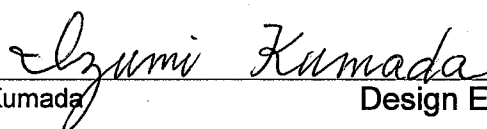




# TEST DATA OF LGA50A-5

Regulated DC Power Supply  
April 1, 2008

Approved by :   
Yoshiaki Shimizu Design Manager

Prepared by :   
Izumi Kumada Design Engineer

**COSEL CO.,LTD.**

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(Final Page 25)

# COSEL

Model

LGA50A-5

Item

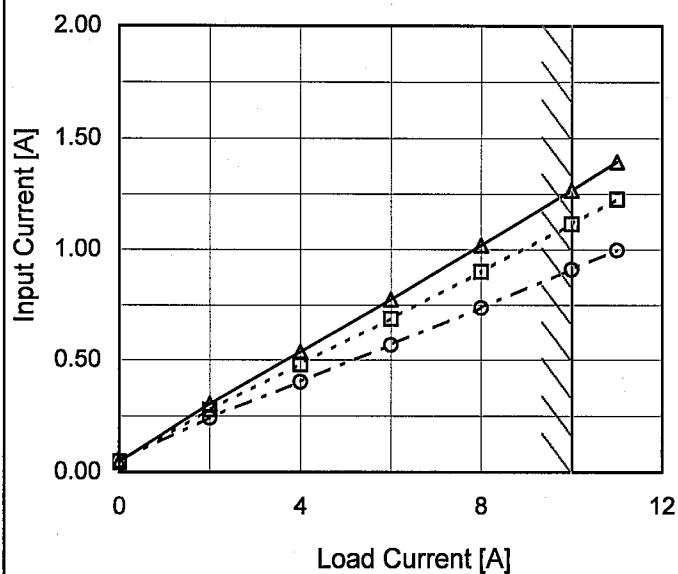
Input Current (by Load Current)

Object

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph

—△— Input Volt. 85V  
- - □ - - Input Volt. 100V  
- · - ○ - · - Input Volt. 132V

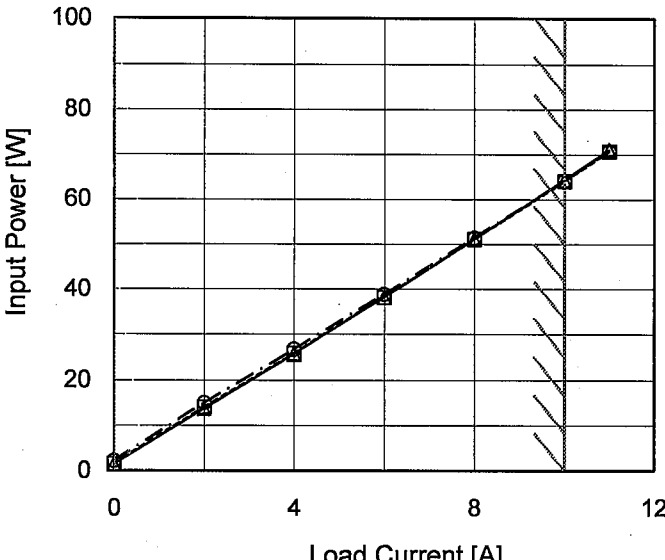


Note: Slanted line shows the range of the rated load current.

## 2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	0.045	0.046	0.050
2	0.305	0.278	0.242
4	0.536	0.480	0.402
6	0.775	0.687	0.567
8	1.018	0.900	0.737
10	1.266	1.115	0.909
11	1.392	1.225	0.997
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--	-	-	-
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# COSEL

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**COSEL**

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Object																																			
1.Graph		2.Values																																	
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# COSEL

Model

LGA50A-5

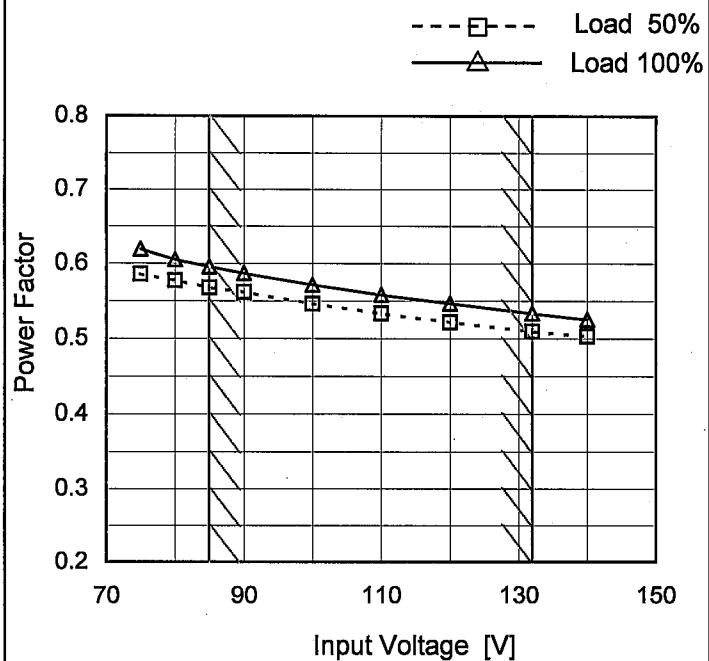
Item

Power Factor (by Input Voltage)

Object

Temperature  
Testing Circuitry25°C  
Figure A

## 1. Graph

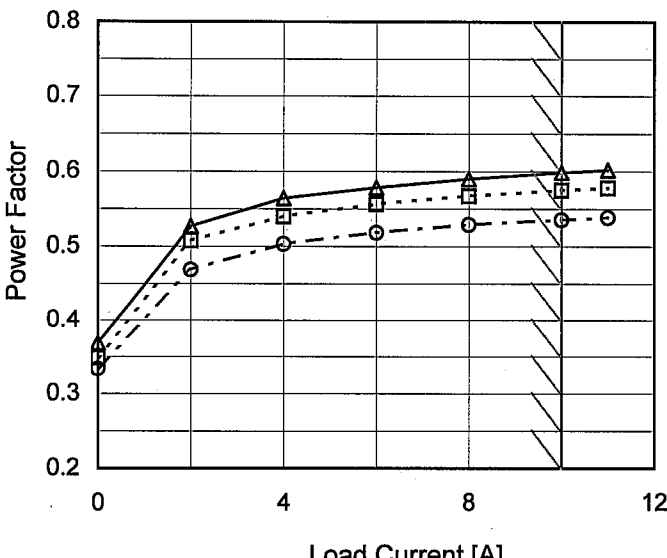


Note: Slanted line shows the range of the rated input voltage.

