



Test Report: LSP-160-48

160W Slim Type with PFC Switching Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

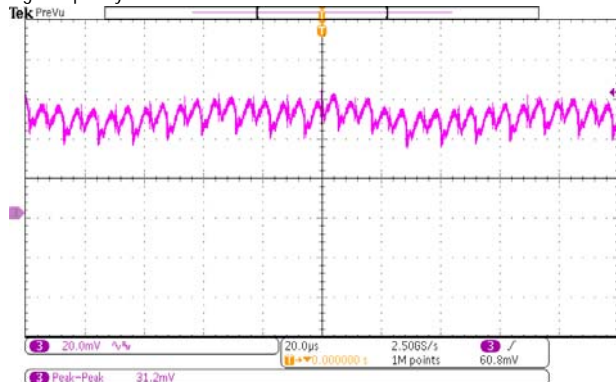
ENVIRONMENT TEST

DESIGN VERIFY TEST

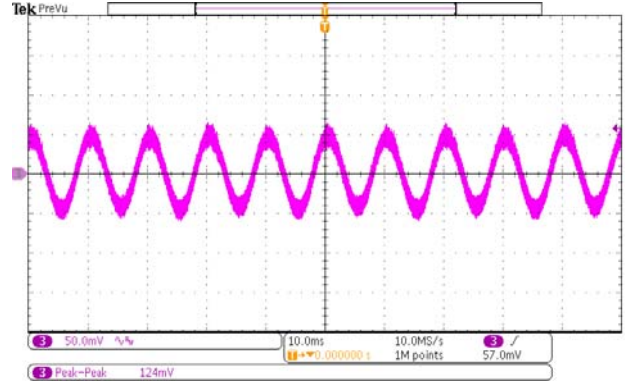
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	45.6V ~ 50.4V	I/P : 230 VAC O/P : MIN LOAD Ta : 25°C	43.48V~52.27V/230VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	-1% ~ 1%	I/P: 90VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	0.02%~ 0.06 %
3	LINE REGULATION (Max)	-0.3% ~ 0.3%	I/P: 90VAC ~ 264VAC O/P:FULL LOAD Ta:25°C	0 %~ 0.02 %
4	LOAD REGULATION(Max)	-0.5% ~ 0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	-0.02 % ~ 0.02 %
5	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	3.40 %
6	RIPPLE & NOISE(Max)	V1: 300 mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	124mVp-p

high frequency :



low frequency :



7	SET UP TIME(Max)	230VAC/2000ms 115VAC/3000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/760ms 115VAC/896ms
---	------------------	--------------------------------	--	------------------------------

INPUT=230VAC/50HZ @ FULL LOAD

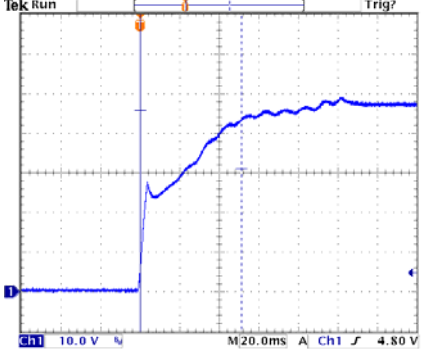
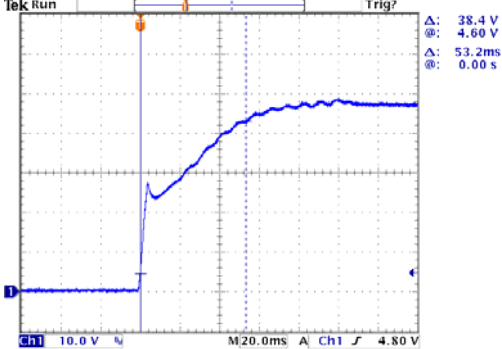
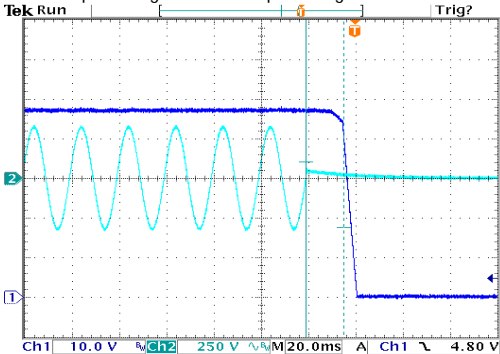
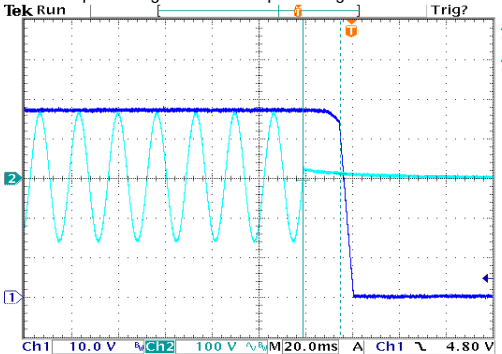
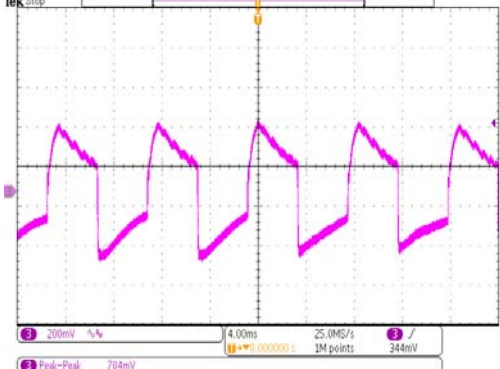
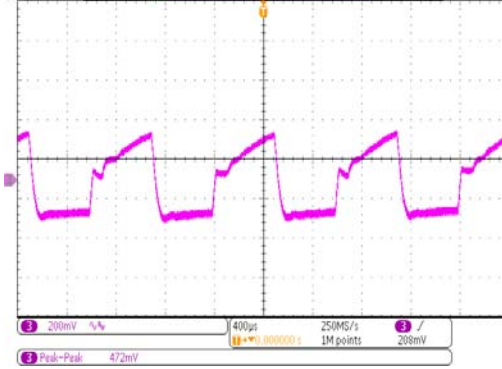
CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD

