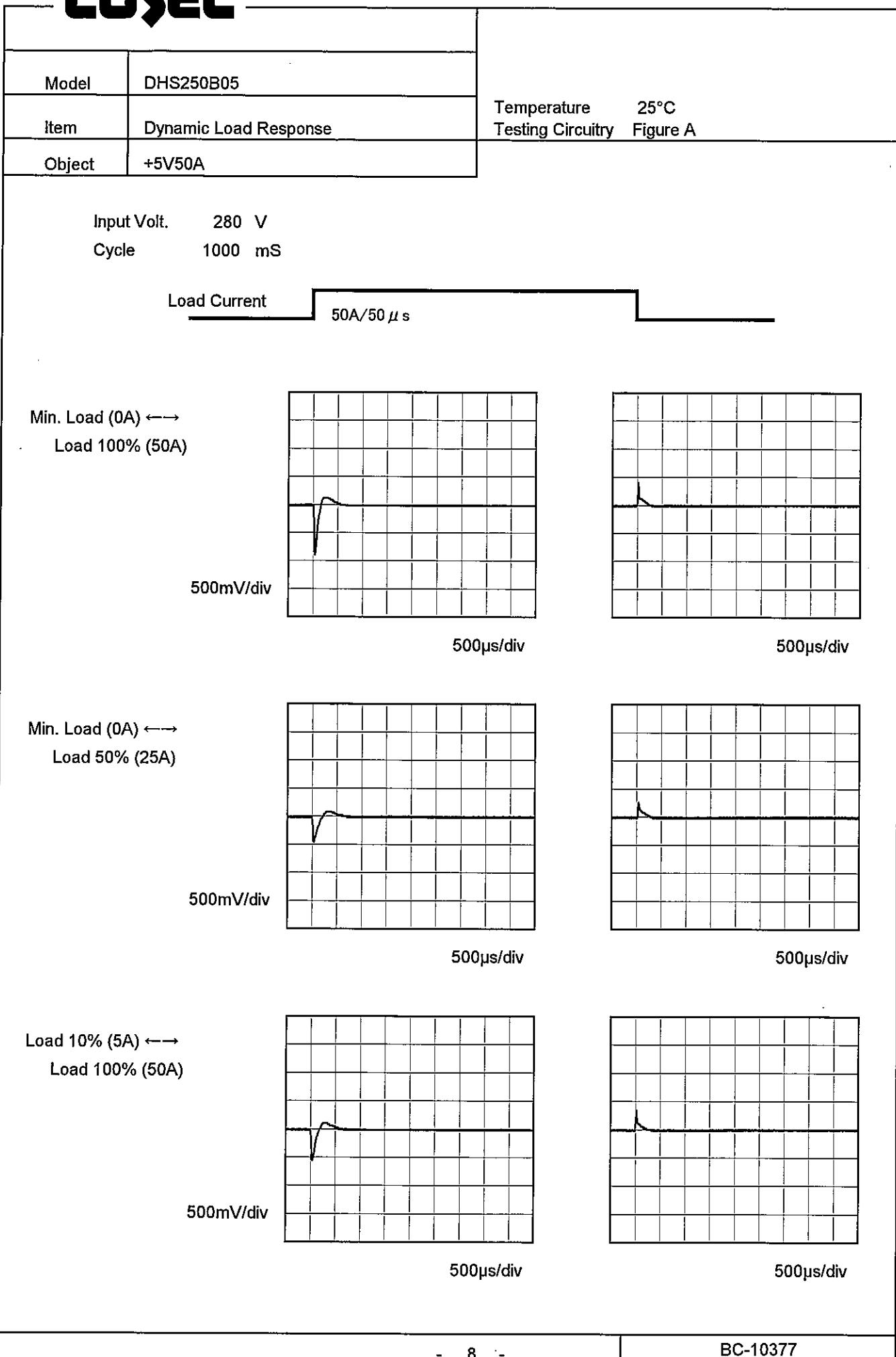
Note: Slanted line shows the range of the rated load current.