## 2. Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.586	0.619
80	0.577	0.605
85	0.568	0.596
90	0.562	0.587
100	0.546	0.572
110	0.533	0.558
120	0.522	0.547
132	0.509	0.534
140	0.503	0.525

# COSEL

Model		LGA50A-5		Temperature Testing Circuitry	25°C Figure A																																																			
Item		Power Factor (by Load Current)																																																						
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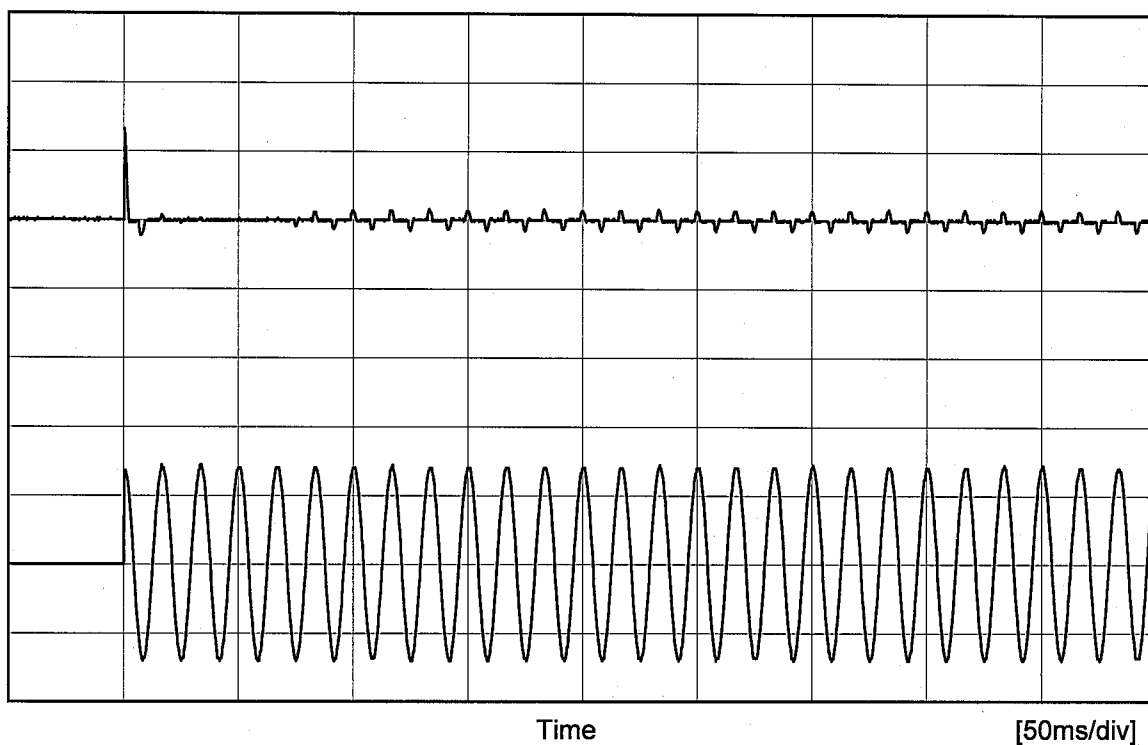
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BC-10150

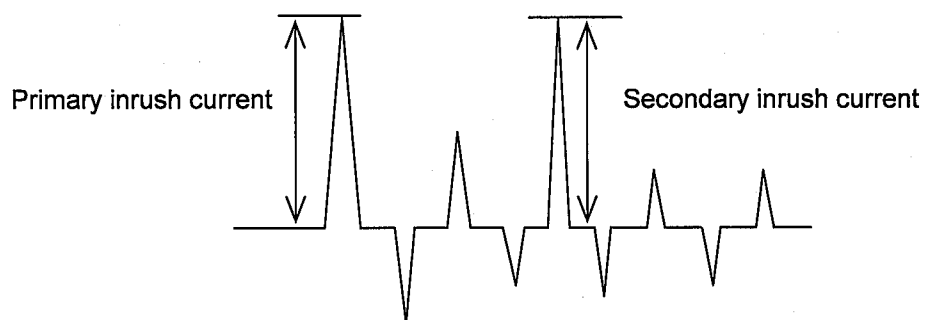
**COSEL**

Model	LGA50A-5	Temperature     25°C Testing Circuitry   Figure A	
Item	Inrush Current		
Object	_____		

Input  
Current  
[20A/div]Input  
Voltage  
[100V/div]

Input Voltage        100 V  
Frequency            60 Hz  
Load                  100 %

Primary inrush current    26.5 A  
Secondary inrush current   3.1 A



# COSEL

		Temperature 25°C Testing Circuitry Figure B
Model	LGA50A-5	
Item	Leakage Current	
Object		

