



# TEST DATA OF LFA75F-5

Regulated DC Power Supply  
August 10, 2009

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Yoshiaki Shimizu Design Manager

Prepared by : *Koji Takahashi*  
Koji Takahashi Design Engineer

**COSEL CO.,LTD.**

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Model	LFA75F-5																																																					
Item	Input Current (by Load Current)	Temperature	25°C																																																			
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<div><div><div>—△—</div><div>---□---</div><div>---○---</div></div><div><div>Input Volt. 100V</div><div>Input Volt. 200V</div><div>Input Volt. 230V</div></div></div> <p>Input Current [A]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><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><tr><td>0.0</td><td>0.064</td><td>0.045</td><td>0.040</td></tr><tr><td>3.0</td><td>0.232</td><td>0.144</td><td>0.129</td></tr><tr><td>6.0</td><td>0.416</td><td>0.244</td><td>0.215</td></tr><tr><td>9.0</td><td>0.597</td><td>0.330</td><td>0.300</td></tr><tr><td>12.0</td><td>0.785</td><td>0.413</td><td>0.378</td></tr><tr><td>15.0</td><td>0.976</td><td>0.504</td><td>0.454</td></tr><tr><td>16.5</td><td>1.074</td><td>0.551</td><td>0.493</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]	Input Current [A]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	0.064	0.045	0.040	3.0	0.232	0.144	0.129	6.0	0.416	0.244	0.215	9.0	0.597	0.330	0.300	12.0	0.785	0.413	0.378	15.0	0.976	0.504	0.454	16.5	1.074	0.551	0.493	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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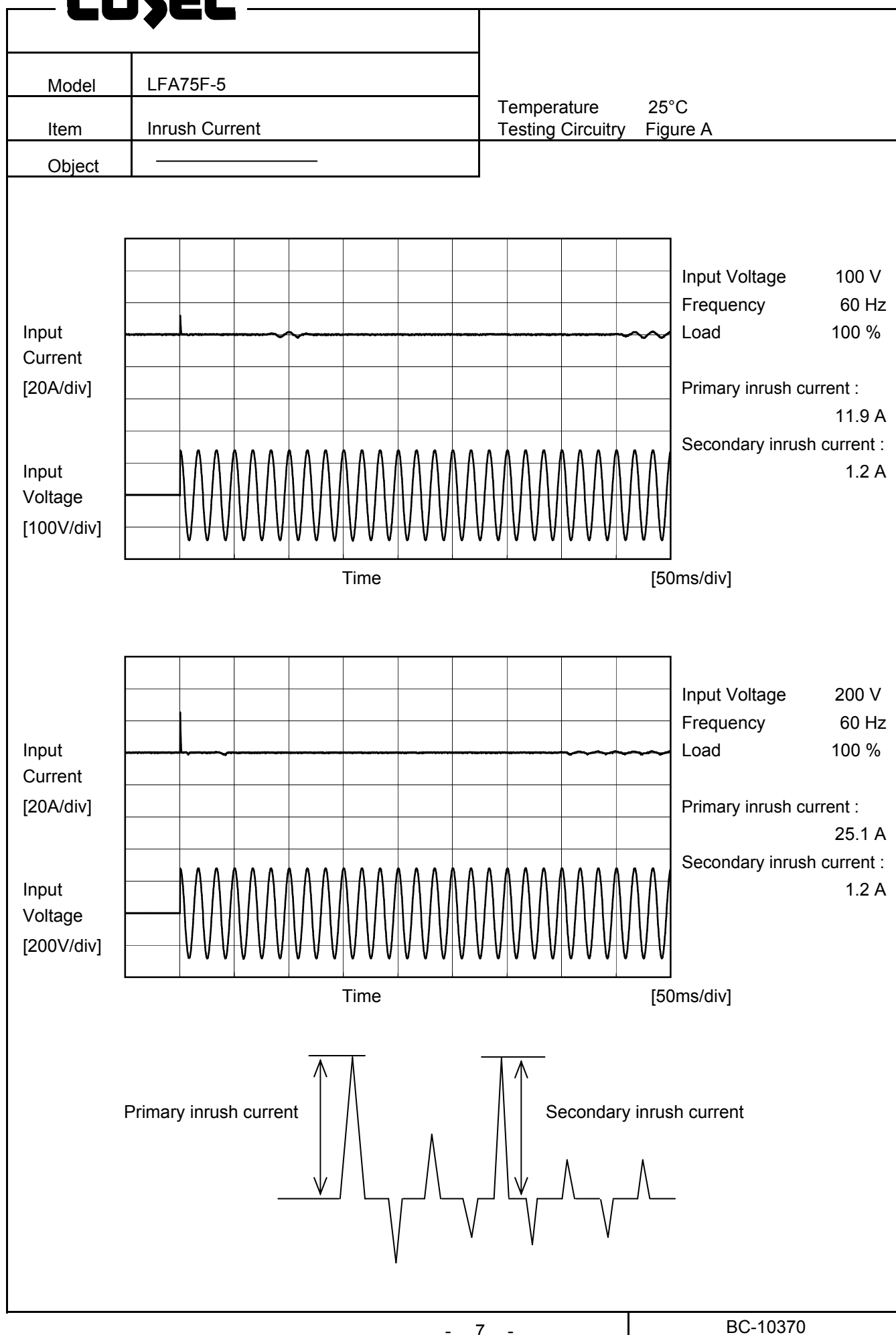
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		Temperature 25°C Testing Circuitry Figure B
Model	LFA75F-5	
Item	Leakage Current	
Object	_____	

