



TEST DATA OF LFA30F-5

Regulated DC Power Supply
July 7, 2009

Approved by : Yoshiaki Shimizu
Yoshiaki Shimizu Design Manager

Prepared by : Kazuo Ishimura
Kazuo Ishimura Design Engineer

COSEL CO.,LTD.



CONTENTS

1. Input Current (by Load Current) · · · · ·	1
2. Input Power (by Load Current) · · · · ·	2
3. Efficiency (by Input Voltage) · · · · ·	3
4. Efficiency (by Load Current) · · · · ·	4
5. Power Factor (by Input Voltage) · · · · ·	5
6. Power Factor (by Load Current) · · · · ·	6
7. Inrush Current · · · · ·	7
8. Leakage Current · · · · ·	8
9. Line Regulation · · · · ·	9
10. Load Regulation · · · · ·	10
11. Dynamic Load Response · · · · ·	11
12. Ripple Voltage (by Load Current) · · · · ·	12
13. Ripple-Noise · · · · ·	13
14. Ripple Voltage (by Ambient Temperature) · · · · ·	14
15. Ambient Temperature Drift · · · · ·	15
16. Output Voltage Accuracy · · · · ·	16
17. Time Lapse Drift · · · · ·	17
18. Rise and Fall Time · · · · ·	18
19. Hold-Up Time · · · · ·	19
20. Instantaneous Interruption Compensation · · · · ·	20
21. Minimum Input Voltage for Regulated Output Voltage · · · · ·	21
22. Overcurrent Protection · · · · ·	22
23. Overvoltage Protection · · · · ·	23
24. Figure of Testing Circuitry · · · · ·	24

(Final Page 25)

COSEL

Model	LFA30F-5																																																					
Item	Input Current (by Load Current)																																																					
Object	<u> </u>																																																					
1.Graph	—▲— Input Volt. 100V - - □ - - Input Volt. 200V - - ○ - - Input Volt. 230V																																																					
	<p>The graph shows three curves representing different input voltages: 100V (solid line with triangles), 200V (dashed line with squares), and 230V (dash-dot line with circles). All curves start at (0,0) and increase monotonically. A solid slanted line is drawn through the points (2, 0.2), (4, 0.4), and (6, 0.6), representing the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.029</td><td>0.029</td><td>0.029</td></tr> <tr><td>1.0</td><td>0.136</td><td>0.094</td><td>0.088</td></tr> <tr><td>2.0</td><td>0.236</td><td>0.150</td><td>0.138</td></tr> <tr><td>3.0</td><td>0.332</td><td>0.205</td><td>0.187</td></tr> <tr><td>4.0</td><td>0.432</td><td>0.259</td><td>0.236</td></tr> <tr><td>5.0</td><td>0.533</td><td>0.314</td><td>0.285</td></tr> <tr><td>6.0</td><td>0.635</td><td>0.370</td><td>0.335</td></tr> <tr><td>6.6</td><td>0.699</td><td>0.404</td><td>0.366</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 Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	0.029	0.029	0.029	1.0	0.136	0.094	0.088	2.0	0.236	0.150	0.138	3.0	0.332	0.205	0.187	4.0	0.432	0.259	0.236	5.0	0.533	0.314	0.285	6.0	0.635	0.370	0.335	6.6	0.699	0.404	0.366	--	-	-	-	--	-	-	-	--	-	-	-	Temperature 25°C Testing Circuitry Figure A				
Load Current [A]	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
0.0	0.029	0.029	0.029																																																			
1.0	0.136	0.094	0.088																																																			
2.0	0.236	0.150	0.138																																																			
3.0	0.332	0.205	0.187																																																			
4.0	0.432	0.259	0.236																																																			
5.0	0.533	0.314	0.285																																																			
6.0	0.635	0.370	0.335																																																			
6.6	0.699	0.404	0.366																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.029</td><td>0.029</td><td>0.029</td></tr> <tr><td>1.0</td><td>0.136</td><td>0.094</td><td>0.088</td></tr> <tr><td>2.0</td><td>0.236</td><td>0.150</td><td>0.138</td></tr> <tr><td>3.0</td><td>0.332</td><td>0.205</td><td>0.187</td></tr> <tr><td>4.0</td><td>0.432</td><td>0.259</td><td>0.236</td></tr> <tr><td>5.0</td><td>0.533</td><td>0.314</td><td>0.285</td></tr> <tr><td>6.0</td><td>0.635</td><td>0.370</td><td>0.335</td></tr> <tr><td>6.6</td><td>0.699</td><td>0.404</td><td>0.366</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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	0.029	0.029	0.029	1.0	0.136	0.094	0.088	2.0	0.236	0.150	0.138	3.0	0.332	0.205	0.187	4.0	0.432	0.259	0.236	5.0	0.533	0.314	0.285	6.0	0.635	0.370	0.335	6.6	0.699	0.404	0.366	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Input Current [A]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
0.0	0.029	0.029	0.029																																																			
1.0	0.136	0.094	0.088																																																			
2.0	0.236	0.150	0.138																																																			
3.0	0.332	0.205	0.187																																																			
4.0	0.432	0.259	0.236																																																			
5.0	0.533	0.314	0.285																																																			
6.0	0.635	0.370	0.335																																																			
6.6	0.699	0.404	0.366																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			

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

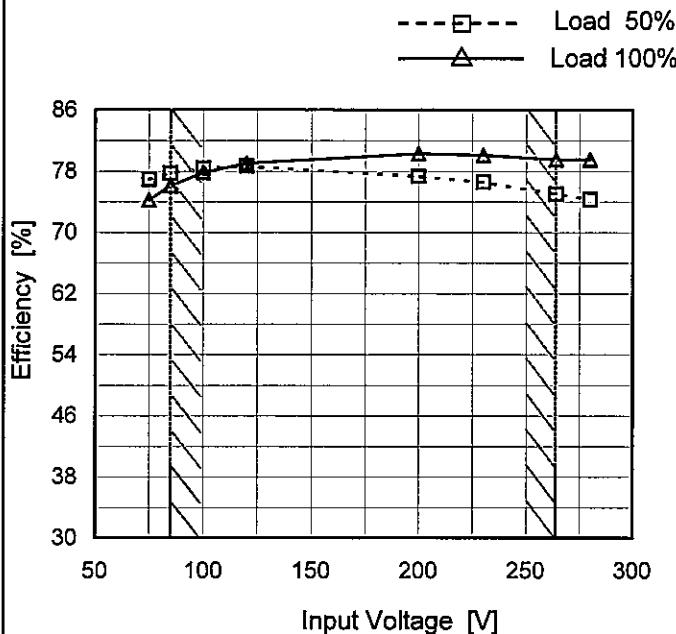
COSEL

Model	LFA30F-5																																																					
Item	Input Power (by Load Current)																																																					
Object	_____																																																					
1.Graph	<p>Input Volt. 100V Input Volt. 200V Input Volt. 230V</p>																																																					
	<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>1.00</td><td>1.41</td><td>1.45</td></tr> <tr><td>1.0</td><td>6.94</td><td>7.71</td><td>7.92</td></tr> <tr><td>2.0</td><td>13.25</td><td>13.70</td><td>13.83</td></tr> <tr><td>3.0</td><td>19.41</td><td>19.60</td><td>19.80</td></tr> <tr><td>4.0</td><td>25.79</td><td>25.60</td><td>25.80</td></tr> <tr><td>5.0</td><td>32.28</td><td>31.70</td><td>31.70</td></tr> <tr><td>6.0</td><td>38.85</td><td>37.90</td><td>37.90</td></tr> <tr><td>6.6</td><td>43.05</td><td>41.60</td><td>41.60</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 Power [W]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	1.00	1.41	1.45	1.0	6.94	7.71	7.92	2.0	13.25	13.70	13.83	3.0	19.41	19.60	19.80	4.0	25.79	25.60	25.80	5.0	32.28	31.70	31.70	6.0	38.85	37.90	37.90	6.6	43.05	41.60	41.60	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Input Power [W]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
0.0	1.00	1.41	1.45																																																			
1.0	6.94	7.71	7.92																																																			
2.0	13.25	13.70	13.83																																																			
3.0	19.41	19.60	19.80																																																			
4.0	25.79	25.60	25.80																																																			
5.0	32.28	31.70	31.70																																																			
6.0	38.85	37.90	37.90																																																			
6.6	43.05	41.60	41.60																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
	<p>Note: Slanted line shows the range of the rated load current.</p>																																																					