## 1.Results

Standards	Leakage Current [mA]		
	Input Volt. 100 [V]	Input Volt. 120 [V]	Input Volt. 132 [V]
(A)DEN-AN	0.18	0.20	0.24
(B)IEC60950	0.18	0.25	0.27

frequency 60Hz

## 2.Condition

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

# COSEL

Model

LGA50A-5

Item

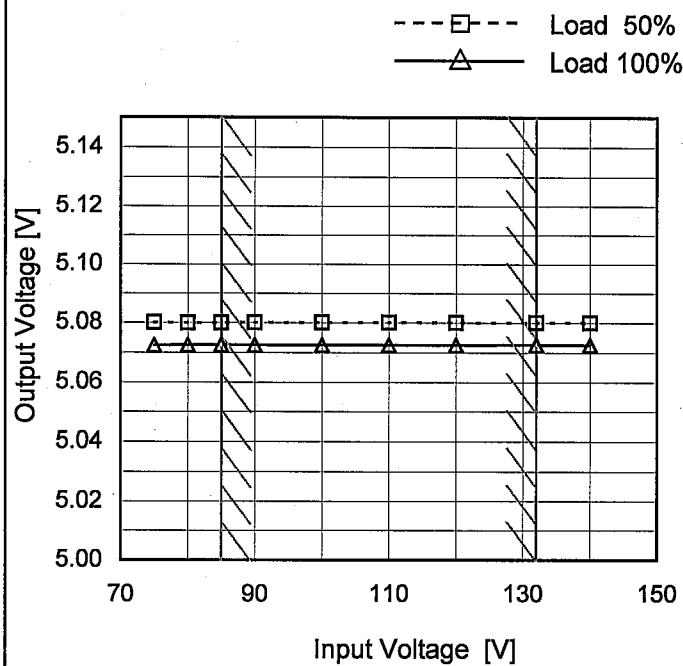
Line Regulation

Object

+5V10A

 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]	Output Voltage [V]	
	Load 50%	Load 100%
75	5.080	5.072
80	5.080	5.072
85	5.080	5.073
90	5.080	5.073
100	5.080	5.073
110	5.080	5.073
120	5.080	5.073
132	5.080	5.073
140	5.080	5.073

**COSEL**

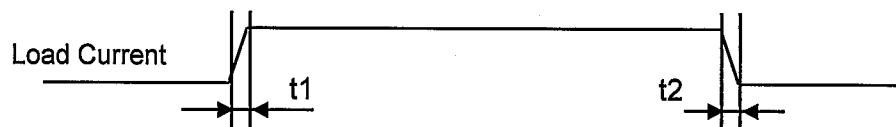
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# COSEL

Model	LGA50A-5	Temperature Testing Circuitry	25°C Figure C
Item	Dynamic Load Response		
Object	+5V10A		

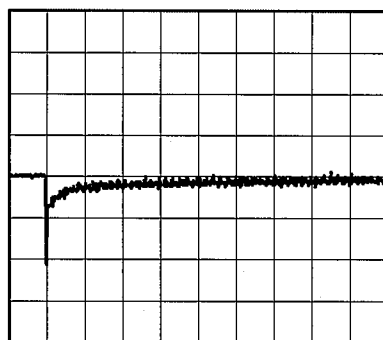
Input Volt. 100 V  
Cycle 1000 ms

Response.  $t_1=t_2=50\mu\text{s}$ . Typ



Min. Load (0A)  $\longleftrightarrow$   
Load 100% (10A)

100 mV/div



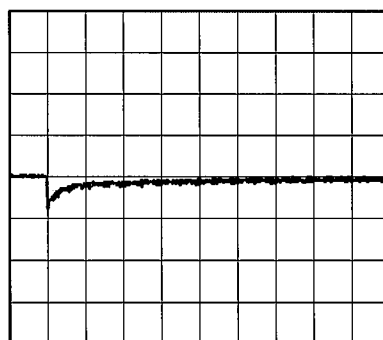
40 ms/div



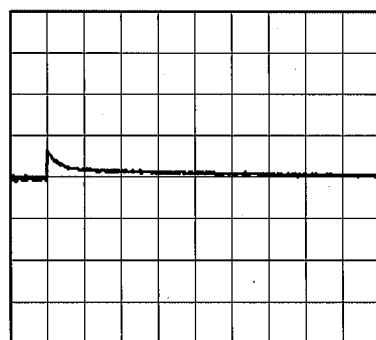
40 ms/div

Min. Load (0A)  $\longleftrightarrow$   
Load 50% (5A)