## 1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.13	0.26	0.32	Operation
	One of phases	0.22	0.45	0.57	Stand by
IEC60950	Both phases	0.14	0.30	0.38	Operation
	One of phases	0.22	0.44	0.54	Stand by

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

## 2.Condition

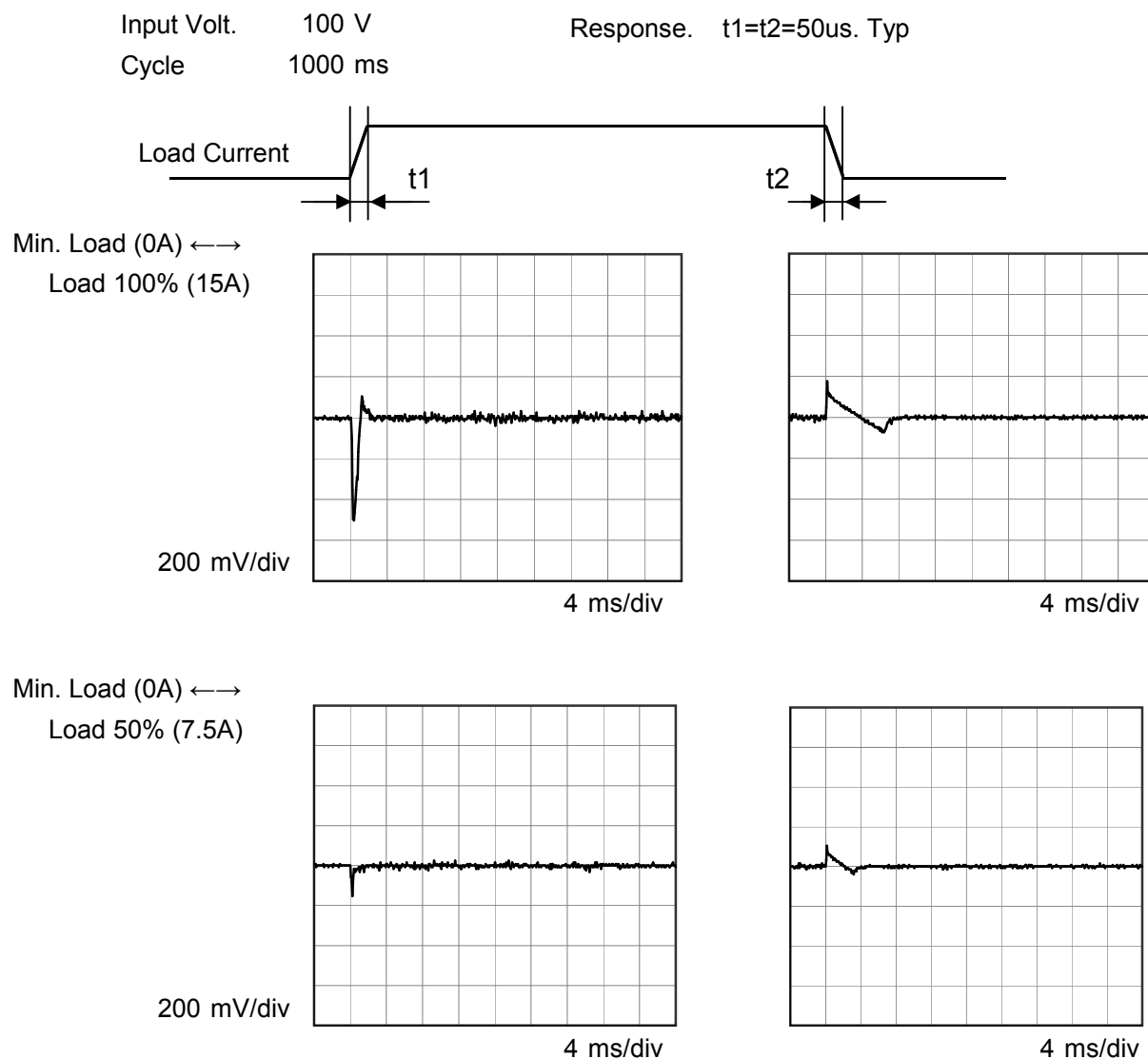
Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