COSEL

Model	LFA30F-5
Item	Efficiency (by Input Voltage)
Object	_____

1. Graph



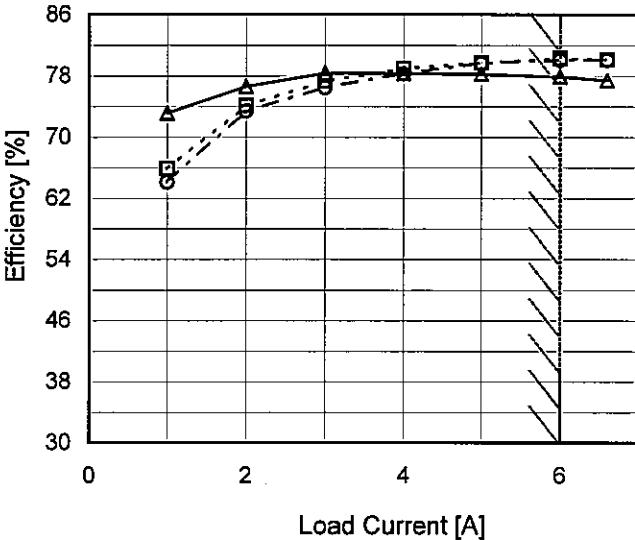
Note: Slanted line shows the range of the rated input voltage.

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	76.9	74.2
85	77.7	76.1
100	78.4	77.9
120	78.6	79.1
200	77.3	80.3
230	76.5	80.1
264	75.0	79.5
280	74.3	79.5
-	-	-

COSEL

Model	LFA30F-5		
Item	Efficiency (by Load Current)		
Object	<u> </u>		
1.Graph	—▲— Input Volt. 100V - - □ - - Input Volt. 200V - - ○ - - Input Volt. 230V		
			
Temperature	25°C		
Testing Circuitry	Figure A		
2.Values			
Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
1.0	73.2	65.9	64.1
2.0	76.6	74.1	73.4
3.0	78.4	77.3	76.5
4.0	78.4	79.0	78.3
5.0	78.3	79.7	79.7
6.0	77.9	80.3	80.1
6.6	77.4	80.1	80.1
--	-	-	-
--	-	-	-
--	-	-	-

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

COSEL

Model	LFA30F-5																																
Item	Power Factor (by Input Voltage)	Temperature 25°C Testing Circuitry Figure A																															
Object	—	—																															
1. Graph																																	
		2. Values																															
<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Power Factor</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>75</td><td>0.627</td><td>0.656</td> </tr> <tr> <td>85</td><td>0.604</td><td>0.632</td> </tr> <tr> <td>100</td><td>0.576</td><td>0.608</td> </tr> <tr> <td>120</td><td>0.549</td><td>0.579</td> </tr> <tr> <td>200</td><td>0.472</td><td>0.497</td> </tr> <tr> <td>230</td><td>0.455</td><td>0.481</td> </tr> <tr> <td>264</td><td>0.438</td><td>0.465</td> </tr> <tr> <td>280</td><td>0.432</td><td>0.458</td> </tr> <tr> <td>—</td><td>—</td><td>—</td> </tr> </tbody> </table>		Input Voltage [V]	Power Factor		Load 50%	Load 100%	75	0.627	0.656	85	0.604	0.632	100	0.576	0.608	120	0.549	0.579	200	0.472	0.497	230	0.455	0.481	264	0.438	0.465	280	0.432	0.458	—	—	—
Input Voltage [V]	Power Factor																																
	Load 50%	Load 100%																															
75	0.627	0.656																															
85	0.604	0.632																															
100	0.576	0.608																															
120	0.549	0.579																															
200	0.472	0.497																															
230	0.455	0.481																															
264	0.438	0.465																															
280	0.432	0.458																															
—	—	—																															

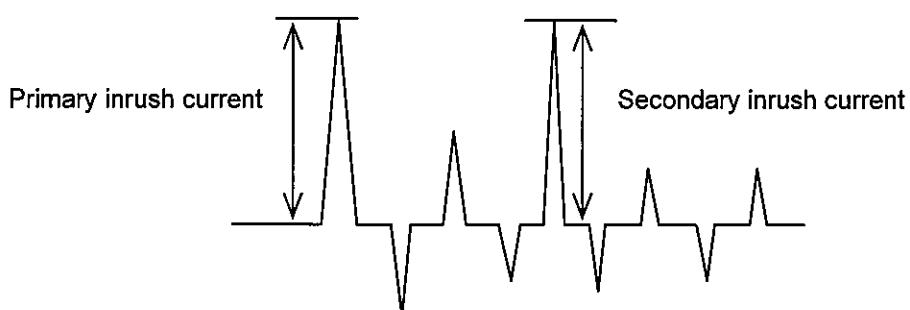
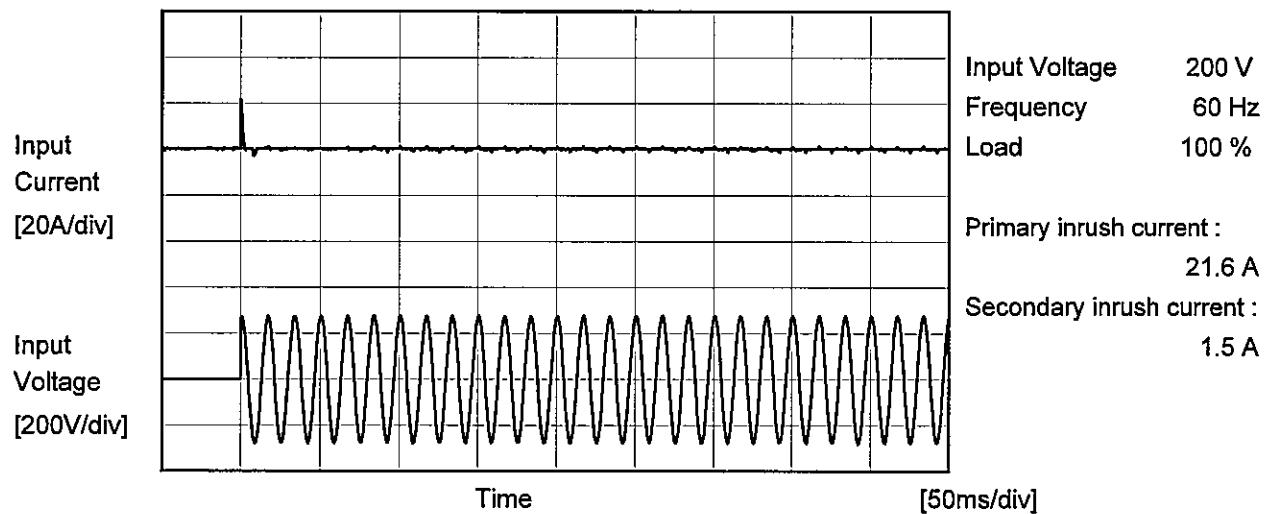
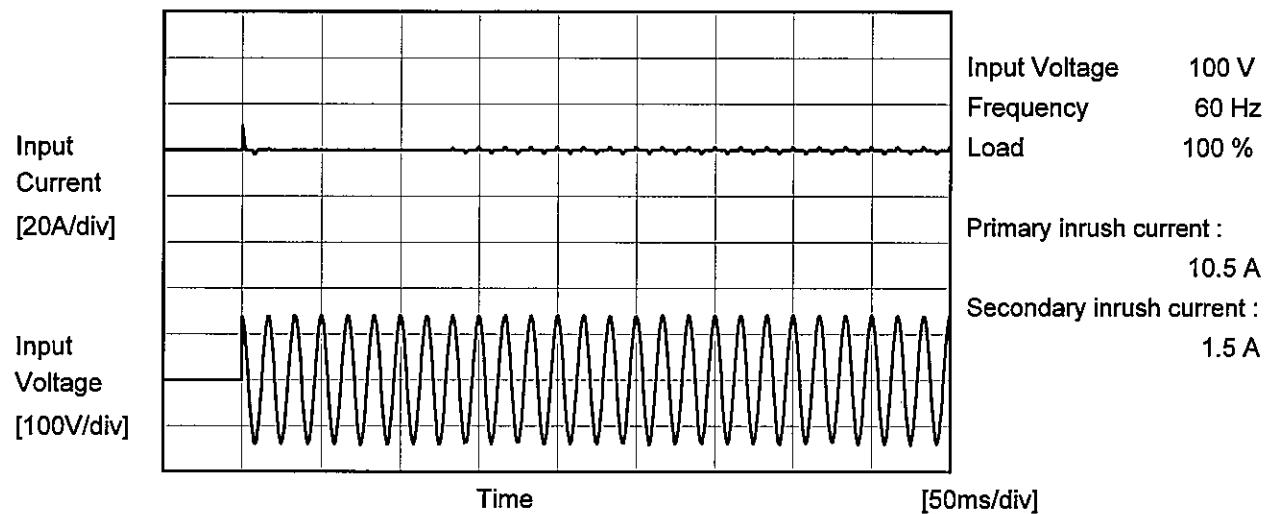
Note: Slanted line shows the range of the rated input voltage.

