



Test Report: MSP-1600-48

1600W AC/DC High Reliable Multi-Industries Enclosed Type 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

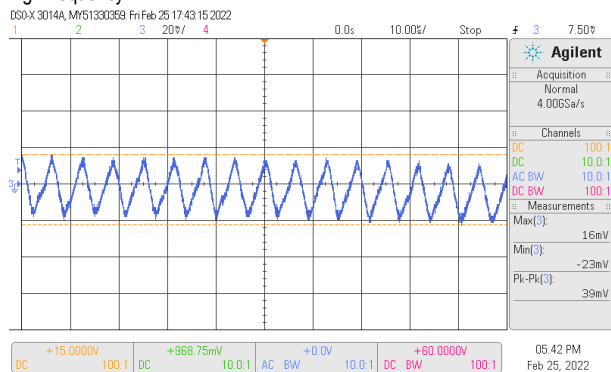
ENVIRONMENT TEST

DESIGN VERIFY TEST

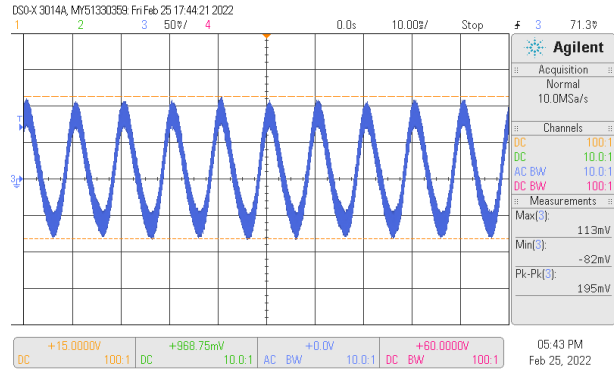
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 47.5 V~ 56V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	45.71V~57.53V/230VAC 45.70V~57.53V/115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: 1%~-1%	I/P: 180VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: 0.2%~-0.2%
3	LINE REGULATION (Max)	V1: 0.5%~-0.5%	I/P: 180VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0.07%~-0.07%
4	LOAD REGULATION(Max)	V1: 0.5%~-0.5%	I/P: 230VAC O/P:FULL -MIN LOAD Ta:25°C	V1: 0.05%~-0.05%
5	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	<5%
6	RIPPLE & NOISE(Max)	V1: 300 mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 195 mVp-p

high frequency :



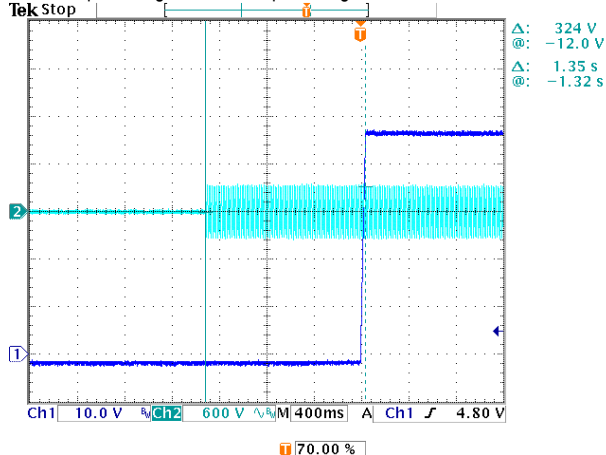
low frequency :



7	SET UP TIME(Max)	230VAC/1500ms	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 1352ms
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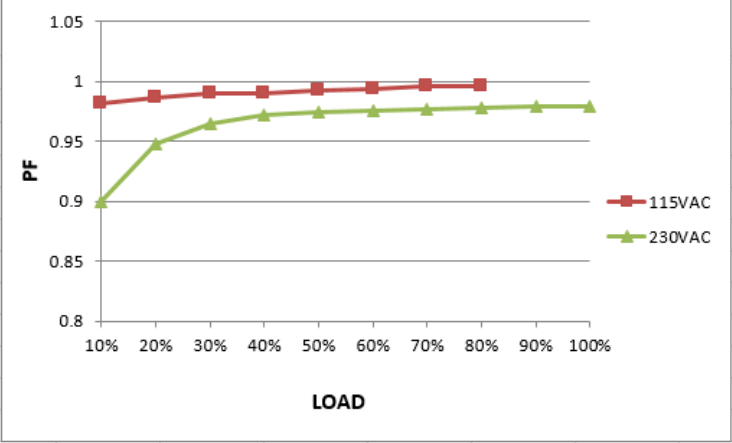
INPUT=230VAC/50HZ @ FULL LOAD