Model	LFA75F-5	Temperature 25°C Testing Circuitry Figure A																																	
Item	Line Regulation																																		
Object	+5V15A																																		
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Model	LFA75F-5	Temperature Testing Circuitry	25°C Figure A
Item	Dynamic Load Response		
Object	+5V15A		



Model	LFA75F-5																																								
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<p>Measured by 20 MHz Oscilloscope.</p> <p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p>																																									
<div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div><p>Ripple [mVp-p]</p><p>T1</p><p>T2</p></div>																																									
Fig. Complex Ripple Wave Form																																									

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Object	+5V15A	Testing Circuitry	Figure C																																						
1.Graph		2.Values																																							
<div><div><div><div></div><div>—△—</div><div>Input Volt. 100V</div></div><div><div>- - ○ - -</div><div>Input Volt. 200V</div></div></div><div><div><div><div>200</div><div>180</div><div>160</div><div>140</div><div>120</div><div>100</div><div>80</div><div>60</div><div>40</div><div>20</div><div>0</div></div><div><div>0</div><div>4</div><div>8</div><div>12</div><div>16</div></div></div><div><div><div></div><div>150</div><div>100</div><div>50</div><div>0</div></div><div><div>0</div><div>4</div><div>8</div><div>12</div><div>16</div></div></div><div><div></div><div>Load Current [A]</div></div></div><div><div>Measured by 20 MHz Oscilloscope.</div><div>Ripple-Noise is shown as p-p in the figure below.</div><div>Note: Slanted line shows the range of the rated load current.</div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 100 [V]</th><th>Input Volt. 200 [V]</th></tr><tr><td>0.0</td><td>45</td><td>45</td></tr><tr><td>3.0</td><td>45</td><td>50</td></tr><tr><td>6.0</td><td>50</td><td>55</td></tr><tr><td>9.0</td><td>55</td><td>60</td></tr><tr><td>12.0</td><td>60</td><td>60</td></tr><tr><td>15.0</td><td>70</td><td>70</td></tr><tr><td>16.5</td><td>75</td><td>75</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></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 100 [V]	Input Volt. 200 [V]	0.0	45	45	3.0	45	50	6.0	50	55	9.0	55	60	12.0	60	60	15.0	70	70	16.5	75	75	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 100 [V]	Input Volt. 200 [V]																																							
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3.0	45	50																																							
6.0	50	55																																							
9.0	55	60																																							
12.0	60	60																																							
15.0	70	70																																							
16.5	75	75																																							
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--	-	-																																							
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--	-	-																																							
<div><div><div><div></div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><div><div><div></div><div>T2</div></div><div><div></div><div>T1</div></div></div><div><div><div></div><div>↑</div></div><div><div></div><div>↓</div></div></div><div><div></div><div>Ripple-Noise [mVp-p]</div></div></div><div><div>Fig. Complex Ripple Wave Form</div></div></div>																																									