Model	DHS250B05	Temperature	25°C																																
Item	Line Regulation	Testing Circuitry	Figure A																																
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Note: Slanted line shows the range of the rated input voltage.

Model	DHS250B05	Temperature 25°C Testing Circuitry Figure A																																																					
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Note: Slanted line shows the range of the rated load current.

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Model	DHS250B05	Temperature Testing Circuitry 25°C Figure B																																			
Item	Ripple Voltage (by Load Current)																																				
Object	+5V50A																																				
1.Graph		2.Values																																			
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0.0 to 200.0 mV. The X-axis ranges from 0 to 60 A. Two sets of data points are shown: Input Volt. 200V (solid circles) and Input Volt. 400V (open circles). A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (Input Volt. 200V)</th> <th>Ripple Voltage [mV] (Input Volt. 400V)</th> </tr> </thead> <tbody> <tr><td>0</td><td>15</td><td>25</td></tr> <tr><td>10</td><td>15</td><td>25</td></tr> <tr><td>20</td><td>15</td><td>25</td></tr> <tr><td>30</td><td>15</td><td>25</td></tr> <tr><td>40</td><td>15</td><td>20</td></tr> <tr><td>50</td><td>15</td><td>20</td></tr> <tr><td>55</td><td>15</td><td>20</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 Voltage [mV] (Input Volt. 200V)	Ripple Voltage [mV] (Input Volt. 400V)	0	15	25	10	15	25	20	15	25	30	15	25	40	15	20	50	15	20	55	15	20	--	-	-	--	-	-	--	-	-	--	-	-
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<p>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.</p> <p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																					

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<p>--- □ --- Load 50%</p> <p>— △ — Load 100%</p> <p>Ripple Voltage [mV]</p> <p>Ambient Temperature [°C]</p> <p>Input Volt. 280V</p>																																									
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<p>Model      DHS250B05</p> <p>Item      Ambient Temperature Drift</p> <p>Object    +5V50A</p> <p>1.Graph</p> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>																																																						
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Model	DHS250B05	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+5V50A	

### 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 : 200 - 400V

Load Current : 0 - 50A

\* 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	100	200	0	5.074	±23	±0.5
Minimum Voltage	-40	200	50	5.028		



Model	DHS250B05
Item	Time Lapse Drift
Object	+5V50A

1.Graph

Time since start [H]	Output Voltage [V]
0.0	5.058
0.5	5.062
1.0	5.062
2.0	5.062
3.0	5.062
4.0	5.062
5.0	5.062
6.0	5.062
7.0	5.062
8.0	5.062

Input Volt. 280V  
Load 100%

Temperature 25°C  
Testing Circuitry Figure A

## 2.Values

Time since start [H]	Output Voltage [V]
0.0	5.058
0.5	5.062
1.0	5.062
2.0	5.062
3.0	5.062
4.0	5.062
5.0	5.062
6.0	5.062
7.0	5.062
8.0	5.062