100 mV/div

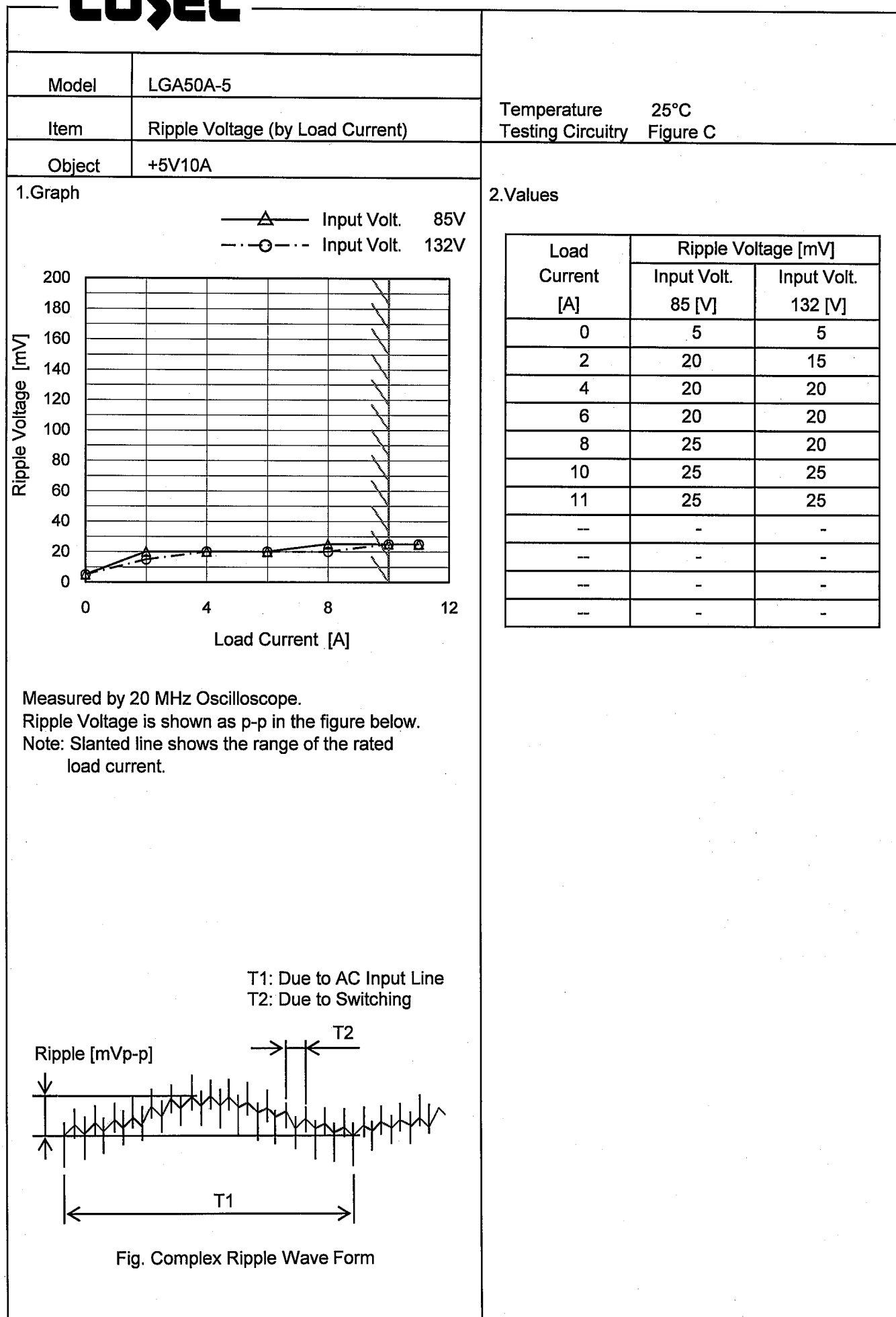


40 ms/div

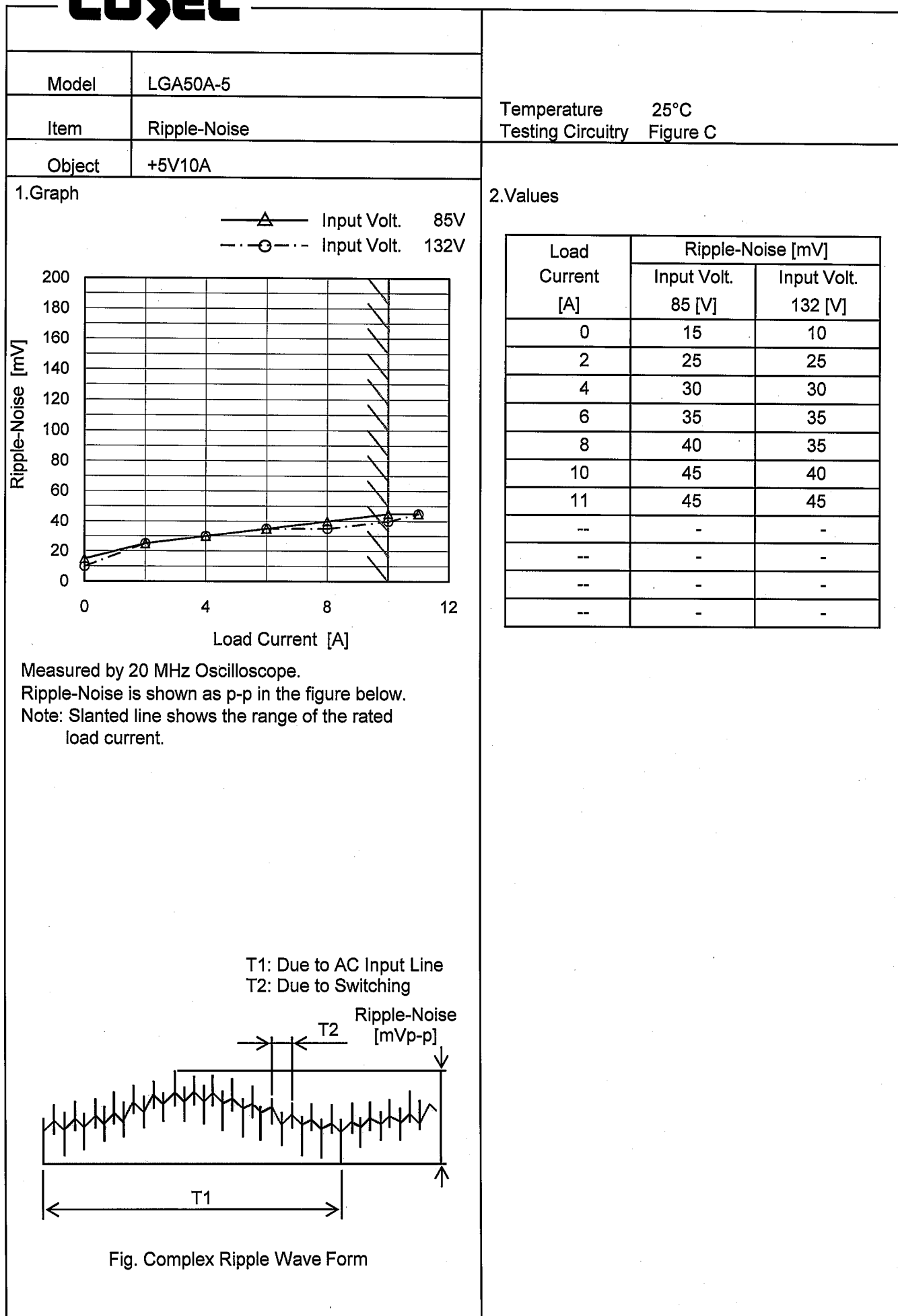


40 ms/div

# COSEL



# COSEL



**COSEL**

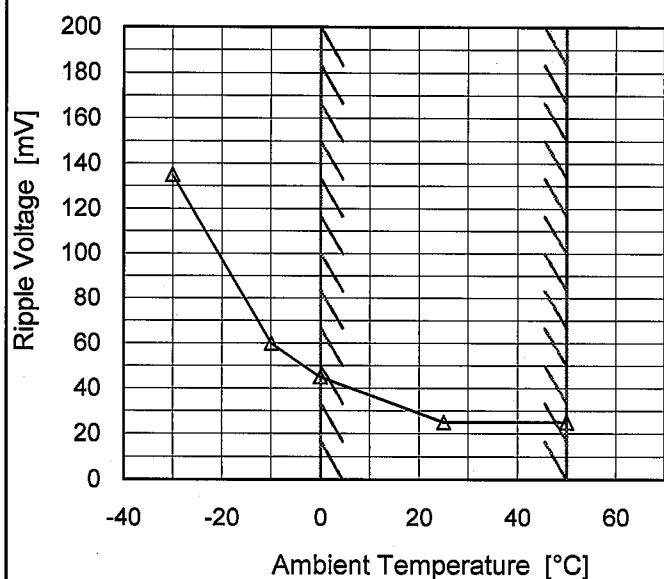
Model LGA50A-5

Item Ripple Voltage (by Ambient Temp.)

Object +5V10A

Testing Circuitry Figure C

## 1. Graph



Input Volt. 100V

Load 100%

## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]
-30	135
-10	60
0	45
25	25
50	25
--	-
--	-
--	-
--	-
--	-
--	-
--	-

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 ambient temperature.

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

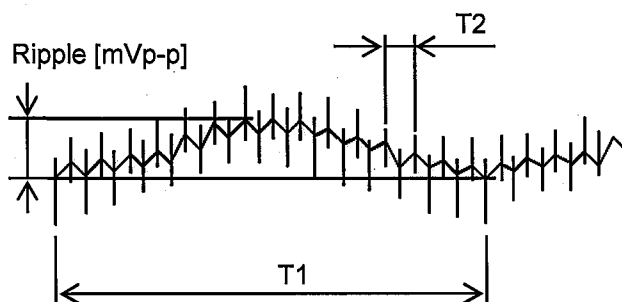


Fig. Complex Ripple Wave Form

# COSEL

Model		LGA50A-5	
Item		Ambient Temperature Drift	
Object		+5V10A	

1.Graph

△

Input Volt.

85V

□

Input Volt.

100V

○

Input Volt.

132V

Output Voltage [V]

Ambient Temperature [°C]

Load 100%

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	5.068	5.068	5.068
-10	5.068	5.069	5.069
0	5.069	5.069	5.069
10	5.070	5.070	5.070
20	5.070	5.070	5.070
25	5.070	5.070	5.071
30	5.071	5.071	5.071
40	5.071	5.071	5.071
50	5.070	5.070	5.070
60	5.068	5.068	5.068
--	-	-	-

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

**COSEL**

		Testing Circuitry Figure A
Model	LGA50A-5	
Item	Output Voltage Accuracy	
Object	+5V10A	

### 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 - 132V

Load Current : 0 - 10A

\* 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	132	0	5.087	±10	±0.2