COSEL

Model	LFA30F-5																																																					
Item	Power Factor (by Load Current)																																																					
Object	<u> </u>																																																					
1.Graph	—▲— Input Volt. 100V - - □--- Input Volt. 200V - ·○--- Input Volt. 230V																																																					
<p>The graph plots Power Factor against Load Current for three input voltages: 100V (solid line with triangles), 200V (dashed line with squares), and 230V (dash-dot line with circles). The power factor increases with load current for all voltages. A slanted line on the graph indicates the range of the rated load current.</p> <table border="1"> <caption>Data points estimated from the graph</caption> <thead> <tr> <th>Load Current [A]</th> <th>100V [Power Factor]</th> <th>200V [Power Factor]</th> <th>230V [Power Factor]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.352</td><td>0.245</td><td>0.221</td></tr> <tr><td>1.0</td><td>0.512</td><td>0.408</td><td>0.394</td></tr> <tr><td>2.0</td><td>0.562</td><td>0.455</td><td>0.436</td></tr> <tr><td>3.0</td><td>0.584</td><td>0.478</td><td>0.459</td></tr> <tr><td>4.0</td><td>0.598</td><td>0.494</td><td>0.474</td></tr> <tr><td>5.0</td><td>0.606</td><td>0.503</td><td>0.483</td></tr> <tr><td>6.0</td><td>0.613</td><td>0.512</td><td>0.492</td></tr> <tr><td>6.6</td><td>0.617</td><td>0.515</td><td>0.495</td></tr> </tbody> </table>			Load Current [A]	100V [Power Factor]	200V [Power Factor]	230V [Power Factor]	0.0	0.352	0.245	0.221	1.0	0.512	0.408	0.394	2.0	0.562	0.455	0.436	3.0	0.584	0.478	0.459	4.0	0.598	0.494	0.474	5.0	0.606	0.503	0.483	6.0	0.613	0.512	0.492	6.6	0.617	0.515	0.495																
Load Current [A]	100V [Power Factor]	200V [Power Factor]	230V [Power Factor]																																																			
0.0	0.352	0.245	0.221																																																			
1.0	0.512	0.408	0.394																																																			
2.0	0.562	0.455	0.436																																																			
3.0	0.584	0.478	0.459																																																			
4.0	0.598	0.494	0.474																																																			
5.0	0.606	0.503	0.483																																																			
6.0	0.613	0.512	0.492																																																			
6.6	0.617	0.515	0.495																																																			
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Power Factor</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.352</td><td>0.245</td><td>0.221</td></tr> <tr><td>1.0</td><td>0.512</td><td>0.408</td><td>0.394</td></tr> <tr><td>2.0</td><td>0.562</td><td>0.455</td><td>0.436</td></tr> <tr><td>3.0</td><td>0.584</td><td>0.478</td><td>0.459</td></tr> <tr><td>4.0</td><td>0.598</td><td>0.494</td><td>0.474</td></tr> <tr><td>5.0</td><td>0.606</td><td>0.503</td><td>0.483</td></tr> <tr><td>6.0</td><td>0.613</td><td>0.512</td><td>0.492</td></tr> <tr><td>6.6</td><td>0.617</td><td>0.515</td><td>0.495</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]	Power Factor			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	0.352	0.245	0.221	1.0	0.512	0.408	0.394	2.0	0.562	0.455	0.436	3.0	0.584	0.478	0.459	4.0	0.598	0.494	0.474	5.0	0.606	0.503	0.483	6.0	0.613	0.512	0.492	6.6	0.617	0.515	0.495	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Power Factor																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
0.0	0.352	0.245	0.221																																																			
1.0	0.512	0.408	0.394																																																			
2.0	0.562	0.455	0.436																																																			
3.0	0.584	0.478	0.459																																																			
4.0	0.598	0.494	0.474																																																			
5.0	0.606	0.503	0.483																																																			
6.0	0.613	0.512	0.492																																																			
6.6	0.617	0.515	0.495																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
Note: Slanted line shows the range of the rated load current.																																																						

COSEL

Model	LFA30F-5	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		





Model	LFA30F-5	Temperature	25°C
Item	Leakage Current	Testing Circuitry	Figure B
Object	_____		

1. Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.13	0.27	0.32	Operation
	One of phases	0.21	0.45	0.55	Stand by
IEC60950	Both phases	0.15	0.30	0.37	Operation
	One of phases	0.22	0.46	0.55	Stand by

The value for "One of phases" is the reference value only.