**COSEL**

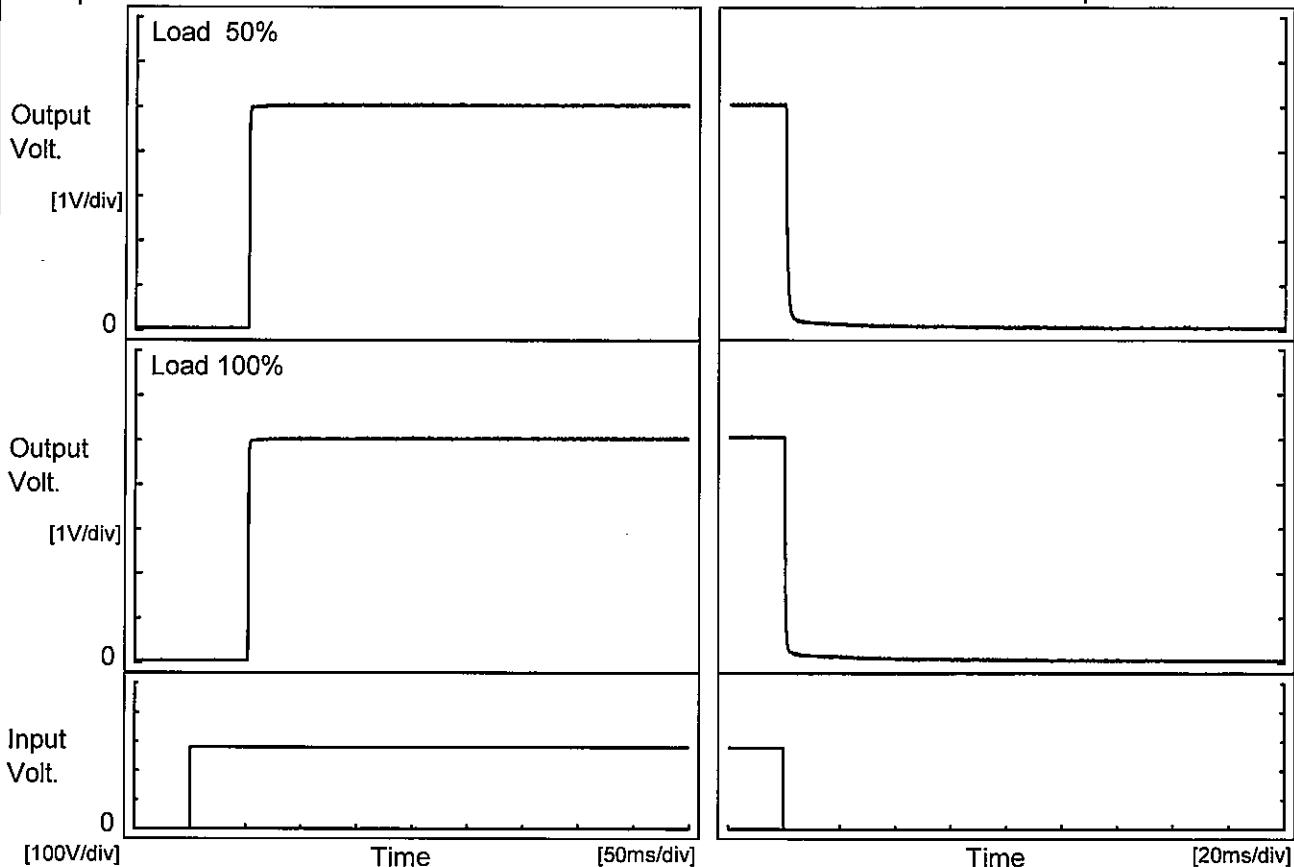
Model DHS250B05

Item Rise and Fall Time

Object +5V50A

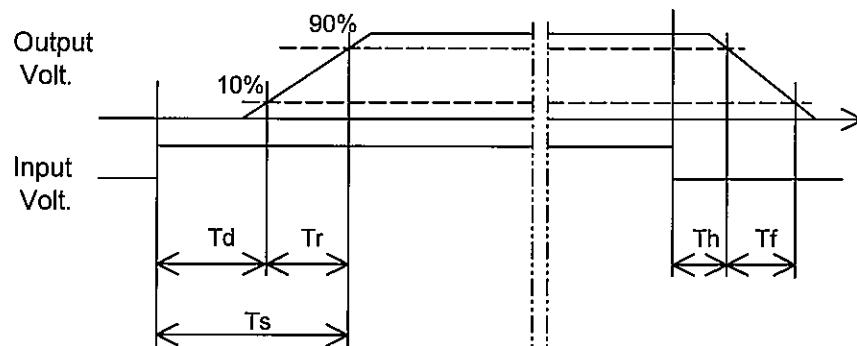
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