Model	LFA75F-5																																									
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry    Figure C																																								
Object	+5V15A																																									
1.Graph		2.Values																																								
<div><div><div>---□---</div><div>Input Volt.    100V</div></div><div><div>—△—</div><div>Input Volt.    200V</div></div></div> <table border="1"><thead><tr><th>Ambient Temperature [°C]</th><th>100V Input [mV]</th><th>200V Input [mV]</th></tr></thead><tbody><tr><td>-30</td><td>45</td><td>50</td></tr><tr><td>-10</td><td>30</td><td>30</td></tr><tr><td>0</td><td>30</td><td>30</td></tr><tr><td>25</td><td>15</td><td>15</td></tr><tr><td>50</td><td>15</td><td>15</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><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> <p>Measured by 20 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature.</p>		Ambient Temperature [°C]	100V Input [mV]	200V Input [mV]	-30	45	50	-10	30	30	0	30	30	25	15	15	50	15	15	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-		
Ambient Temperature [°C]	100V Input [mV]	200V Input [mV]																																								
-30	45	50																																								
-10	30	30																																								
0	30	30																																								
25	15	15																																								
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Model	LFA75F-5																																																					
Item	Ambient Temperature Drift	Testing Circuitry    Figure A																																																				
Object	+5V15A																																																					
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt.</div><div>100V</div></div><div><div>---□---</div><div>Input Volt.</div><div>200V</div></div><div><div>---○---</div><div>Input Volt.</div><div>230V</div></div></div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>		<table><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><tr><td>-20</td><td>5.013</td><td>5.013</td><td>5.013</td></tr><tr><td>-10</td><td>5.012</td><td>5.012</td><td>5.012</td></tr><tr><td>0</td><td>5.011</td><td>5.011</td><td>5.011</td></tr><tr><td>10</td><td>5.010</td><td>5.010</td><td>5.010</td></tr><tr><td>20</td><td>5.009</td><td>5.009</td><td>5.009</td></tr><tr><td>25</td><td>5.009</td><td>5.009</td><td>5.009</td></tr><tr><td>30</td><td>5.009</td><td>5.009</td><td>5.009</td></tr><tr><td>40</td><td>5.007</td><td>5.007</td><td>5.007</td></tr><tr><td>50</td><td>5.004</td><td>5.004</td><td>5.003</td></tr><tr><td>60</td><td>5.000</td><td>5.000</td><td>5.000</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	-20	5.013	5.013	5.013	-10	5.012	5.012	5.012	0	5.011	5.011	5.011	10	5.010	5.010	5.010	20	5.009	5.009	5.009	25	5.009	5.009	5.009	30	5.009	5.009	5.009	40	5.007	5.007	5.007	50	5.004	5.004	5.003	60	5.000	5.000	5.000	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
-20	5.013	5.013	5.013																																																			
-10	5.012	5.012	5.012																																																			
0	5.011	5.011	5.011																																																			
10	5.010	5.010	5.010																																																			
20	5.009	5.009	5.009																																																			
25	5.009	5.009	5.009																																																			
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40	5.007	5.007	5.007																																																			
50	5.004	5.004	5.003																																																			
60	5.000	5.000	5.000																																																			
--	-	-	-																																																			