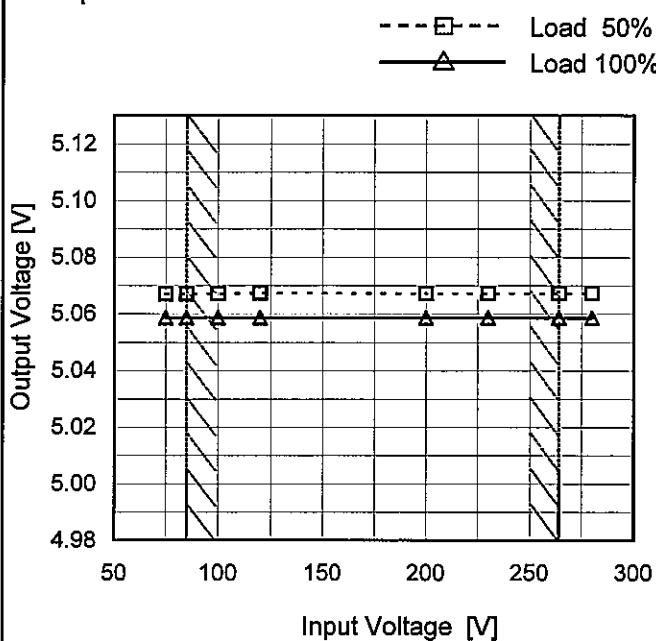
2. Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

COSEL

Model	LFA30F-5
Item	Line Regulation
Object	+5V6A

1. Graph



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

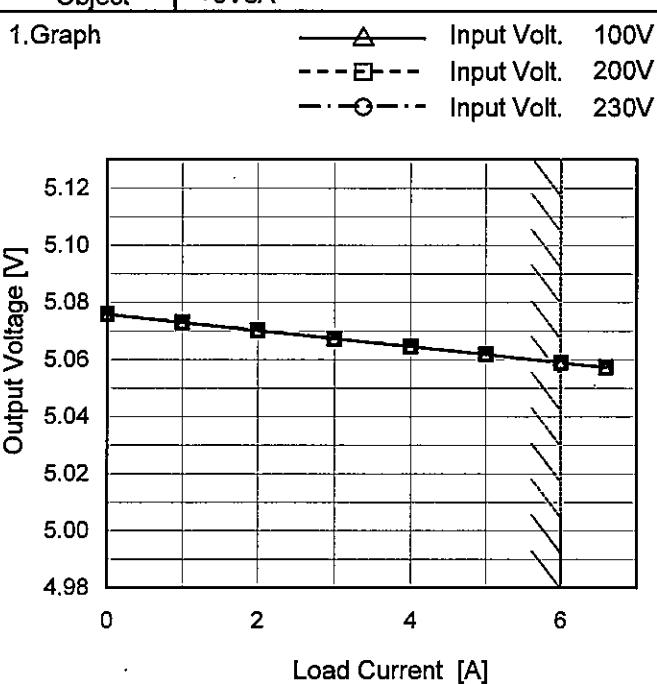
Temperature 25°C
Testing Circuitry Figure A

2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	5.067	5.059
85	5.067	5.059
100	5.067	5.059
120	5.067	5.059
200	5.067	5.059
230	5.067	5.059
264	5.067	5.059
280	5.067	5.059
-	-	-

COSEL

Model	LFA30F-5
Item	Load Regulation
Object	+5V6A

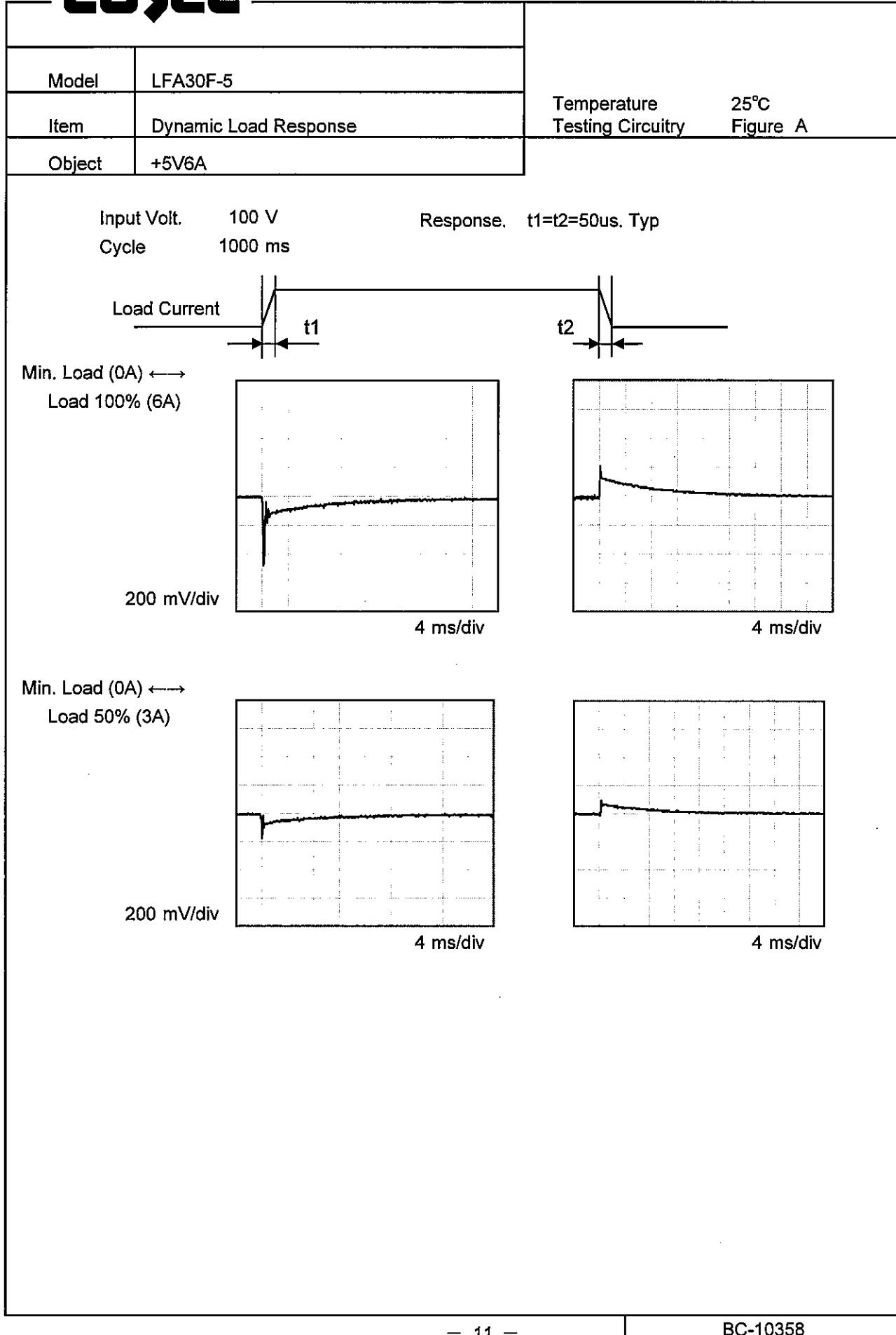

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	5.076	5.076	5.076
1.0	5.073	5.073	5.073
2.0	5.070	5.070	5.070
3.0	5.067	5.067	5.067
4.0	5.065	5.065	5.065
5.0	5.062	5.062	5.062
6.0	5.059	5.059	5.059
6.6	5.057	5.057	5.057
--	-	-	-
--	-	-	-
--	-	-	-

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

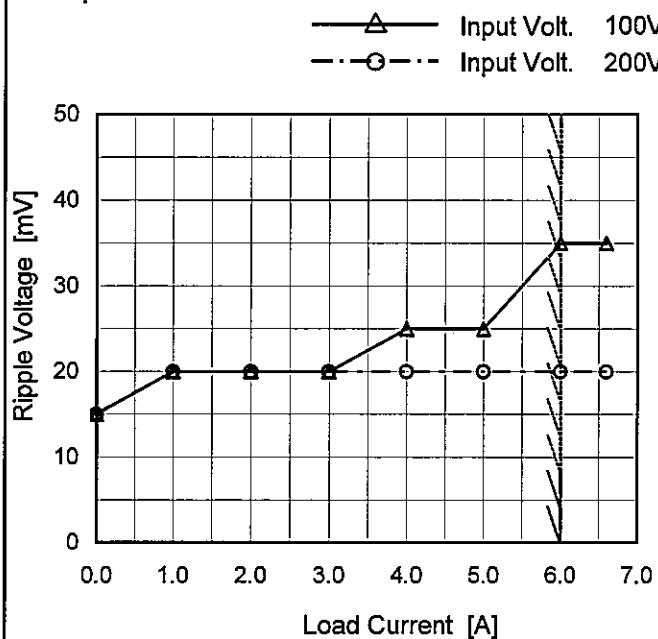
COSEL



COSEL

Model	LFA30F-5
Item	Ripple Voltage (by Load Current)
Object	+5V6A

1. Graph



Measured by 20 MHz Oscilloscope.