CH1 : Output Voltage CH2 : AC Input Voltage

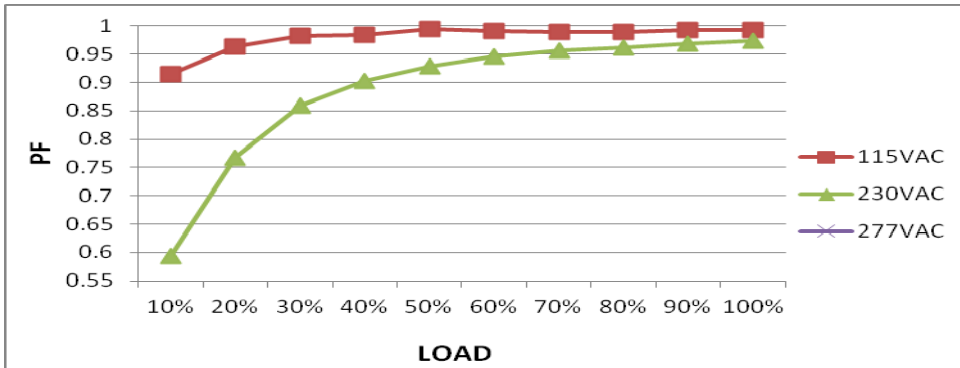


<p>8</p> <p>RISE TIME (Max)</p>	<p>230VAC/80ms 115VAC/80ms</p>	<p>I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C</p>	<p>230VAC/ 51.2 ms 115VAC/ 53.2 ms</p>
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p> 		<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage</p> 	
<p>9</p> <p>HOLD UP TIME (Typ.)</p>	<p>230VAC/10ms 115VAC/10ms</p>	<p>I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C</p>	<p>230VAC/ 16.0 ms 115VAC/ 16.0 ms</p>
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> 		<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> 	
<p>10</p> <p>DYNAMIC LOAD</p>	<p>V1: 4800mVp-p</p>	<p>I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C</p>	<p>(1) 704mVp-p (2) 472mVp-p</p>
<p>FULL /50% LOAD 50%DUTY / 120HZ</p> 		<p>FULL /50% LOAD 50%DUTY / 1KHZ</p> 	