Minimum Voltage	-10	85	10	5.068		

**COSEL**

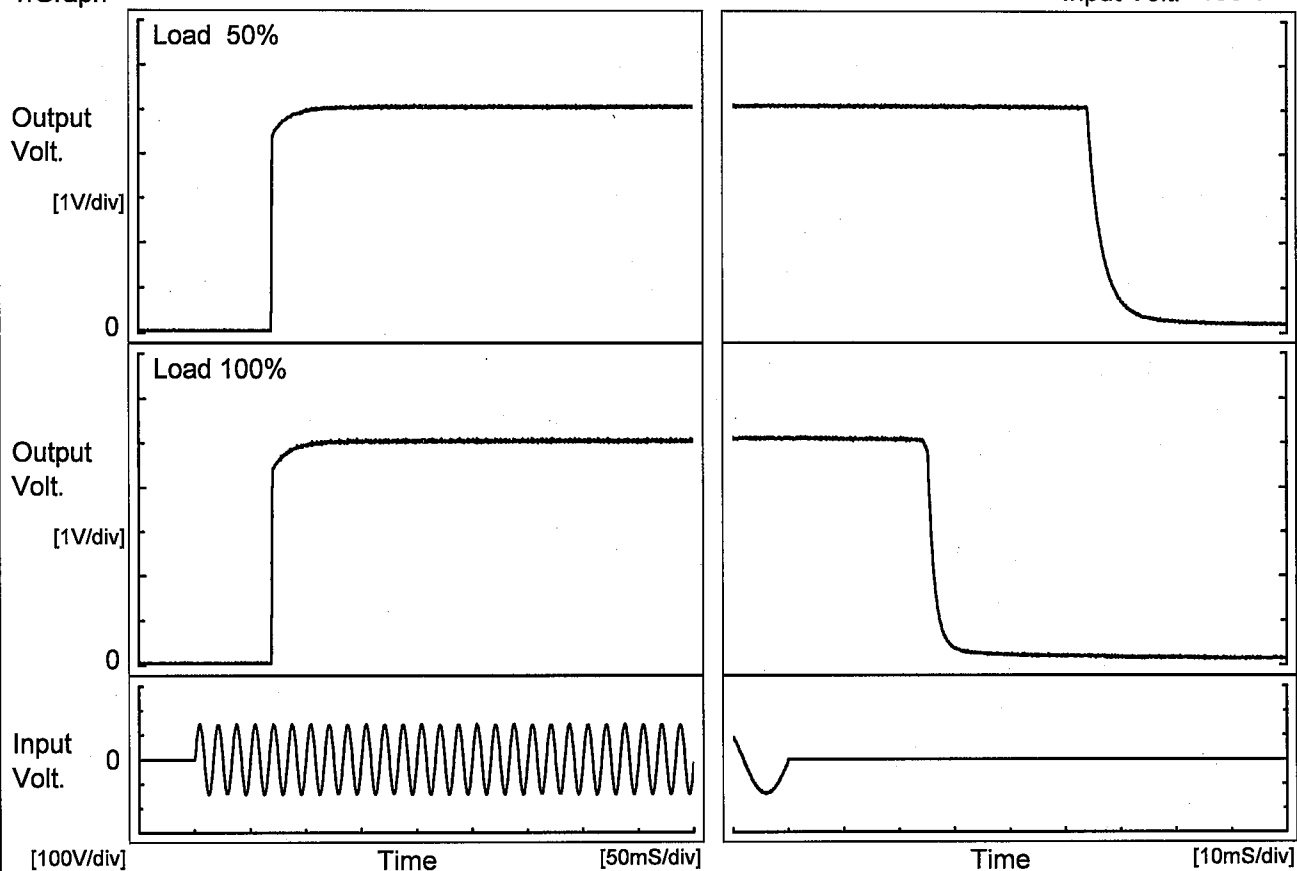
Model	LGA50A-5																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+5V10A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><div><div>5.14</div><div>5.12</div><div>5.10</div><div>5.08</div><div>5.06</div><div>5.04</div><div>5.02</div><div>5.00</div></div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div><div><div>Time [H]</div><div>Input Volt. 100V</div><div>Load 100%</div></div></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.072</td></tr><tr><td>0.5</td><td>5.072</td></tr><tr><td>1.0</td><td>5.072</td></tr><tr><td>2.0</td><td>5.072</td></tr><tr><td>3.0</td><td>5.072</td></tr><tr><td>4.0</td><td>5.072</td></tr><tr><td>5.0</td><td>5.072</td></tr><tr><td>6.0</td><td>5.072</td></tr><tr><td>7.0</td><td>5.072</td></tr><tr><td>8.0</td><td>5.072</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.072	0.5	5.072	1.0	5.072	2.0	5.072	3.0	5.072	4.0	5.072	5.0	5.072	6.0	5.072	7.0	5.072	8.0	5.072
Time since start [H]	Output Voltage [V]																								
0.0	5.072																								
0.5	5.072																								
1.0	5.072																								
2.0	5.072																								
3.0	5.072																								
4.0	5.072																								
5.0	5.072																								
6.0	5.072																								
7.0	5.072																								
8.0	5.072																								