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

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

Temperature 25°C
Testing Circuitry Figure C

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	15	15
1.0	20	20
2.0	20	20
3.0	20	20
4.0	25	20
5.0	25	20
6.0	35	20
6.6	35	20
--	-	-
--	-	-
--	-	-

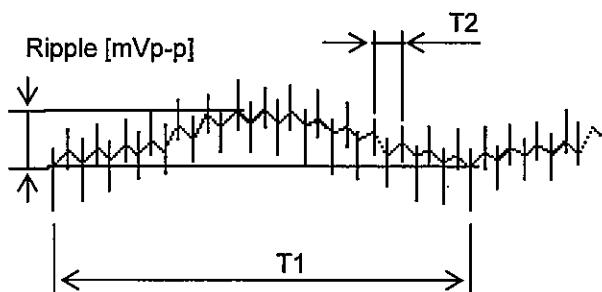
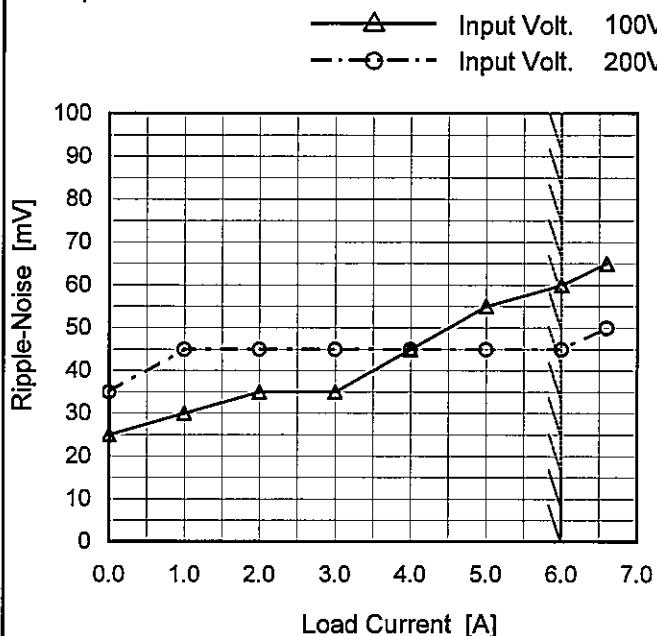
T1: Due to AC Input Line
T2: Due to Switching

Fig. Complex Ripple Wave Form

COSEL

Model	LFA30F-5
Item	Ripple-Noise
Object	+5V6A

1. Graph



Measured by 20 MHz Oscilloscope.

Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

 Temperature 25°C
 Testing Circuitry Figure C

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	25	35
1.0	30	45
2.0	35	45
3.0	35	45
4.0	45	45
5.0	55	45
6.0	60	45
6.6	65	50
--	-	-
--	-	-
--	-	-

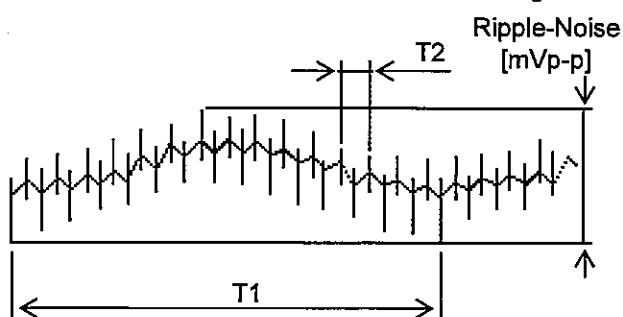
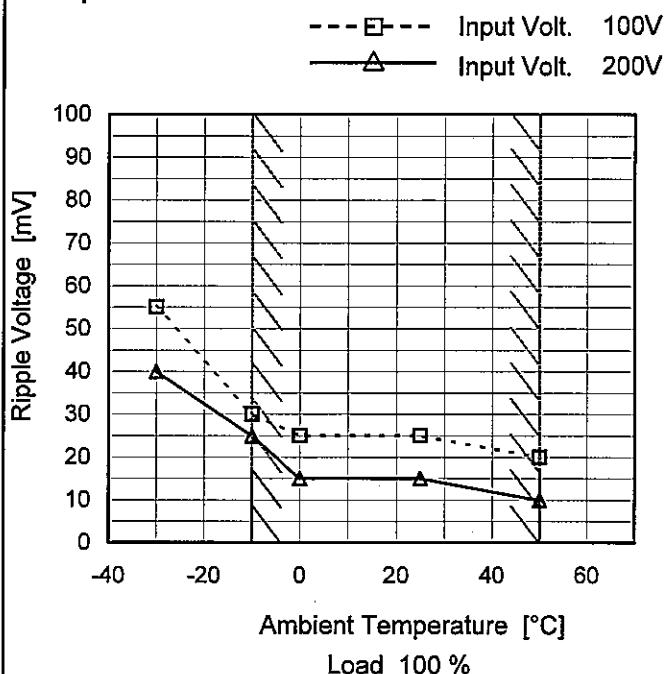
 T1: Due to AC Input Line
 T2: Due to Switching


Fig. Complex Ripple Wave Form

COSEL

Model	LFA30F-5
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V6A

1. Graph



Measured by 20 MHz Oscilloscope.

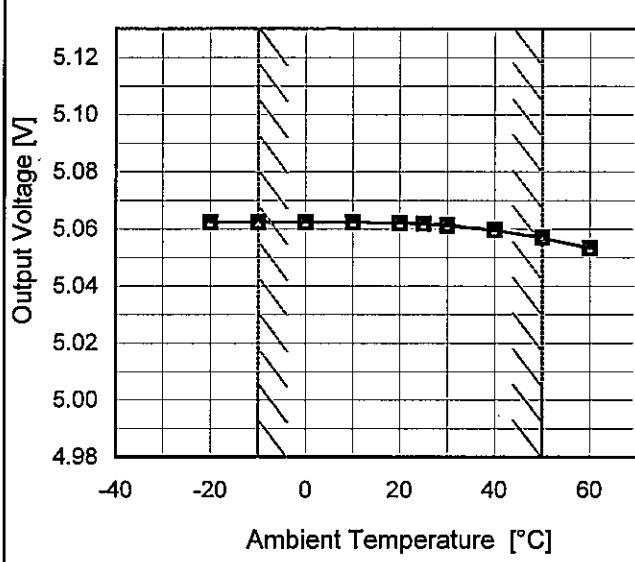
Note: Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure C

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	55	40
-10	30	25
0	25	15
25	25	15
50	20	10
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