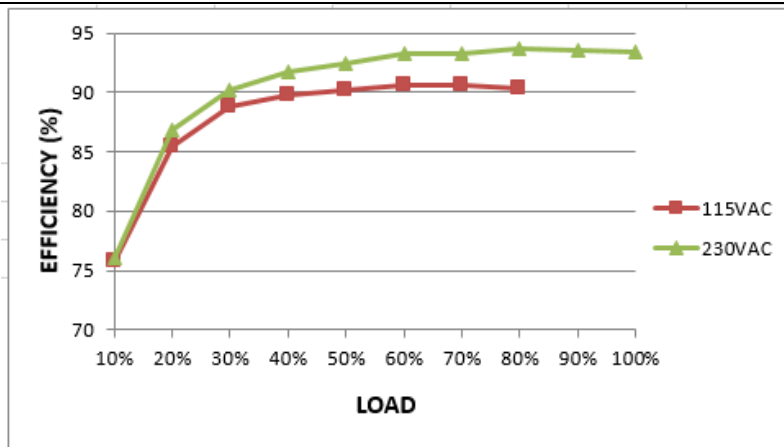
CH1 : Output Voltage CH2 : AC Input Voltage



<p>8 RISE TIME (Max)</p>	<p>230VAC/60ms</p>	<p>I/P : 230 VAC O/P : FULL LOAD Ta : 25°C</p>	<p>230VAC/ 34.4 ms</p>
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p> <p>Δ: 2.80 V @: 33.6 V Δ: 34.4ms @: -200μs</p> <p>CH1 10.0 V 10.0ms A CH1 4.80 V</p>			
<p>9 HOLD UP TIME (Typ.)</p>	<p>230VAC 70%/ 16ms 230VAC 100%/10ms</p>	<p>I/P : 230 VAC O/P : 70% LOAD O/P : 100% LOAD Ta : 25°C</p>	<p>20.6 ms (70% load) 13ms (100% load)</p>
<p>INPUT=230VAC/50HZ @ 70% LOAD INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage CH1 : Output Voltage CH2 : AC Input Voltage</p> <p>Agilent Acquisition Normal 10.0MSa/s</p> <p>Agilent Acquisition Normal 5.00MSa/s</p>			
<p>10 DYNAMIC LOAD</p>	<p>V1: 4800 mVp-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>610mVp-p 494mVp-p</p>
<p>FULL /50% LOAD 50%DUTY / 120HZ FULL /50% LOAD 50%DUTY / 1KHZ</p> <p>Agilent Acquisition Normal 20.0MSa/s Agilent Acquisition Normal 100MSa/s</p> <p>Plk-Pk(2): 610mV Plk-Pk(2): 494mV</p>			

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																	
1	INPUT VOLTAGE RANGE	85VAC~264VAC 250VDC~ 400VDC	(1) I/P:TESTING O/P:FULL LOAD (2) I/P:DC TESTING(L:+ N:-) O/P: FULL / 50% LOAD (3) I/P:DC TESTING(L:- N:+) O/P: FULL / 50% LOAD (PLEASE CHECK DERATING CURVE) Ta:25°C	(1) 78V~264V (2) 148.8Vdc~403Vdc/FULL LOAD 106.1Vdc~403Vdc/50% LOAD (3) 149.1Vdc~403Vdc/FULL LOAD 105.9Vdc~403Vdc/50% LOAD																																	
			I/P: LOW-LINE-3V=82V HIGH-LINE+15%=300 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST: OK																																	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:85 VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK																																	
3	INPUT CURRENT (Typ.)	230V/ 8.5 A 115V/ 15 A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD (PLEASE CHECK DERATING CURVE) Ta : 25°C	I=7.72A/ 230VAC I=12.7A/ 115VAC																																	
4	LEAKAGE CURRENT	< 500uA / 264 VAC / Earth < 100uA / 264 VAC/ Touch	I/P : 230 VAC O/P : Min LOAD Ta : 25°C	Earth L-FG : 424.2uA N-FG : 424.2uA Touch V+ - FG : 58.4 uA V- -FG : 58.4 uA																																	
5	POWER FACTOR (Typ.)	0.97 / 230VAC	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	PF=0.978/230VAC																																	
<p>P.F vs LOAD</p>  <table border="1"> <caption>P.F vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC PF</th> <th>230VAC PF</th> </tr> </thead> <tbody> <tr><td>10%</td><td>0.98</td><td>0.90</td></tr> <tr><td>20%</td><td>0.98</td><td>0.95</td></tr> <tr><td>30%</td><td>0.98</td><td>0.96</td></tr> <tr><td>40%</td><td>0.98</td><td>0.97</td></tr> <tr><td>50%</td><td>0.98</td><td>0.97</td></tr> <tr><td>60%</td><td>0.98</td><td>0.97</td></tr> <tr><td>70%</td><td>0.98</td><td>0.97</td></tr> <tr><td>80%</td><td>0.98</td><td>0.97</td></tr> <tr><td>90%</td><td>0.98</td><td>0.97</td></tr> <tr><td>100%</td><td>0.98</td><td>0.97</td></tr> </tbody> </table>					LOAD (%)	115VAC PF	230VAC PF	10%	0.98	0.90	20%	0.98	0.95	30%	0.98	0.96	40%	0.98	0.97	50%	0.98	0.97	60%	0.98	0.97	70%	0.98	0.97	80%	0.98	0.97	90%	0.98	0.97	100%	0.98	0.97
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6	EFFICIENCY(Typ.)	92%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	92.3%																																	
EFFICIENCY vs LOAD																																					



