



Test Report: NSP-2400-48

2400W 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

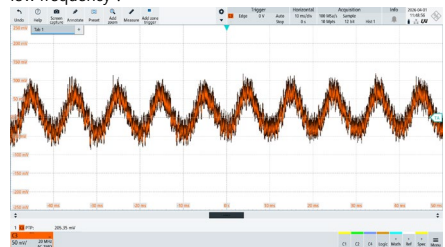
■ RELIABILITY TEST

ENVIRONMENT TEST



■ DESIGN VERIFY TEST

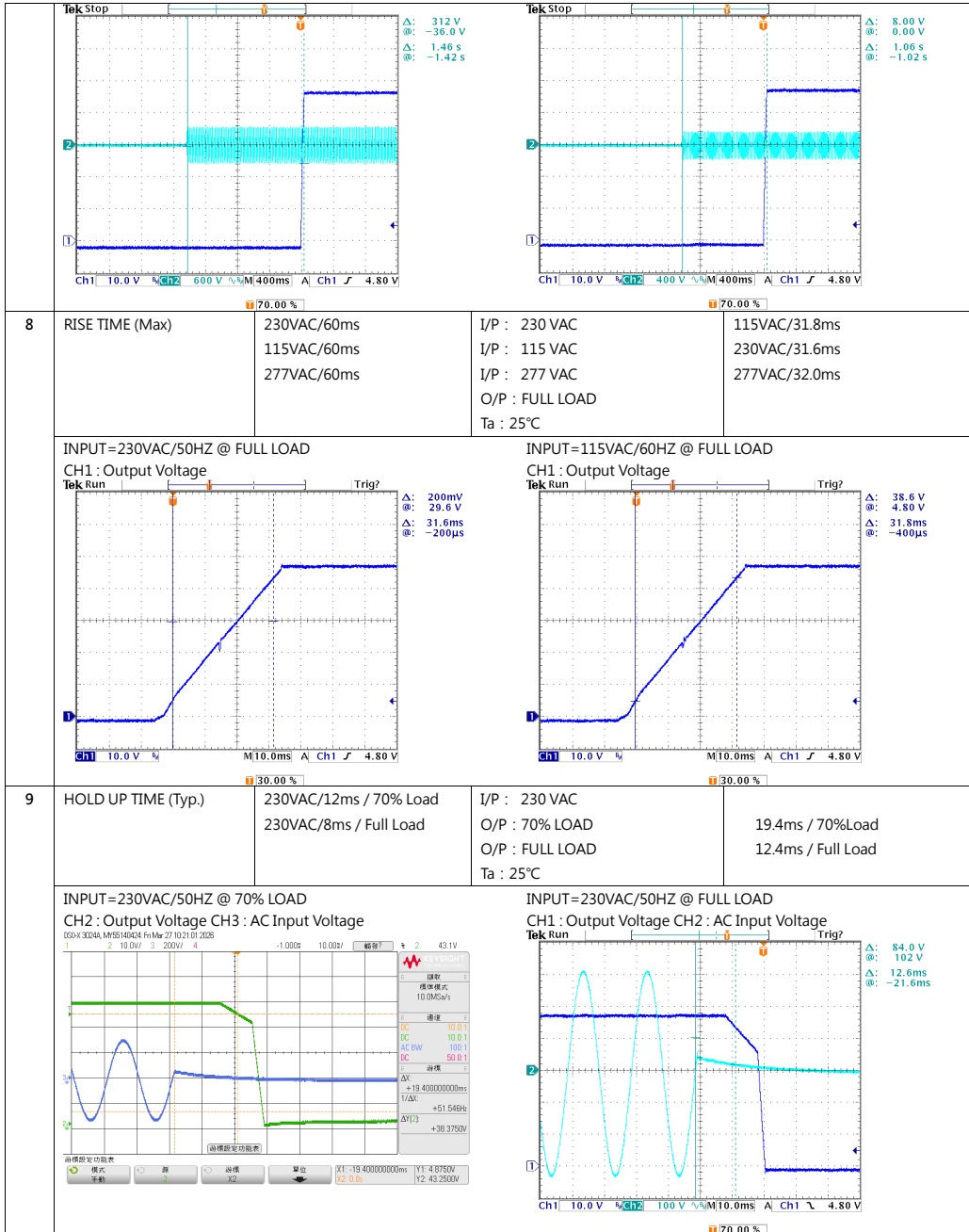
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 43.2V ~ 55V	I/P : 230 VAC I/P : 115 VAC O/P : MIN. LOAD Ta : 25°C	41.795V~56.43V/230VAC 41.794V~56.42V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: 1% ~ -1%	I/P : 85VAC /305VAC O/P : FULL/ MIN. LOAD Ta:25°C	0.25% ~ -0.077%
3	LINE REGULATION	V1: 0.5% ~ -0.5%	I/P : 85VAC~ 305VAC O/P : FULL LOAD Ta:25°C	0.14% ~-0.037%
4	LOAD REGULATION	V1: 0.5% ~ -0.5%	I/P : 230VAC O/P : FULL ~MIN LOAD Ta:25°C	0.16% ~ -0.17%
5	OVER/UNDERSHOOT TEST	<± 10%	I/P : 230VAC O/P : FULL LOAD Ta:25°C	<10%
6	RIPPLE & NOISE (Max)	V1: 450mVp-p	I/P : 230VAC O/P : FULL LOAD Ta:25°C	V1: 205mVp-p
high frequency :  low frequency : 				
7	SET UP TIME(Max)	230VAC/1800ms 115VAC/1800ms 277VAC/1800ms	I/P : 230 VAC I/P : 115 VAC I/P : 277 VAC O/P : FULL LOAD Ta : 25°C	230VAC/1460ms 115VAC/1060ms 277VAC/1092ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage			INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage	