INPUT FUNCTION TEST

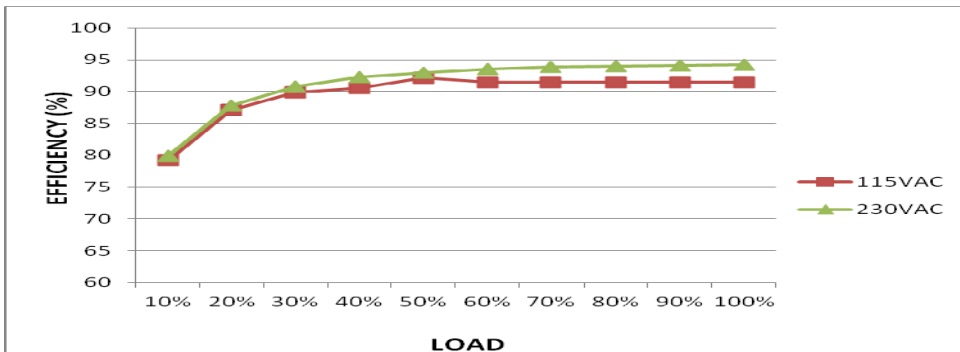
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC-264VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	97V-300V
			I/P: LOW-LINE-3V=97VAC HIGH-LINE+15%=300VAC O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST:PASS
2	INPUT FREQUENCY RANGE	47HZ -63 HZ NO DAMAGE	I/P:100VAC ~264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: PASS
3	INPUT CURRENT (Typ.)	230V/ 1.1A 115V/ 2.2A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I=0.77A/ 230VAC I=1.55A/ 115VAC
4	LEAKAGE CURRENT	<0.75 mA / 240 VAC	I/P : 240 VAC O/P : Min LOAD Ta : 25°C	L-FG : 412.9mA N-FG : 414.8mA
5	POWER FACTOR (Typ.)	0.94/ 230VAC 0.98/115VAC	I/P : 230 VAC	PF=0.973/230VAC
			I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.991/115VAC

P.F vs LOAD



6	EFFICIENCY(Typ.)	93.5%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	94.22%
---	------------------	-------	---	--------

EFFICIENCY vs LOAD



7	INRUSH CURRENT(Typ.)	230V/85A 115V/45A COLD START	I/P : 230 VAC/50Hz I/P : 115 VAC/60Hz O/P : FULL LOAD Ta : 25°C	I=81.5A/ 230VAC I=40A/ 115VAC T50=360us/230V
<p>INPUT=230VAC/50HZ @ FULL LOAD</p> <p>CH2 : AC Input Voltage CH4 : Input current</p> <p>Ch4 Max 81.5 A</p>		<p>INPUT=115VAC/ 60HZ @ FULL LOAD</p> <p>CH2 : AC Input Voltage CH4 : Input current</p> <p>Ch4 Max 40.0 A</p>		

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	110%~ 140%	I/P: 264VAC I/P: 230VAC I/P: 100VAC O/P: TESTING Ta:25°C	113.5%/ 264VAC 113.5%/ 230VAC 113.5%/100VAC PROTECTION TYPE : Constant current limiting, continuous increase of load will be hiccup protection, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	52.8V-62.4V	I/P: 264VAC I/P: 230VAC I/P: 100VAC O/P: MIN LOAD Ta:25°C	57.47V/ 264VAC 57.89V/ 230VAC 57.28V/ 100VAC PROTECTION TYPE : Shut down o/p voltage · re-power on to recovery
3	OVER TEMPERATURE PROTECTION	Protection type : NO DAMAGE	I/P: 264VAC I/P: 100VAC O/P: FULL LOAD	O.T.P. Active Protection type : Shut down o/p voltage · re-power on to recovers after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264VAC I/P: 100VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE PROTECTION TYPE : Hiccup mode, recovers automatically after fault condition is removed

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	DC OK CONTACT RATINGS	15VDC/10mA RESISTIVE LOAD	I/P: 230VAC O/P: FULL LOAD Ta:25°C	TEST : OK

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q2 Rated 11A/ 650V	<p>AC ON/OFF</p> <p>I/P:High-Line +3V =267V</p> <p>VDS:</p> <p>O/P: (1)Full Load (1)468V (2)Output Short (2)488V (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (3)464V (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (4)468V (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (5)468V (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (6)468V</p> <p>I/P:Low-Line -3V = 97V</p> <p>VDS:</p> <p>O/P: (1)Full Load (1)488V (2)Output Short (2)480V (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (3)488V (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (4)488V (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (5)488V (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (6)492V</p> <p>Ta:25°C</p>	
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q3 Rated 12A/ 600V	<p>I/P:High-Line +3V =267 V</p> <p>AC ON/OFF</p> <p>O/P: (1)Full Load (1)434V (2)Output Short (2)458V (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (3)430V (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (4)442V (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (5)438V (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (6)446V</p> <p>I/P:Low-Line -3V = 97V</p> <p>AC ON/OFF</p> <p>VDS:</p> <p>O/P: (1)Full Load (1)508V (2)Output Short (2)400V (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (3)502V (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (4)506V (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (5)506V (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (6)506V</p> <p>Ta:25°C</p>	