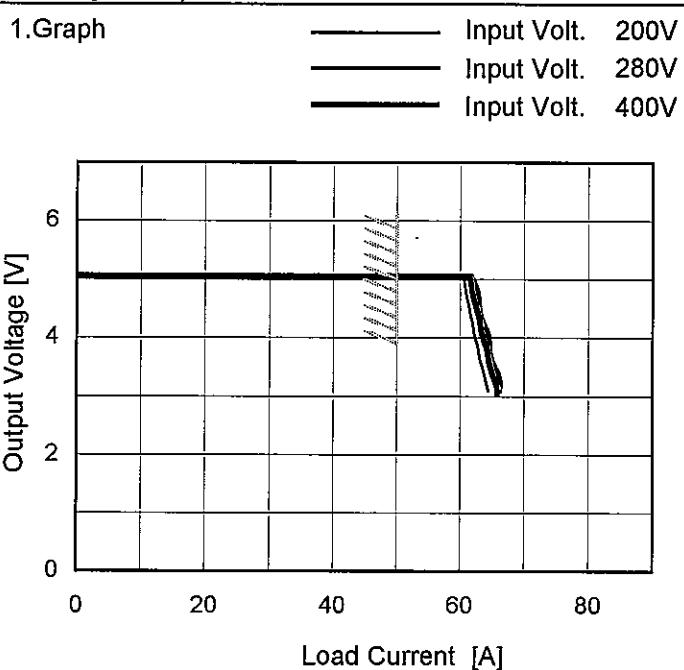
Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		52.0	0.8	52.8	0.3	1.6	
100 %		52.0	0.8	52.8	0.2	0.8	



<p>Model      DHS250B05</p> <p>Item      Minimum Input Voltage for Regulated Output Voltage</p> <p>Object    +5V50A</p>	Testing Circuitry    Figure A																																						
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																							

**COSEL**

Model	DHS250B05
Item	Overcurrent Protection
Object	+5V50A



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

Intermittent operation occurs when the output voltage is from 3V to 0V.

Temperature 25°C  
Testing Circuitry Figure A

## 2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
5.00	50.83	50.83	50.83
4.75	63.18	63.99	64.28
4.50	63.47	64.28	65.09
4.00	64.59	65.35	65.87
3.50	65.68	66.57	67.04
3.00	66.86	67.95	68.54
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