COSEL

Model	LFA30F-5	Testing Circuitry Figure A																																																					
Item	Ambient Temperature Drift																																																						
Object	+5V6A	2.Values																																																					
1.Graph	<p style="text-align: center;"> —▲— Input Volt. 100V ---□--- Input Volt. 200V ---○--- Input Volt. 230V </p>  <p style="text-align: center;">Output Voltage [V]</p> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: center;">Load 100%</p>																																																						
		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr> <td>-20</td> <td>5.062</td> <td>5.062</td> <td>5.062</td> </tr> <tr> <td>-10</td> <td>5.062</td> <td>5.062</td> <td>5.062</td> </tr> <tr> <td>0</td> <td>5.062</td> <td>5.062</td> <td>5.062</td> </tr> <tr> <td>10</td> <td>5.062</td> <td>5.062</td> <td>5.062</td> </tr> <tr> <td>20</td> <td>5.062</td> <td>5.062</td> <td>5.062</td> </tr> <tr> <td>25</td> <td>5.062</td> <td>5.062</td> <td>5.062</td> </tr> <tr> <td>30</td> <td>5.061</td> <td>5.061</td> <td>5.062</td> </tr> <tr> <td>40</td> <td>5.060</td> <td>5.060</td> <td>5.060</td> </tr> <tr> <td>50</td> <td>5.057</td> <td>5.057</td> <td>5.057</td> </tr> <tr> <td>60</td> <td>5.053</td> <td>5.053</td> <td>5.053</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>			Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	-20	5.062	5.062	5.062	-10	5.062	5.062	5.062	0	5.062	5.062	5.062	10	5.062	5.062	5.062	20	5.062	5.062	5.062	25	5.062	5.062	5.062	30	5.061	5.061	5.062	40	5.060	5.060	5.060	50	5.057	5.057	5.057	60	5.053	5.053	5.053	-	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																						
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																				
-20	5.062	5.062	5.062																																																				
-10	5.062	5.062	5.062																																																				
0	5.062	5.062	5.062																																																				
10	5.062	5.062	5.062																																																				
20	5.062	5.062	5.062																																																				
25	5.062	5.062	5.062																																																				
30	5.061	5.061	5.062																																																				
40	5.060	5.060	5.060																																																				
50	5.057	5.057	5.057																																																				
60	5.053	5.053	5.053																																																				
-	-	-	-																																																				

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



Model	LFA30F-5	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+5V6A	

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 : 85 - 264V

Load Current : 0 - 6A

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

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

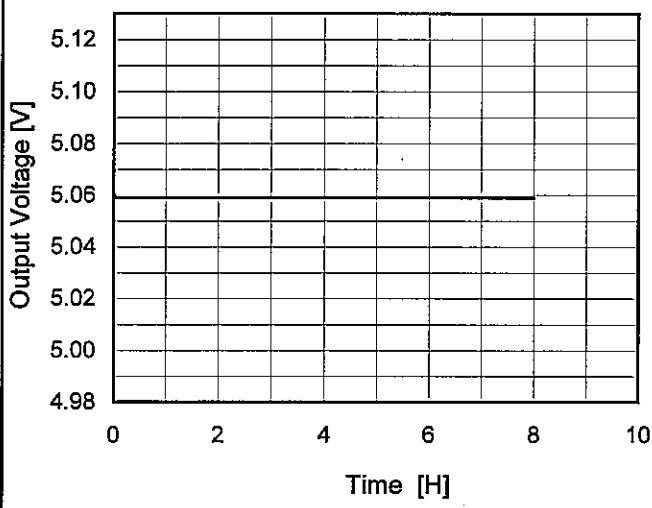
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	10	264	0	5.078	±11	±0.2
Minimum Voltage	50	85	6	5.057		

COSEL

Model	LFA30F-5
Item	Time Lapse Drift
Object	+5V6A

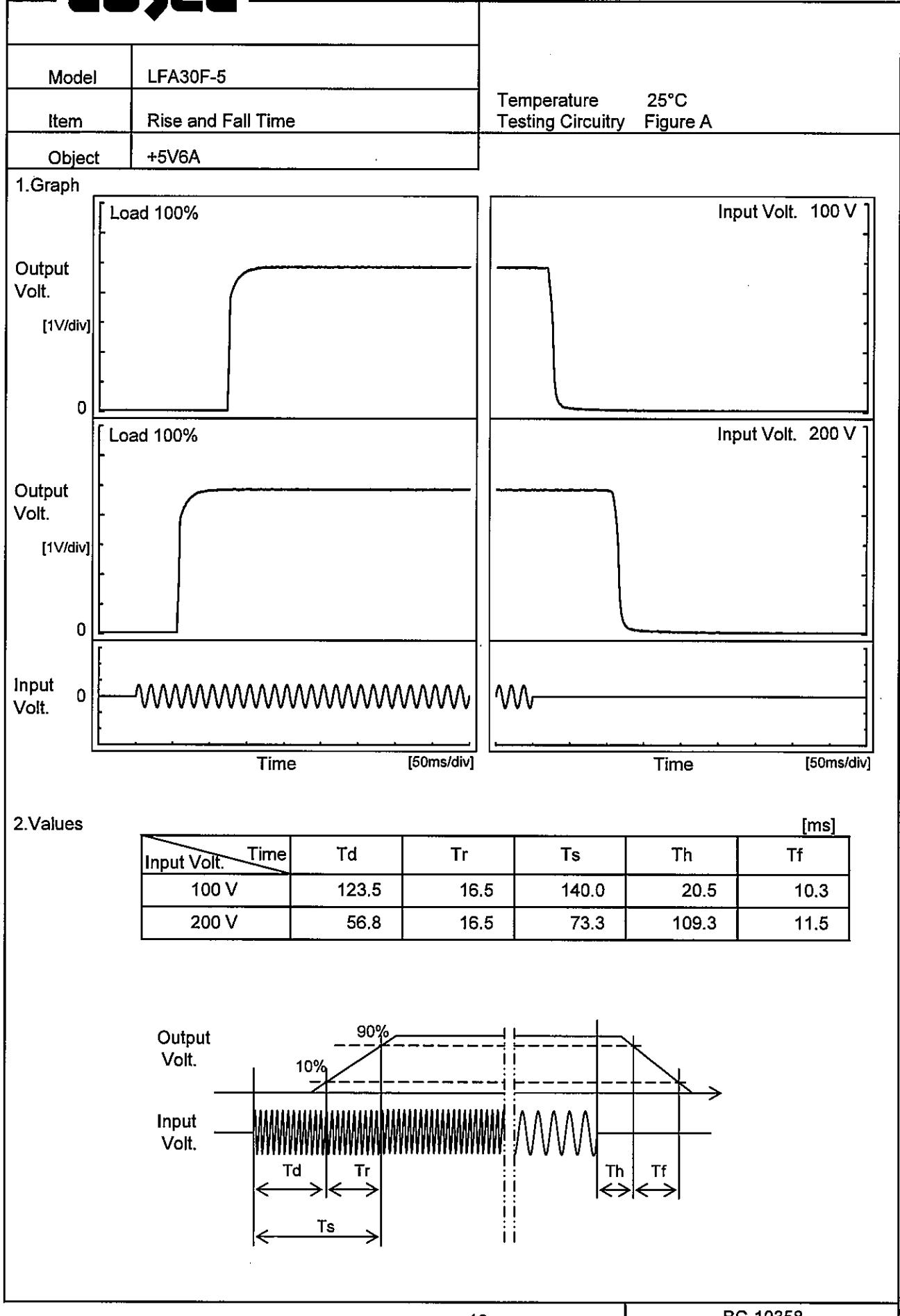
1.Graph


 Temperature 25°C
 Testing Circuitry Figure A

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.060
0.5	5.059
1.0	5.059
2.0	5.059
3.0	5.059
4.0	5.059
5.0	5.059
6.0	5.059
7.0	5.059
8.0	5.059