7	INRUSH CURRENT(Typ.)	230V/60 A COLD START	I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	I =52.25A/ 230VAC T50= 1550 us/230V
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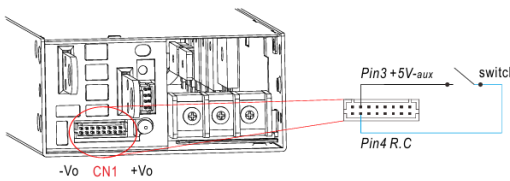
INPUT=230VAC/50HZ @ FULL LOAD
CH4 : Input current CH2: Input AC

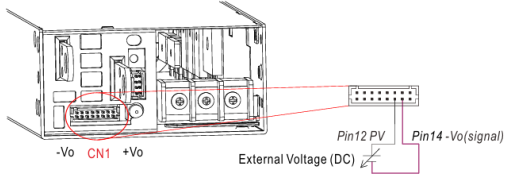
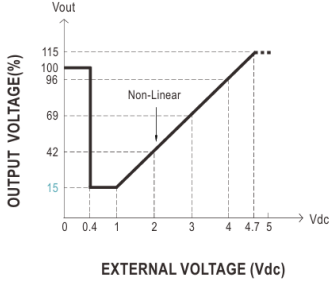
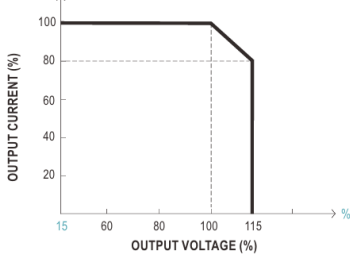
PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105 %~ 115 % PROTECTION TYPE : Constant current limiting, unit will shut down o/p voltage after 5 sec. re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 180VAC I/P: 85VAC O/P: TESTING Ta:25°C	111%/ 264VAC 111%/ 230VAC 111%/180VAC 62.09%/ 85VAC PROTECTION TYPE : Constant current limiting, unit will shut down o/p voltage after 5 sec. re-power on to recover
2	OVER VOLTAGE PROTECTION	56 V~ 60 V PROTECTION TYPE : Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 85VAC O/P: MIN LOAD Ta:25°C	59.76V/ 264VAC 59.58V/ 230VAC 59.85V/ 85VAC PROTECTION TYPE : Shut down o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	NO DAMAGE PROTECTION TYPE : Shut down o/p voltage, recovers automatically after temperature goes down	I/P: 264VAC I/P: 85VAC O/P: FULL LOAD	O.T.P. Active PROTECTION TYPE : Shut down o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE PROTECTION TYPE : Constant current limiting, unit will shut	I/P: 264VAC I/P: 85VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE PROTECTION TYPE : Constant current limiting, unit will shut down o/p voltage after 5 sec. re-power on to recover