# COSEL

Model	LGA50A-5	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V10A		

## 1.Graph

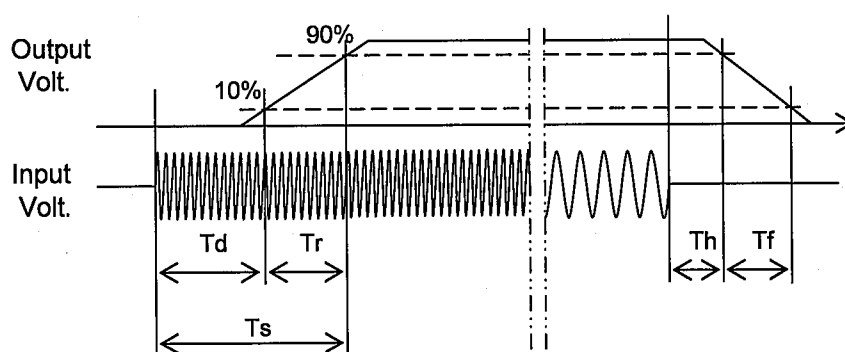
Input Volt. 100 V



## 2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	69.8	4.0	73.8	54.3	7.1
100 %	69.8	4.3	74.1	25.3	3.3



# COSEL

Model

LGA50A-5

Item

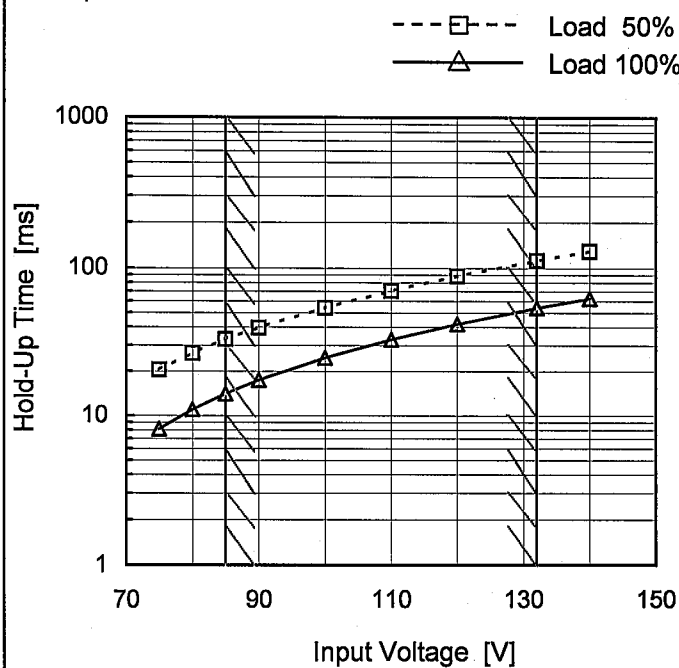
Hold-Up Time

Object

+5V10A

Temperature  
Testing Circuitry25°C  
Figure A

## 1. Graph



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.

## 2. Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	20	8
80	27	11
85	33	14
90	39	17
100	54	25
110	70	33
120	88	42
132	112	54
140	129	62

# COSEL

Model LGA50A-5

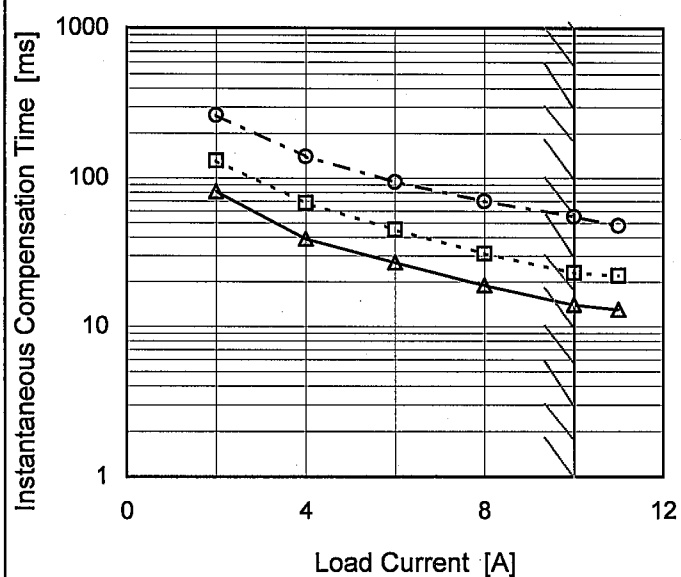
Item Instantaneous Interruption Compensation