- 15 -

BC-10370

Object	+5V15A
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Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0	5.029	±13	±0.3
Minimum Voltage	50	264	15	5.003		

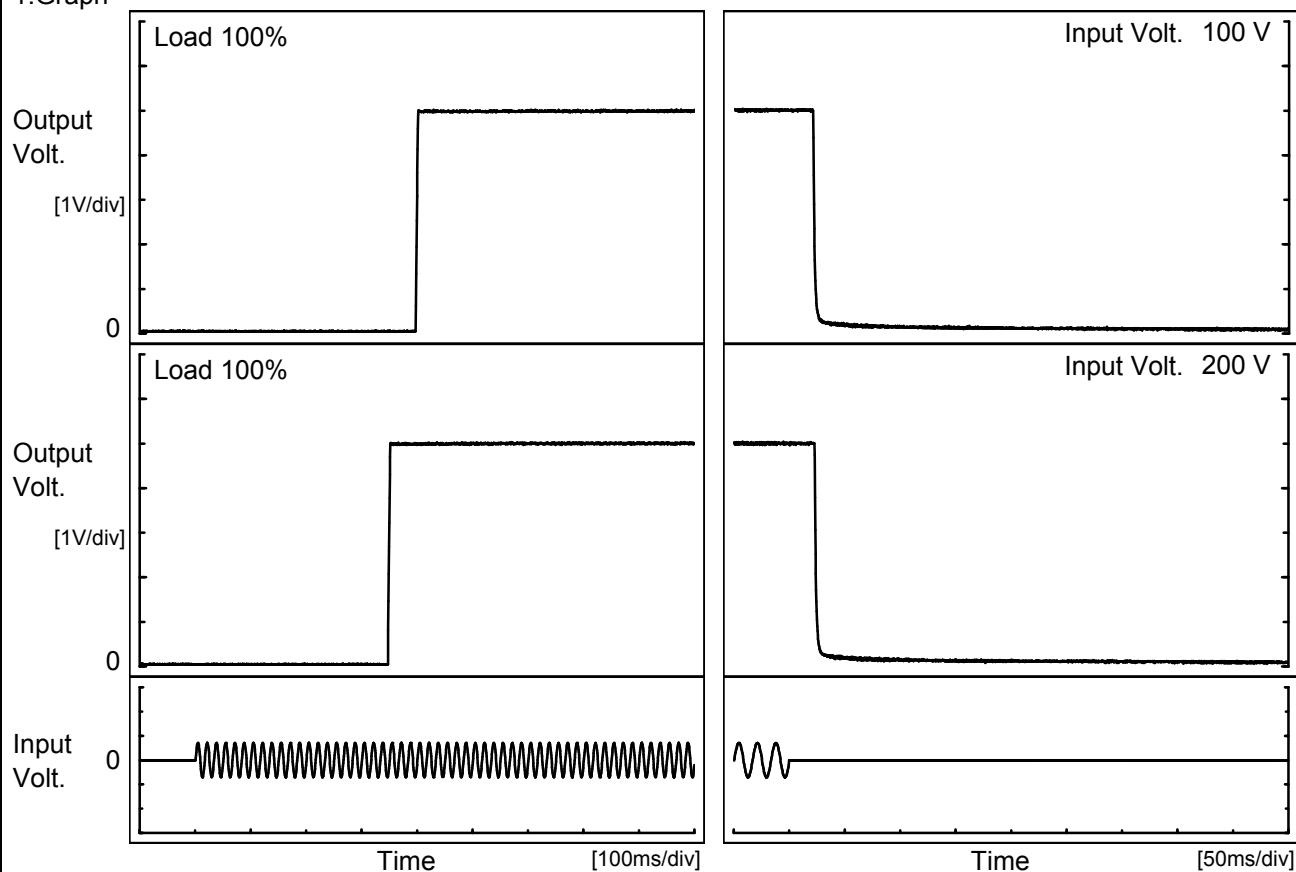


Model	LFA75F-5	Temperature25°C Testing CircuitryFigure A	
Item	Time Lapse Drift		
Object	+5V15A		
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><di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# COSEL