4	P.F.C DIODE	D6 Rated 8A/600V	<p>I/P:High-Line +3V =267 V AC ON/OFF O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (4)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz</p> <p>I/P:Low-Line -3V = 97V O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (4)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz</p> <p>Ta:25°C</p>	<p>(1) 414V (2) 398V (3) 410V (4) 418V</p> <p>(1) 438V (2) 422V (3) 430V (4) 434V</p>																		
5	SR MOS	<p>Q100 Rated 33A/150V</p> <p>Q104 Rated 33A/150V</p>	<p>AC ON/OFF</p> <p>I/P:High-Line +3V =267 V O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)NO LOAD</p> <p>Ta:25°C</p>	<table border="0"> <tr> <td>Q100:</td> <td>Q104:</td> </tr> <tr> <td>VDS:</td> <td>VDS:</td> </tr> <tr> <td>(1)108V</td> <td>(1)106V</td> </tr> <tr> <td>(2)7.6V</td> <td>(2)12.4V</td> </tr> <tr> <td>(3)108V</td> <td>(3)107V</td> </tr> <tr> <td>(4)105V</td> <td>(4)106V</td> </tr> <tr> <td>(5)107V</td> <td>(5)106V</td> </tr> <tr> <td>(6)108V</td> <td>(6)104V</td> </tr> <tr> <td>(7) 103V</td> <td>(7) 104V</td> </tr> </table>	Q100:	Q104:	VDS:	VDS:	(1)108V	(1)106V	(2)7.6V	(2)12.4V	(3)108V	(3)107V	(4)105V	(4)106V	(5)107V	(5)106V	(6)108V	(6)104V	(7) 103V	(7) 104V
Q100:	Q104:																					
VDS:	VDS:																					
(1)108V	(1)106V																					
(2)7.6V	(2)12.4V																					
(3)108V	(3)107V																					
(4)105V	(4)106V																					
(5)107V	(5)106V																					
(6)108V	(6)104V																					
(7) 103V	(7) 104V																					
6	Input Capacitor Voltage	C5 Rated: 56 μ / 420V	<p>I/P:High-Line +3V =267V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full Load /Min load Change (4)Full load continue</p> <p>Ta:25°C</p>	<p>(1)404V (2)388V (3)408V (4)392V</p>																		
7	Control IC Voltage Test	<p>PWM IC U2 Rated 20V</p> <p>PFC IC U1 Rated 20V</p> <p>O/P IC U100 Rated 26 V</p>	<p>AC ON/OFF</p> <p>I/P:High-Line +3V =267 V O/P:(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VRmin(LOW LINE)</p> <p>Ta:25°C</p>	<table border="0"> <tr> <td>U1</td> <td>U2</td> <td>U100</td> </tr> <tr> <td>(1)15.9V</td> <td>16.3V</td> <td>16.1V</td> </tr> <tr> <td>(2)17.3V</td> <td>21.5V</td> <td>2.1V</td> </tr> <tr> <td>(3) 16.7V</td> <td>16.4V</td> <td>15.5V</td> </tr> <tr> <td>(4) 14.9V</td> <td>14.1V</td> <td>6.9V</td> </tr> <tr> <td>(5)16.1 V</td> <td>16.3V</td> <td>16.7V</td> </tr> </table>	U1	U2	U100	(1)15.9V	16.3V	16.1V	(2)17.3V	21.5V	2.1V	(3) 16.7V	16.4V	15.5V	(4) 14.9V	14.1V	6.9V	(5)16.1 V	16.3V	16.7V
U1	U2	U100																				
(1)15.9V	16.3V	16.1V																				
(2)17.3V	21.5V	2.1V																				
(3) 16.7V	16.4V	15.5V																				
(4) 14.9V	14.1V	6.9V																				
(5)16.1 V	16.3V	16.7V																				
8	VCC Diode Peak Voltage	<p>D20 Rated: 1A/200V</p> <p>D201 Rated: 1A/200V</p>	<p>I/P: High-Line +3V = 267VAC O/P: (1) FULLLoad input on/off (2) Output Short (3) NO Load (4) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz</p>	<table border="0"> <tr> <td>D20</td> <td>D201</td> </tr> <tr> <td>(1) 116V</td> <td>67.2V</td> </tr> <tr> <td>(2) 120V</td> <td>13.6V</td> </tr> <tr> <td>(3) 103V</td> <td>88.8V</td> </tr> <tr> <td>(4) 119V</td> <td>91.2V</td> </tr> </table>	D20	D201	(1) 116V	67.2V	(2) 120V	13.6V	(3) 103V	88.8V	(4) 119V	91.2V								
D20	D201																					
(1) 116V	67.2V																					
(2) 120V	13.6V																					
(3) 103V	88.8V																					
(4) 119V	91.2V																					