Object +5V10A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph

—△— Input Volt. 85V  
 ---□--- Input Volt. 100V  
 ---○--- Input Volt. 132V



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

## 2. Values

Load Current [A]	Time [ms]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0	-	-	-
2	81	131	265
4	39	68	140
6	27	45	94
8	19	31	70
10	14	23	55
11	13	22	48
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

**COSEL**

Model

LGA50A-5

Item

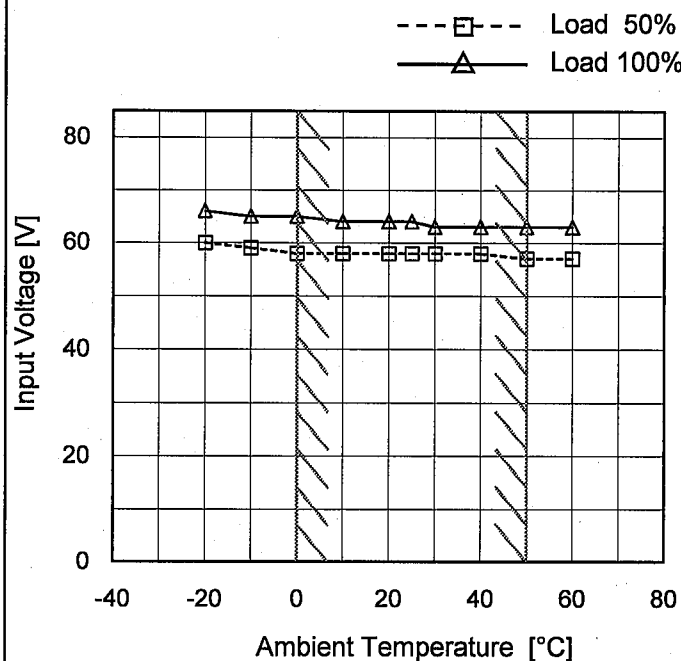
Minimum Input Voltage  
for Regulated Output Voltage

Object

+5V10A

Testing Circuitry Figure A

## 1. Graph



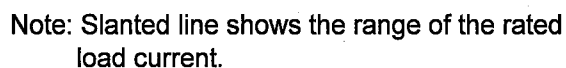
Note: Slanted line shows the range of the rated ambient temperature.

## 2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	60	66
-10	59	65
0	58	65
10	58	64
20	58	64
25	58	64
30	58	63
40	58	63
50	57	63
60	57	63
--	-	-

Temperature 25°C  
Testing Circuitry Figure A

_____	Input Volt.	85V
_____	Input Volt.	100V
_____	Input Volt.	132V



Intermittent operation occurs when the output voltage is from 2.75V to 0V.

[illegible]

# COSEL

Model LGA50A-5

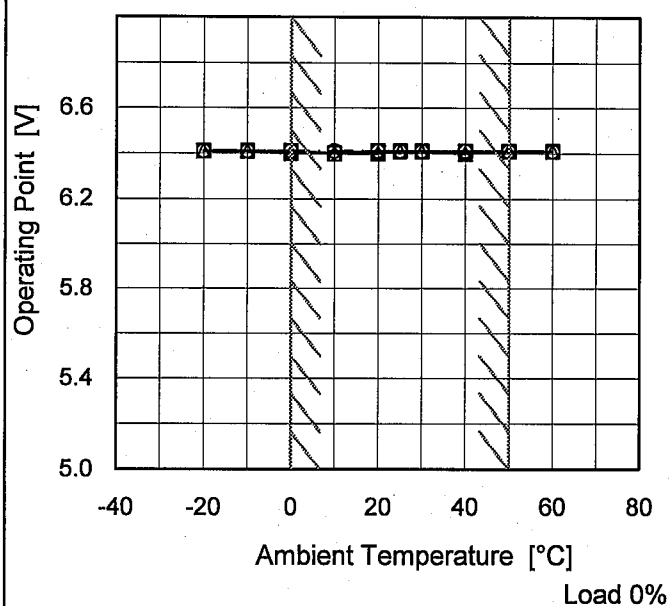
Item Overvoltage Protection

Object +5V10A

Testing Circuitry Figure A

## 1. Graph

—△— Input Volt. 85V  
 ---□--- Input Volt. 100V  
 ---○--- Input Volt. 132V



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

## 2. Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	6.41	6.41	6.41
-10	6.41	6.41	6.41
0	6.40	6.41	6.41
10	6.40	6.40	6.41
20	6.40	6.41	6.41
25	6.41	6.41	6.41
30	6.41	6.41	6.41
40	6.40	6.41	6.41
50	6.41	6.41	6.41
60	6.41	6.41	6.41
--	-	-	-