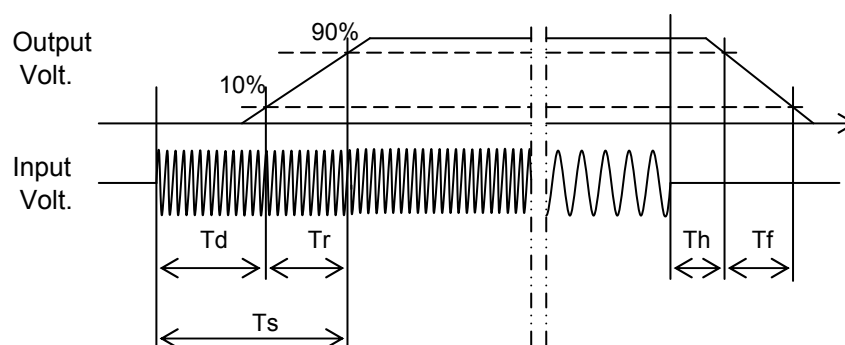
Model	LFA75F-5	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V15A		

## 1. Graph



## 2. Values

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	398.0	3.5	401.5	21.0	3.3
200 V	348.0	3.5	351.5	23.0	3.3



Model	LFA75F-5																																
Item	Hold-Up Time	Temperature	25°C																														
		Testing Circuitry	Figure A																														
Object	+5V15A																																
1.Graph		2.Values																															
<div><div>---□---</div><div>Load 50%</div></div> <div><div>—△—</div><div>Load 100%</div></div> <table><thead><tr><th>Input Voltage [V]</th><th>Load 50% [ms]</th><th>Load 100% [ms]</th></tr></thead><tbody><tr><td>75</td><td>44</td><td>19</td></tr><tr><td>85</td><td>45</td><td>20</td></tr><tr><td>100</td><td>46</td><td>21</td></tr><tr><td>120</td><td>47</td><td>22</td></tr><tr><td>200</td><td>48</td><td>23</td></tr><tr><td>230</td><td>49</td><td>23</td></tr><tr><td>264</td><td>50</td><td>23</td></tr><tr><td>280</td><td>53</td><td>24</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>		Input Voltage [V]	Load 50% [ms]	Load 100% [ms]	75	44	19	85	45	20	100	46	21	120	47	22	200	48	23	230	49	23	264	50	23	280	53	24	--	-	-		
Input Voltage [V]	Load 50% [ms]	Load 100% [ms]																															
75	44	19																															
85	45	20																															
100	46	21																															
120	47	22																															
200	48	23																															
230	49	23																															
264	50	23																															
280	53	24																															
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<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>																																	