		down o/p voltage after 5 sec. re-power on to recover	
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CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																					
1	AUXILIARY POWER (AUX)	12V±10%@0.8A ripple:250mVp-p	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	11.12V/ 0.8 A /150 mVp-p																					
2	REMOTE ON/OFF CONTROL	<p>※ The power supply can be turned ON/OFF individually or along with other units by using the "Remote Control" function.</p>  <table border="1" data-bbox="1037 739 1484 851"> <tr> <td>PSU Vo Status</td> <td>Between +5V-aux(Pin 3) and R.C(Pin 4)</td> </tr> <tr> <td>Power ON</td> <td>Switch Short</td> </tr> <tr> <td>Power OFF</td> <td>Switch Open</td> </tr> </table> <p>I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result :</p> <table border="1" data-bbox="462 985 1069 1108"> <thead> <tr> <th>Between Remote ON-OFF and +5V-AUX</th> <th>Power Supply Status</th> </tr> </thead> <tbody> <tr> <td>SW SHORT</td> <td>ON</td> </tr> <tr> <td>SW OPEN</td> <td>OFF</td> </tr> </tbody> </table>	PSU Vo Status	Between +5V-aux(Pin 3) and R.C(Pin 4)	Power ON	Switch Short	Power OFF	Switch Open	Between Remote ON-OFF and +5V-AUX	Power Supply Status	SW SHORT	ON	SW OPEN	OFF											
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3	REMOTE SENSE	S+ / S- Compensate voltage drop on the load wiring up to 0.5V.	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	0.5V																					
4	ALARM SIGNAL	<p>1. DC OK SIGNAL High (3.5 ~ 5.5V) : When the $V_{out} \leq 77\% \pm 5\%$. Low (-0.5 ~ 0.5V) : When $V_{out} \geq 80\% \pm 5\%$. The maximum sourcing current is 10mA and only for output. (Note.2) I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result :</p> <table border="1" data-bbox="510 1478 1085 1601"> <thead> <tr> <th>Vout</th> <th>DC OK SIGNAL</th> </tr> </thead> <tbody> <tr> <td>$V_{out} \leq 72\%$</td> <td>5V</td> </tr> <tr> <td>$V_{out} \geq 85\%$</td> <td>-0.09V</td> </tr> </tbody> </table> <p>2. T-ALARM</p> <table border="1" data-bbox="526 1624 1117 1713"> <thead> <tr> <th>P.S.U STATUS</th> <th>Vo</th> <th>T-ALARM</th> </tr> </thead> <tbody> <tr> <td>NORMAL</td> <td>100%±2%</td> <td>-0.5 ~0.5V</td> </tr> <tr> <td>OTP OR FAN LOCK</td> <td>0V</td> <td>3.5~5.5V</td> </tr> </tbody> </table> <p>I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result :</p> <table border="1" data-bbox="526 1803 1101 1915"> <thead> <tr> <th>P.S.U STATUS</th> <th>T-ALARM</th> </tr> </thead> <tbody> <tr> <td>NORMAL</td> <td>-0.09V</td> </tr> <tr> <td>OTP OR FAN LOCK</td> <td>4.998V</td> </tr> </tbody> </table>	Vout	DC OK SIGNAL	$V_{out} \leq 72\%$	5V	$V_{out} \geq 85\%$	-0.09V	P.S.U STATUS	Vo	T-ALARM	NORMAL	100%±2%	-0.5 ~0.5V	OTP OR FAN LOCK	0V	3.5~5.5V	P.S.U STATUS	T-ALARM	NORMAL	-0.09V	OTP OR FAN LOCK	4.998V		
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<p>5</p>	<p>OUTPUT VOLTAGE PROGRAMMABLE(PV)</p>	<div style="display: flex; justify-content: space-around;">  </div> <div style="display: flex; justify-content: space-around;">   </div> <p> I/P: 230 VAC O/P: FULL LOAD Ta: 25°C Test Result : </p> <table border="1" data-bbox="470 1052 1500 1220"> <thead> <tr> <th></th> <th>PV</th> <th><0.4V</th> <th>1V</th> <th>2V</th> <th>3V</th> <th>4V</th> <th>4.7V</th> </tr> </thead> <tbody> <tr> <td>MODEL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SPEC</td> <td></td> <td>48V±5%</td> <td>7.2V±5%</td> <td>20.16V±5%</td> <td>33.12V±5%</td> <td>46.08V±5%</td> <td>55.2V±5%</td> </tr> <tr> <td>Vout</td> <td></td> <td>47.963</td> <td>7.093</td> <td>19.934</td> <td>32.859</td> <td>45.686</td> <td>54.01</td> </tr> </tbody> </table> <p style="font-size: small;"> Ⓞ The rated current should change with the Output Voltage Programming accordingly. Ⓞ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section. </p>				PV	<0.4V	1V	2V	3V	4V	4.7V	MODEL								SPEC		48V±5%	7.2V±5%	20.16V±5%	33.12V±5%	46.08V±5%	55.2V±5%	Vout		47.963	7.093	19.934	32.859	45.686	54.01
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Vout		47.963	7.093	19.934	32.859	45.686	54.01																													
<p>6</p>	<p>FAN NOISE (Typ.)</p>	<p>10% load @39 dB 70% load @39 dB</p> <p>Built-in intelligent fan speed control detect by PSU'S internal temperature</p>	<p>I/P : 230 VAC O/P : TESTING Ta : 25°C</p>	<p>10% load:37.9 dB 70% load: 38.69dB</p>																																