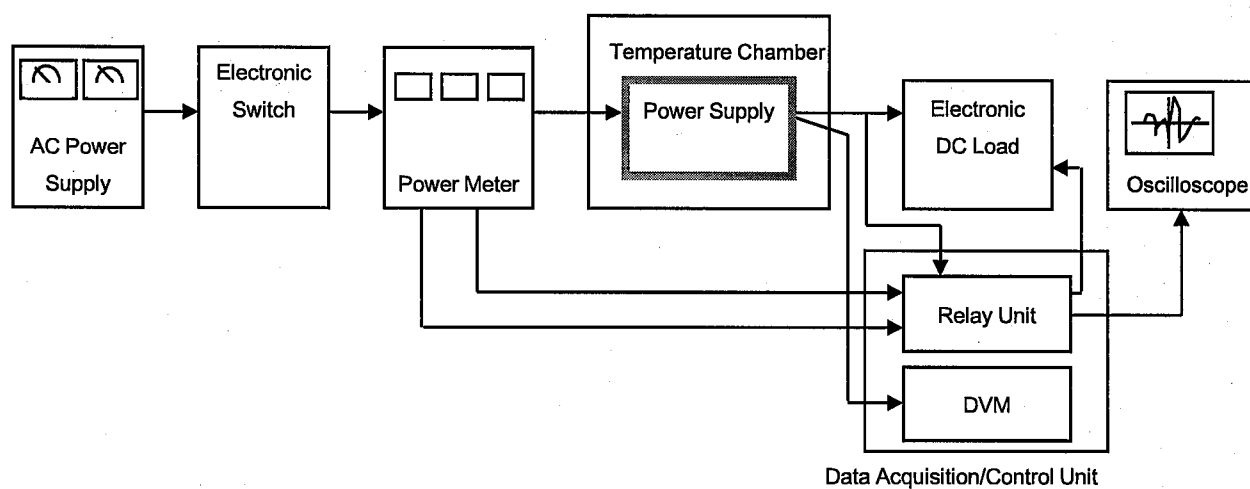


Figure A

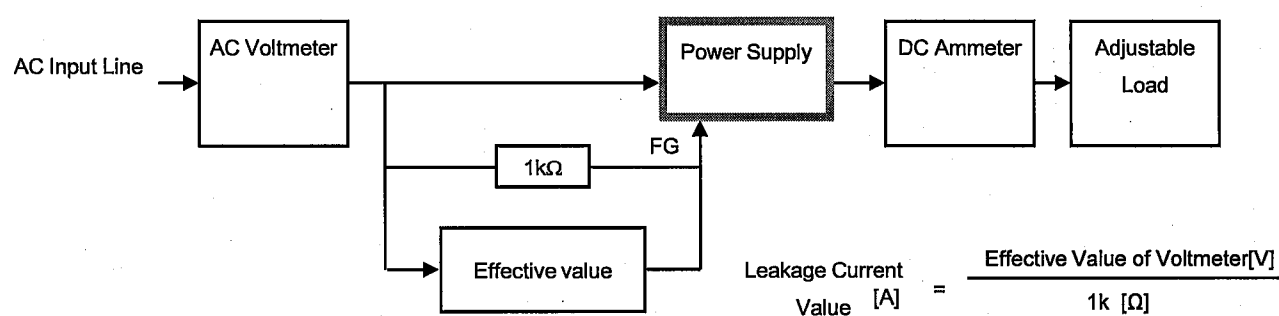


Figure B ( DEN-AN )

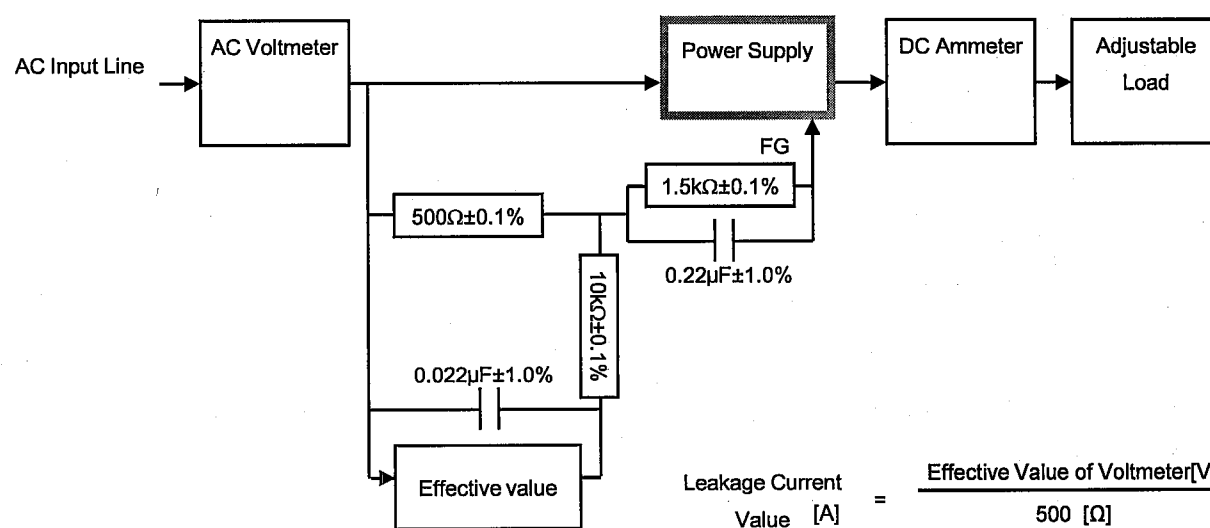


Figure B ( IEC60950-1 )

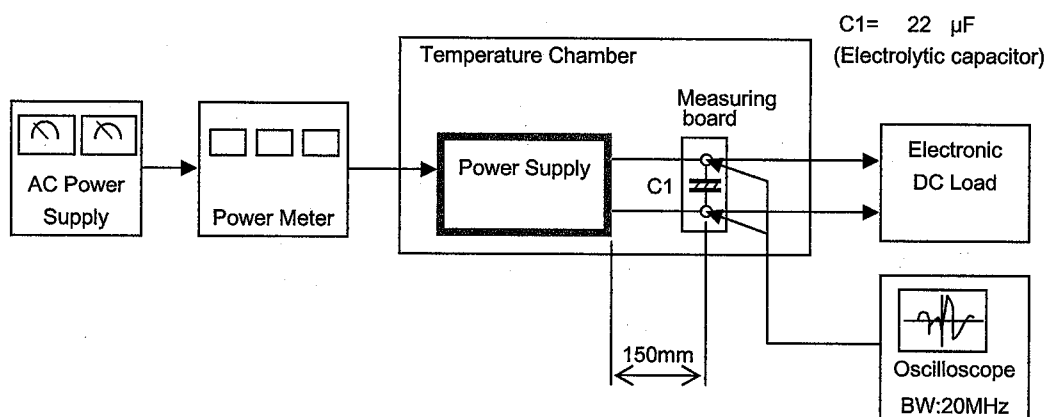


Figure C