Model	LFA75F-5																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
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<div><div><div>—△—</div><div>Input Volt.</div><div>100V</div></div><div><div>- - - □ - -</div><div>Input Volt.</div><div>200V</div></div><div><div>- · - ○ - · -</div><div>Input Volt.</div><div>230V</div></div></div> <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.0</td><td>93</td><td>113</td><td>114</td></tr><tr><td>6.0</td><td>48</td><td>56</td><td>60</td></tr><tr><td>9.0</td><td>31</td><td>39</td><td>39</td></tr><tr><td>12.0</td><td>23</td><td>30</td><td>30</td></tr><tr><td>15.0</td><td>20</td><td>21</td><td>22</td></tr><tr><td>16.5</td><td>14</td><td>18</td><td>19</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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	-	-	-	3.0	93	113	114	6.0	48	56	60	9.0	31	39	39	12.0	23	30	30	15.0	20	21	22	16.5	14	18	19	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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<div><div><div>△</div><div>Input Volt. 100V</div></div><div><div>○</div><div>Input Volt. 200V</div></div></div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when the output voltage is less than rated output voltage.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="2">Load Current [A]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th></tr><tr><td>5.00</td><td>18.32</td><td>18.32</td></tr><tr><td>4.75</td><td>-</td><td>-</td></tr><tr><td>4.50</td><td>-</td><td>-</td></tr><tr><td>4.00</td><td>-</td><td>-</td></tr><tr><td>3.50</td><td>-</td><td>-</td></tr><tr><td>3.00</td><td>-</td><td>-</td></tr><tr><td>2.50</td><td>-</td><td>-</td></tr><tr><td>2.00</td><td>-</td><td>-</td></tr><tr><td>1.50</td><td>-</td><td>-</td></tr><tr><td>1.00</td><td>-</td><td>-</td></tr><tr><td>0.50</td><td>-</td><td>-</td></tr><tr><td>0.00</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 200[V]	5.00	18.32	18.32	4.75	-	-	4.50	-	-	4.00	-	-	3.50	-	-	3.00	-	-	2.50	-	-	2.00	-	-	1.50	-	-	1.00	-	-	0.50	-	-	0.00	-	-
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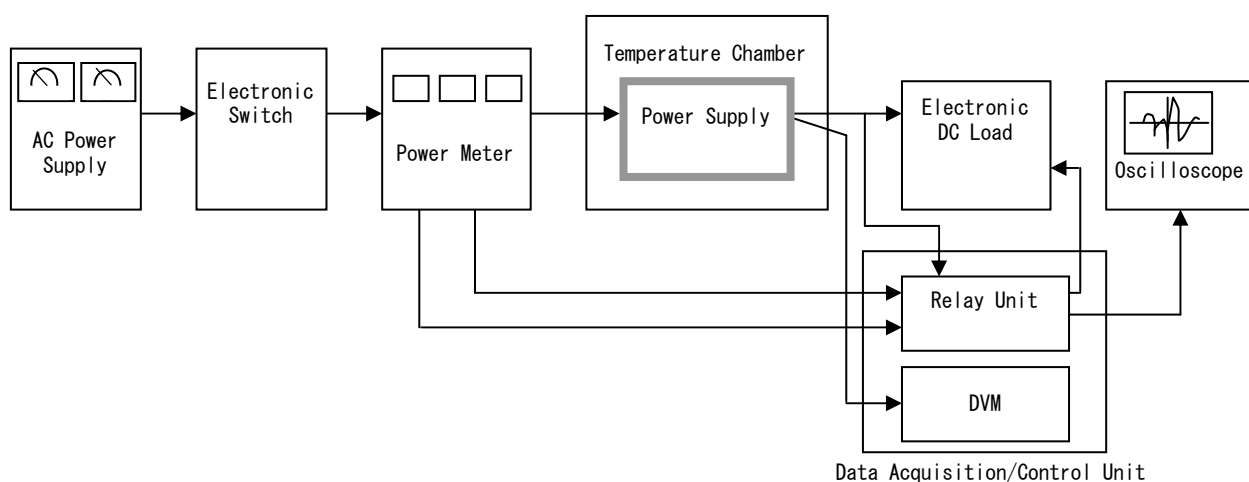


Figure A

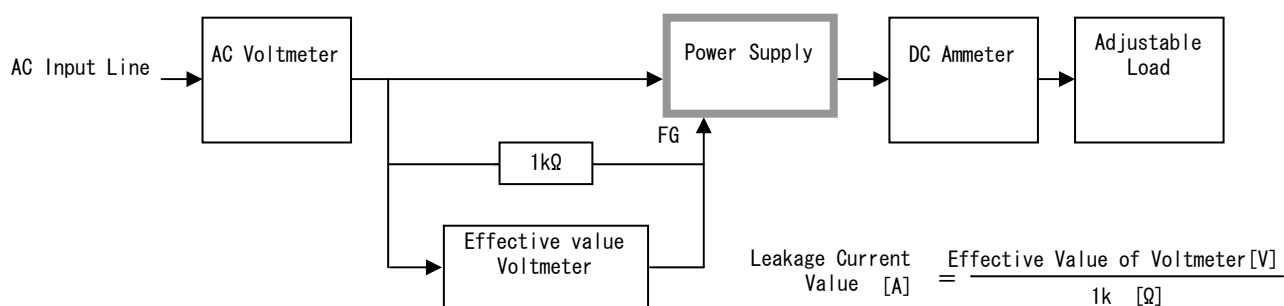


Figure B ( DEN-AN )