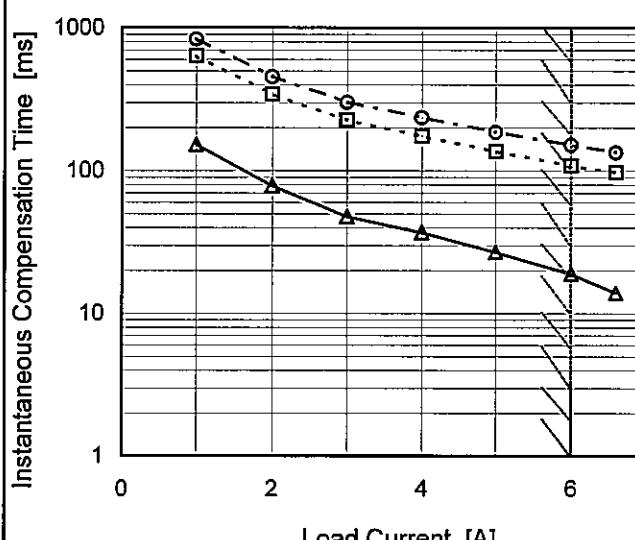
* The characteristic of AC200V is equal.

COSEL

COSEL

Model	LFA30F-5																																	
Item	Hold-Up Time	Temperature 25°C Testing Circuitry Figure A																																
Object	+5V6A																																	
1. Graph																																		
2. Values																																		
<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Hold-Up Time [ms]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>75</td><td>24</td><td>6</td> </tr> <tr> <td>85</td><td>33</td><td>12</td> </tr> <tr> <td>100</td><td>49</td><td>20</td> </tr> <tr> <td>120</td><td>74</td><td>31</td> </tr> <tr> <td>200</td><td>226</td><td>110</td> </tr> <tr> <td>230</td><td>304</td><td>153</td> </tr> <tr> <td>264</td><td>407</td><td>201</td> </tr> <tr> <td>280</td><td>461</td><td>230</td> </tr> <tr> <td>-</td><td>-</td><td>-</td> </tr> </tbody> </table>			Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	75	24	6	85	33	12	100	49	20	120	74	31	200	226	110	230	304	153	264	407	201	280	461	230	-	-	-
Input Voltage [V]	Hold-Up Time [ms]																																	
	Load 50%	Load 100%																																
75	24	6																																
85	33	12																																
100	49	20																																
120	74	31																																
200	226	110																																
230	304	153																																
264	407	201																																
280	461	230																																
-	-	-																																
<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy. Note: Slanted line shows the range of the rated input voltage.</p>																																		

COSEL

Model	LFA30F-5	Temperature Testing Circuitry	25°C Figure A
Item	Instantaneous Interruption Compensation		
Object	+5V6A		
1. Graph			
—▲— Input Volt. 100V - - □ - - Input Volt. 200V - - ○ - - Input Volt. 230V			
			
2. Values			
Load Current [A]	Time [ms]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
1.0	153	632	835
2.0	79	342	456
3.0	48	226	302
4.0	37	174	236
5.0	27	137	187
6.0	19	108	152
6.6	14	97	135
--	-	-	-
--	-	-	-
--	-	-	-

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

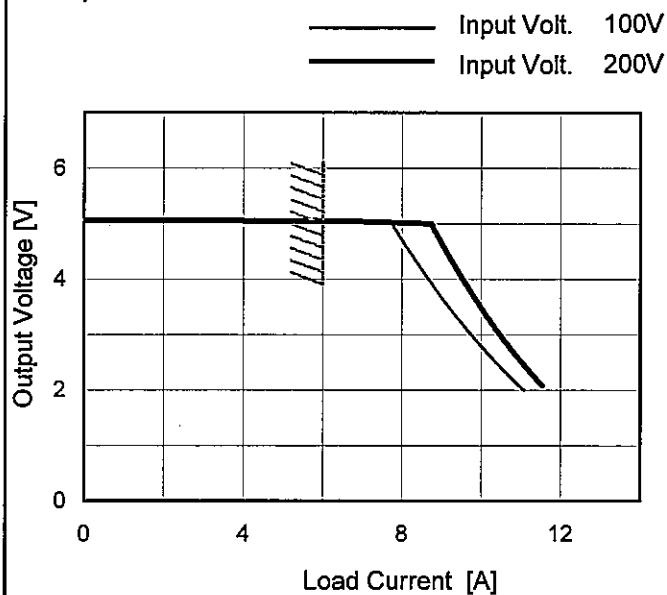
COSEL

Model	LFA30F-5																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																							
Object	+5V6A																																							
1. Graph																																								
<p>Input Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 50% (dashed line with squares)</p> <p>Load 100% (solid line with triangles)</p>																																								
<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																								
Testing Circuitry Figure A																																								
2. Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Input Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>-20</td> <td>35</td> <td>62</td> </tr> <tr> <td>-10</td> <td>35</td> <td>61</td> </tr> <tr> <td>0</td> <td>34</td> <td>60</td> </tr> <tr> <td>10</td> <td>34</td> <td>59</td> </tr> <tr> <td>20</td> <td>34</td> <td>58</td> </tr> <tr> <td>25</td> <td>34</td> <td>58</td> </tr> <tr> <td>30</td> <td>34</td> <td>58</td> </tr> <tr> <td>40</td> <td>34</td> <td>58</td> </tr> <tr> <td>50</td> <td>33</td> <td>59</td> </tr> <tr> <td>60</td> <td>33</td> <td>60</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>			Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-20	35	62	-10	35	61	0	34	60	10	34	59	20	34	58	25	34	58	30	34	58	40	34	58	50	33	59	60	33	60	-	-	-
Ambient Temperature [°C]	Input Voltage [V]																																							
	Load 50%	Load 100%																																						
-20	35	62																																						
-10	35	61																																						
0	34	60																																						
10	34	59																																						
20	34	58																																						
25	34	58																																						
30	34	58																																						
40	34	58																																						
50	33	59																																						
60	33	60																																						
-	-	-																																						

COSEL

Model	LFA30F-5
Item	Overcurrent Protection
Object	+5V6A

1. Graph



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

Intermittent operation occurs when the output voltage is from 2V to 0V.

Temperature 25°C
Testing Circuitry Figure A

2. Values

Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
5.00	6.04	6.04
4.75	7.98	8.93
4.50	8.18	9.10
4.00	8.64	9.52
3.50	9.13	9.98
3.00	9.72	10.47
2.50	10.35	11.02
2.00	11.09	11.55
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	LFA30F-5																																							
Item	Overvoltage Protection																																							
Object	+5V6A																																							
1. Graph																																								
<p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p> <p>Legend: Input Volt. 100V (solid line with open triangle), Input Volt. 200V (dashed line with square)</p>																																								
Note: Slanted line shows the range of the rated ambient temperature.																																								
Testing Circuitry Figure A																																								
2. Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Operating Point [V]</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> </tr> </thead> <tbody> <tr> <td>-20</td> <td>6.55</td> <td>6.55</td> </tr> <tr> <td>-10</td> <td>6.55</td> <td>6.55</td> </tr> <tr> <td>0</td> <td>6.55</td> <td>6.55</td> </tr> <tr> <td>10</td> <td>6.55</td> <td>6.55</td> </tr> <tr> <td>20</td> <td>6.55</td> <td>6.55</td> </tr> <tr> <td>25</td> <td>6.55</td> <td>6.55</td> </tr> <tr> <td>30</td> <td>6.55</td> <td>6.55</td> </tr> <tr> <td>40</td> <td>6.48</td> <td>6.48</td> </tr> <tr> <td>50</td> <td>6.48</td> <td>6.48</td> </tr> <tr> <td>60</td> <td>6.48</td> <td>6.48</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>			Ambient Temperature [°C]	Operating Point [V]		Input Volt. 100[V]	Input Volt. 200[V]	-20	6.55	6.55	-10	6.55	6.55	0	6.55	6.55	10	6.55	6.55	20	6.55	6.55	25	6.55	6.55	30	6.55	6.55	40	6.48	6.48	50	6.48	6.48	60	6.48	6.48	-	-	-
Ambient Temperature [°C]	Operating Point [V]																																							
	Input Volt. 100[V]	Input Volt. 200[V]																																						
-20	6.55	6.55																																						
-10	6.55	6.55																																						
0	6.55	6.55																																						
10	6.55	6.55																																						
20	6.55	6.55																																						
25	6.55	6.55																																						
30	6.55	6.55																																						
40	6.48	6.48																																						
50	6.48	6.48																																						
60	6.48	6.48																																						
-	-	-																																						