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3.75KVAC/min I/P-FG : 2KVAC/min O/P-FG:1.25KVAC/min	I/P-O/P: 4.2KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:1.5KVAC/min Ta:25°C	I/P-O/P:3.247mA I/P-FG:3.262mA O/P-FG:2.857m A NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 7589MΩ I/P-FG:1357 MΩ O/P-FG: >9999 MΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	7mΩ
4	Withstand surge input	I/P: 300VAC*5s	I/P: 310VAC*5s O/P: FULL LOAD/NO LOAD Ta:25°C	NO DAMAGE

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	EN55032 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	EN55032 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 HEAVY INDUSTRY Contact: 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	EN61000-4-4 HEAVY INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-4-5 HEAVY INDUSTRY L-N : 2KV L,N-PE : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
7	Test by certified Lab & Test Report Prepare. Any contradictions of the test results please refer to the latest EMC test report.			

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																																																												
1	TEMPERATURE RISE TEST	MODEL : LSP-160-48 1. ROOM AMBIENT BURN-IN : HRS I/P : 230VAC O/P : FULL LOAD Ta=25.4 °C 2. HIGH AMBIENT BURN-IN : HRS I/P : 230VAC O/P : FULL LOAD Ta=51.9 °C																																																																																																														
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=25.4 °C</th> <th>HIGH AMBIENT Ta=51.9 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>ZNR1</td><td>36.3°C</td><td>63.8°C</td></tr> <tr><td>2</td><td>RTH2</td><td>63.8°C</td><td>83.0°C</td></tr> <tr><td>3</td><td>LF2</td><td>47.5°C</td><td>74.5°C</td></tr> <tr><td>4</td><td>L1</td><td>43.8°C</td><td>71.6°C</td></tr> <tr><td>5</td><td>C5</td><td>40.6°C</td><td>68.5°C</td></tr> <tr><td>6</td><td>C6</td><td>39.9°C</td><td>67.7°C</td></tr> <tr><td>7</td><td>C22</td><td>40.4°C</td><td>68.4°C</td></tr> <tr><td>8</td><td>C20</td><td>39.6°C</td><td>67.2°C</td></tr> <tr><td>9</td><td>BD1</td><td>55.1°C</td><td>80.5°C</td></tr> <tr><td>10</td><td>R20</td><td>40.5°C</td><td>68.4°C</td></tr> <tr><td>11</td><td>Q1</td><td>40.1°C</td><td>68.9°C</td></tr> <tr><td>12</td><td>Q3</td><td>43.8°C</td><td>72.2°C</td></tr> <tr><td>13</td><td>D6</td><td>43.0°C</td><td>71.2°C</td></tr> <tr><td>14</td><td>U1</td><td>41.7°C</td><td>69.2°C</td></tr> <tr><td>15</td><td>U2</td><td>40.3°C</td><td>67.8°C</td></tr> <tr><td>16</td><td>Q6</td><td>39.0°C</td><td>66.5°C</td></tr> <tr><td>17</td><td>T1</td><td>46.7°C</td><td>74.5°C</td></tr> <tr><td>18</td><td>Q100</td><td>38.1°C</td><td>65.8°C</td></tr> <tr><td>19</td><td>Q104</td><td>42.4°C</td><td>69.7°C</td></tr> <tr><td>20</td><td>U100</td><td>41.3°C</td><td>68.4°C</td></tr> <tr><td>21</td><td>J103</td><td>37.8°C</td><td>64.9°C</td></tr> <tr><td>22</td><td>C105</td><td>37.6°C</td><td>64.9°C</td></tr> <tr><td>23</td><td>C106</td><td>38.3°C</td><td>65.6°C</td></tr> <tr><td>24</td><td>C107</td><td>38.4°C</td><td>65.7°C</td></tr> <tr><td>25</td><td>RTH3</td><td>40.5°C</td><td>68.4°C</td></tr> <tr><td>26</td><td>TC</td><td>35.6°C</td><td>62.9°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=25.4 °C	HIGH AMBIENT Ta=51.9 °C	1	ZNR1	36.3°C	63.8°C	2	RTH2	63.8°C	83.0°C	3	LF2	47.5°C	74.5°C	4	L1	43.8°C	71.6°C	5	C5	40.6°C	68.5°C	6	C6	39.9°C	67.7°C	7	C22	40.4°C	68.4°C	8	C20	39.6°C	67.2°C	9	BD1	55.1°C	80.5°C	10	R20	40.5°C	68.4°C	11	Q1	40.1°C	68.9°C	12	Q3	43.8°C	72.2°C	13	D6	43.0°C	71.2°C	14	U1	41.7°C	69.2°C	15	U2	40.3°C	67.8°C	16	Q6	39.0°C	66.5°C	17	T1	46.7°C	74.5°C	18	Q100	38.1°C	65.8°C	19	Q104	42.4°C	69.7°C	20	U100	41.3°C	68.4°C	21	J103	37.8°C	64.9°C	22	C105	37.6°C	64.9°C	23	C106	38.3°C	65.6°C	24	C107	38.4°C	65.7°C	25	RTH3	40.5°C	68.4°C	26	TC	35.6°C	62.9°C		
NO	Position	ROOM AMBIENT Ta=25.4 °C	HIGH AMBIENT Ta=51.9 °C																																																																																																													
1	ZNR1	36.3°C	63.8°C																																																																																																													
2	RTH2	63.8°C	83.0°C																																																																																																													
3	LF2	47.5°C	74.5°C																																																																																																													
4	L1	43.8°C	71.6°C																																																																																																													
5	C5	40.6°C	68.5°C																																																																																																													