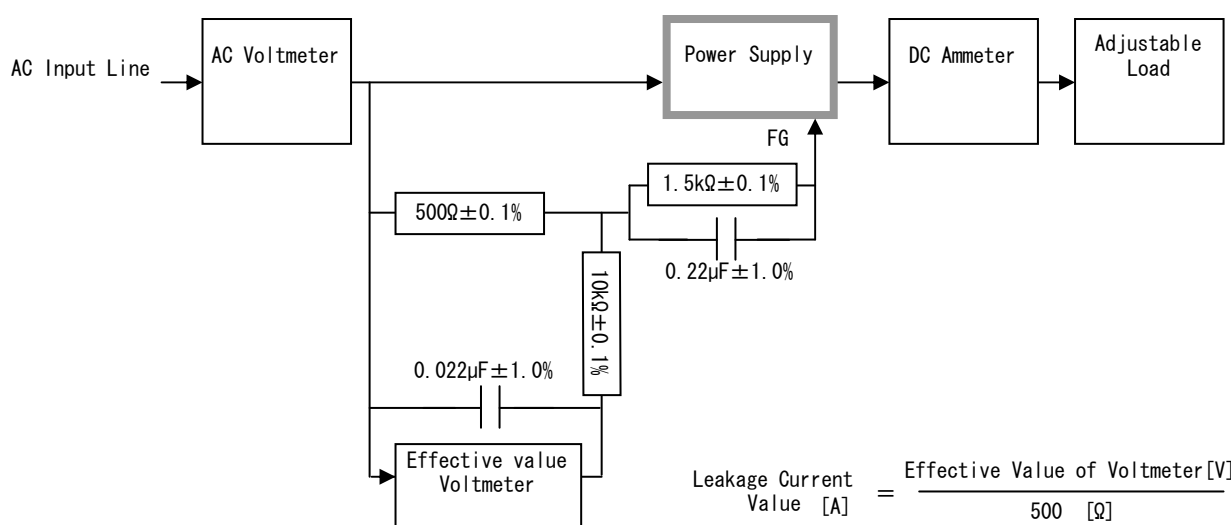


Figure B ( IEC60950-1 )

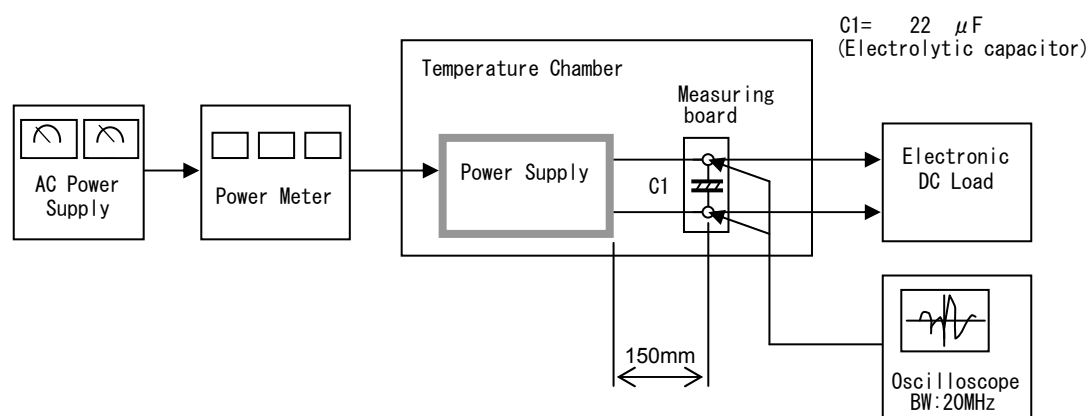


Figure C