COSEL

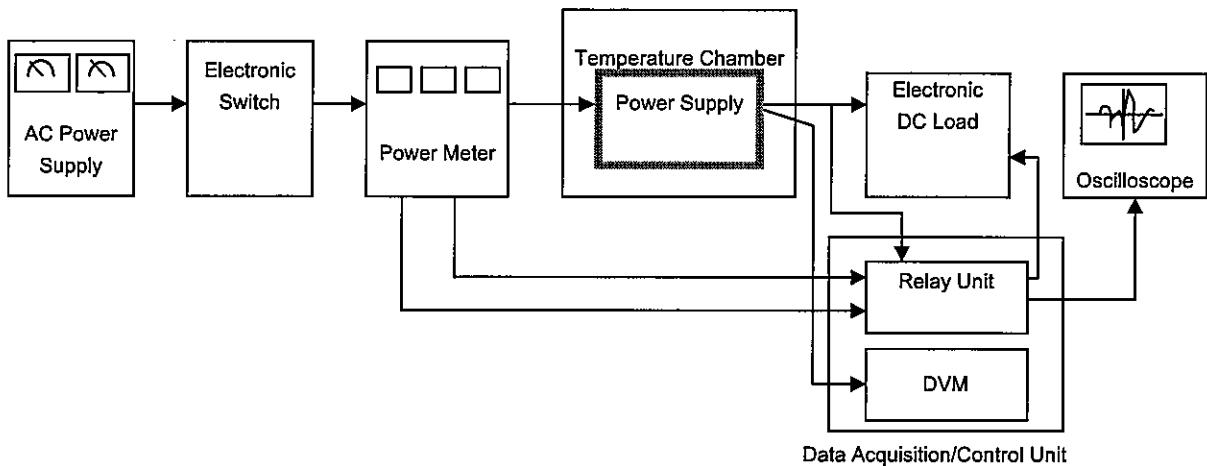


Figure A

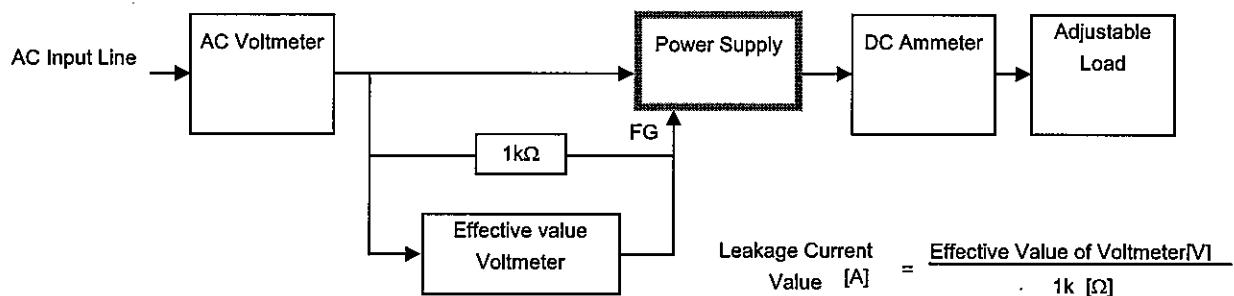


Figure B (DEN-AN)

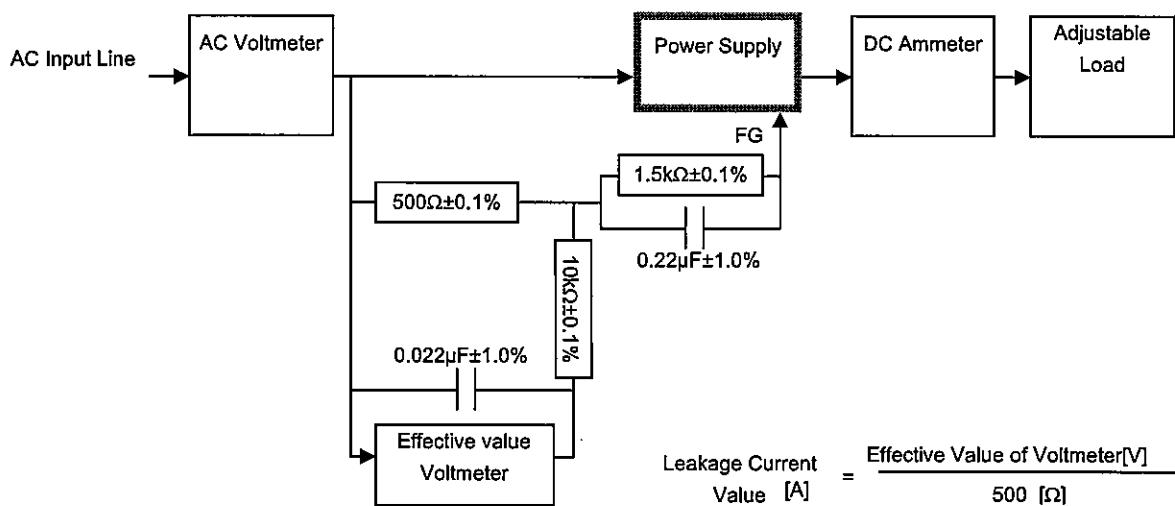


Figure B (IEC60950-1)

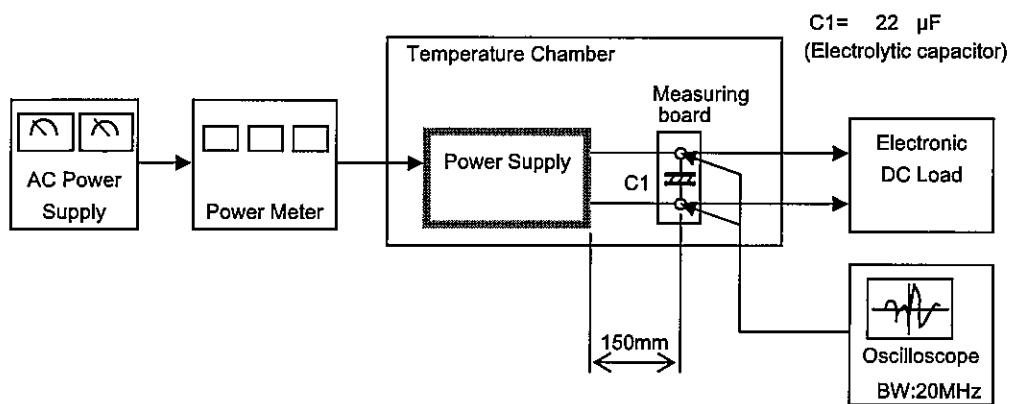
COSEL

Figure C