6	C6	39.9°C	67.7°C																																																																																																													
7	C22	40.4°C	68.4°C																																																																																																													
8	C20	39.6°C	67.2°C																																																																																																													
9	BD1	55.1°C	80.5°C																																																																																																													
10	R20	40.5°C	68.4°C																																																																																																													
11	Q1	40.1°C	68.9°C																																																																																																													
12	Q3	43.8°C	72.2°C																																																																																																													
13	D6	43.0°C	71.2°C																																																																																																													
14	U1	41.7°C	69.2°C																																																																																																													
15	U2	40.3°C	67.8°C																																																																																																													
16	Q6	39.0°C	66.5°C																																																																																																													
17	T1	46.7°C	74.5°C																																																																																																													
18	Q100	38.1°C	65.8°C																																																																																																													
19	Q104	42.4°C	69.7°C																																																																																																													
20	U100	41.3°C	68.4°C																																																																																																													
21	J103	37.8°C	64.9°C																																																																																																													
22	C105	37.6°C	64.9°C																																																																																																													
23	C106	38.3°C	65.6°C																																																																																																													
24	C107	38.4°C	65.7°C																																																																																																													
25	RTH3	40.5°C	68.4°C																																																																																																													
26	TC	35.6°C	62.9°C																																																																																																													
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 123.1% LOAD Ta : 25°C	TEST : OK																																																																																																												
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/110VAC O/P : 100 % LOAD Ta= -35°C	TEST : OK																																																																																																												
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50°C /95 %R.H NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK																																																																																																												
5	TEMPERATURE COEFFICIENT	±0.03 %/°C (0-50°C)	I/P : 230 VAC O/P : FULL LOAD	±0.008 %/°C (0-50°C)																																																																																																												



6	STORAGE TEMPERATURE TEST	-40-85°C	1. Thermal shock Temperature : -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : STATIC
7	THERMAL SHOCK TEST	-30-50°C	1. Thermal shock Temperature : -35°C~ +55°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16 CYCLE 5. Input/Output condition : 15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle:230V/ FULL LOAD Burn In Test
8	VIBRATION TEST	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10-500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 6G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C
9	CAPACITOR LIFE CYCLE	LSP-160-48 : SUPPOSE C107 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta=50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta=50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta=50 °C LIFE TIME	(1) 44774423HRS (2) 2296307HRS (3) 3062175HRS (4) 4178295HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 699.54 K hrs min. Telcordia SR-332 (Bellcore) 282.71K hrs min. MIL-HDBK-217F (25°C)	
11	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 30,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	WUWQ/ZHOUBIAO	WENF	LIUWY

2018.4.30 GP-A50-F010