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q901 Rated 40A/650V	I/P: High-Line +3V =267V AC ON/OFF VDS: 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) 0%→400% Load. Ta: 25°C	VDS: (1) 566V (2) 546V (3) 512V (4) 568V (5) 568V (6) 488V (7) 550V

2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q52 Rated 52A/600V	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/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)0%→400% Load. Ta:25°C	VDS: (1)480V (2)472V (3)464V (4)472V (5)456V (6)440V (7)423V
3	Diode Peak Voltage	Q101 Rated 65A/200 V	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/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)0%→400% Load. (8).NO LOAD Ta:25°C	Q101: VDS: (1)196V (2)196V (3)196V (4)194V (5)196V (6)198V (7)194V (8)178V
4	Input Capacitor Voltage	C5 Rated: 680μ/400V SURGE VOLTAGE:450V	I/P:High-Line +3V =267 V O/P: (1)Full Load Ta:25°C	(1)395V
5	Control IC Voltage Test	PFC IC U51 Rated 4.5V~ 15V PWM IC U901 Rated 6.5V~ 24V	I/P:High-Line +3V =267 V AC ON/OFF O/P:(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. Ta:25°C	U51 (1) 11.68V (2) 11.68V (3) 11.68V (4) 11.68V U901 (1)12.56V (2)12.56V (3)12.56V (4)12.56V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4.2KVAC/min I/P-FG : 2.1KVAC/min O/P-FG:1.5KVAC/min	I/P-O/P: 4.62 KVAC/min I/P-FG: 2.52 KVAC/min O/P-FG:1.8 KVAC/min Ta:25°C	I/P-O/P:7.82mA I/P-FG:6.08mA O/P-FG:7.51m 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	I/P-O/P: 8.16GΩ I/P-FG: 9.35GΩ O/P-FG: 9.4GΩ

			Ta:25°C	NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	17 mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:100% LOAD Ta:25°C	PASS
2	CONDUCTION	EN/EN55032(CISPR32) CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	EN/EN55032(CISPR32) 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 INDUSTRY AIR : 15KV / Contact : 8KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	EN61000-4-4 INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-4-5 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 : MSP-1600-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25°C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50°C		

		NO	Position	ROOM AMBIENT Ta= 25°C	HIGH AMBIENT Ta= 50°C
		1	LF2	38.1°C	56.6°C
		2	BD1	66.2°C	75.4°C
		3	RY1	34.9°C	55.8°C
		4	L1	71.4°C	79.3°C
		5	T52	60.4°C	70.7°C
		6	Q901	93.1°C	98.7°C
		7	Q904	82.8°C	88.7°C
		8	Q51	87.0°C	94.2°C
		9	Q52	82.5°C	92.0°C
		10	D50	92.0°C	101.2°C
		11	T1-1	104.9°C	103.5°C
		12	T1-2	90.3°C	88.2°C
		13	T1-coil	88.4°C	86.8°C
		14	Q101	126.2°C	120.5°C
		15	Q103	123.0°C	122.0°C
		16	Q104	116.0°C	115.9°C
		17	T301	75.7°C	80.6°C
		18	L900	91.9°C	94.6°C
		19	RG301	101.9°C	98.5°C
		20	C305	91.3°C	90.6°C
		21	U201	47.1°C	62.0°C
		22	C321	82.4°C	86.4°C
		23	C355	87.1°C	88.2°C
		24	U82	95.2°C	97.6°C
		25	D321	82.3°C	90.3°C
		26	D81	88.4°C	92.4°C
		27	U671	33.4°C	54.1°C
		28	C5	51.8°C	64.4°C
		29	L100	77.3°C	85.9°C
		30	C102	38.4°C	56.0°C
		31	C104	45.1°C	60.0°C
		32	RTH21	81.7°C	87.7°C
		33	RTH9	59.2°C	70.7°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 109% LOAD Ta : 25°C	TEST : OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR		I/P : 230VAC/180VAC O/P : 100 % LOAD Ta= -40°C	TEST : OK
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C 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	± 0.002 %/°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	-40~50°C	1. Thermal shock Temperature : -45°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, 2G 10min./1cycle, 60min. each along X, Y, Z axes	(1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 3G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C
9	CAPACITOR LIFE CYCLE	SUPPOSE C104 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) 715036HRS (2) 254562HRS (3) 305878HRS (4) 335385HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 653.8K hrs min. Telcordia SR-332 (Bellcore) ; 65.3K 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 : 50,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	DANIEL GAO	SANFORD SU	ERIS WU

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