<p>Model      DHS250B05</p> <p>Item      Overvoltage Protection</p> <p>Object    +5V50A</p>	Testing Circuitry    Figure A																																																					
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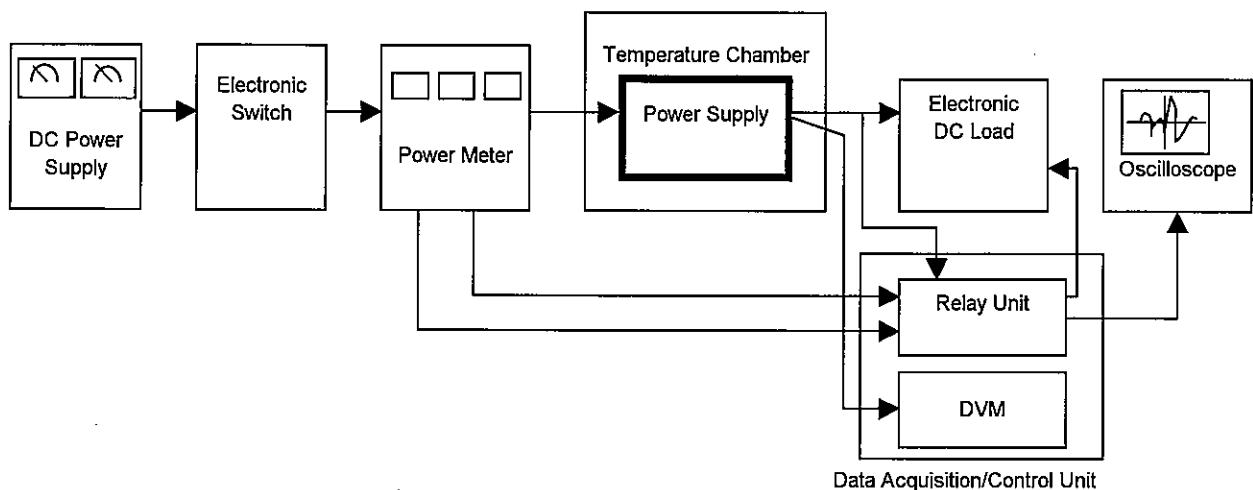
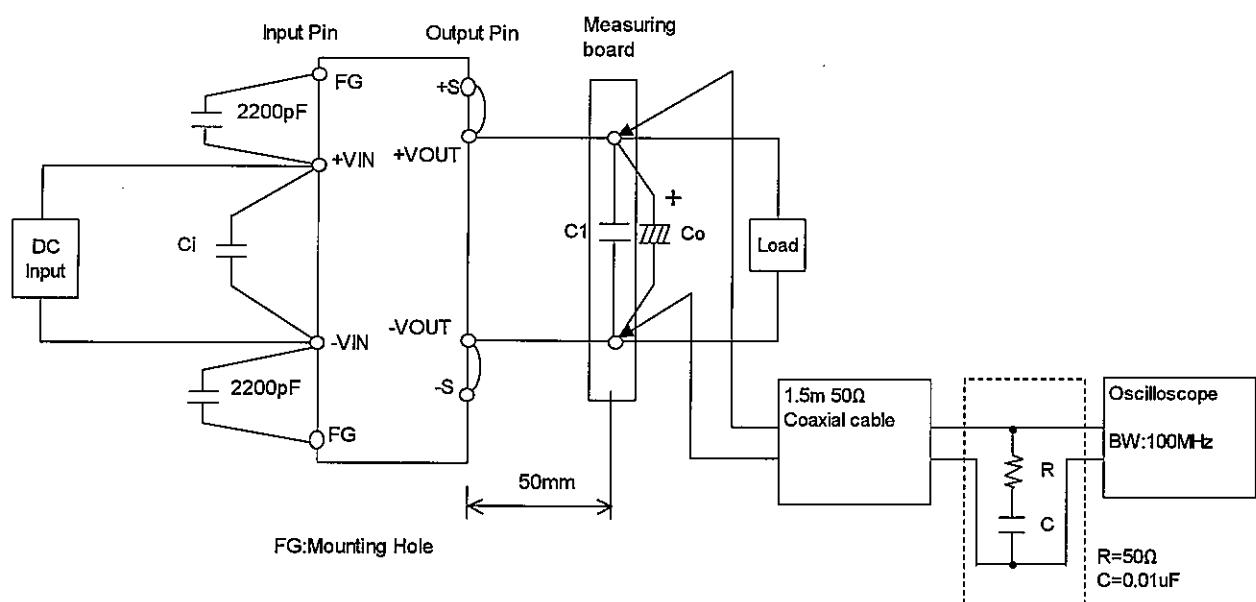


Figure A



<b>C1</b>		<b>Co</b>	
DHS250B24	4.7μF	DHS250B03	2200μF
DHS250B28	4.7μF	DHS250B05	2200μF
DHS250B48	2.2μF	DHS250B07	2200μF
Others	10μF	DHS250B12	1000μF

<b>C1</b>		<b>Co</b>	
DHS250B24	4.7μF	DHS250B03	2200μF
DHS250B28	4.7μF	DHS250B05	2200μF
DHS250B48	2.2μF	DHS250B07	2200μF
Others	10μF	DHS250B12	1000μF

Figure B