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10	DYNAMIC LOAD	V1: 4800 mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	1900mVp-p 1600mVp-p
FULL /50% LOAD 50%DUTY / 120HZ FULL /50% LOAD 50%DUTY / 1KHZ				

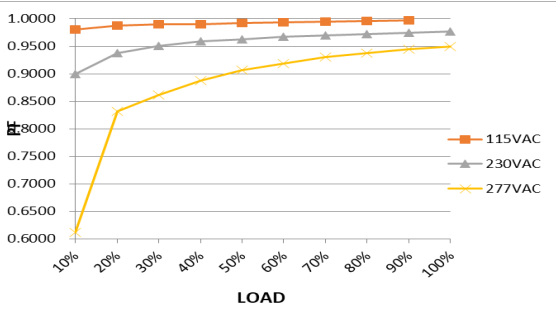
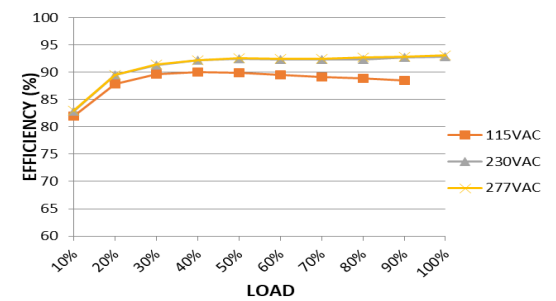
INPUT FUNCTION TEST

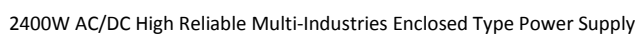
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	85VAC~305VAC 250VDC~ 431VDC	(1) I/P:TESTING O/P:FULL LOAD (2) I/P:DC TESTING(L:- N:-) O/P: FULL / 50% LOAD (3) I/P:DC TESTING(L:- N:+) O/P: FULL / 50% LOAD Ta:25°C I/P: LOW-LINE-3V=82 V HIGH-LINE+10V=315 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1)85V~305V (2)241.1Vdc~431Vdc/FULL LOAD 240.4Vdc~431Vdc/50% LOAD (3) 241.1Vdc~431Vdc/FULL LOAD 240.5Vdc~431Vdc/50% LOAD TEST:PASS
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P : 85 VAC ~305 VAC O/P : FULL~MIN LOAD Ta:25°C	TEST: PASS
3	INPUT CURRENT (Typ.)	115V/ 17 A 230V/ 13 A 277V/ 11A	I/P : 230 VAC I/P : 115 VAC I/P : 277 VAC O/P : FULL LOAD Ta : 25°C	I =16.54A/ 115VAC I =11.53A/ 230VAC I =9.865A/ 277VAC
4	LEAKAGE CURRENT	<500 uA / 277 VAC (Earth) < 100uA / 277 VAC (Touch)	I/P : 277 VAC/60Hz O/P : Min LOAD Ta : 25°C	Earth L-FG : 312 uA N-FG : 316 uA



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				Touch +Vo : 72.8 uA -Vo : 72.9 uA
6	POWER FACTOR (Typ.)	0.98/ 115VAC 0.95/ 230VAC 0.93/ 277VAC	I/P : 115 VAC I/P : 230 VAC I/P : 277 VAC O/P : FULL LOAD Ta : 25°C	PF=0.9950/ 115VAC PF=0.9766/ 230VAC PF=0.9459/ 277VAC
P.F vs LOAD 				
7	EFFICIENCY(Typ.)	92%	I/P : 230 VAC O/P : 100% Load Ta:25°C	92.77%
EFFICIENCY vs LOAD 				
8	INRUSH CURRENT(Typ.)	115V/30A 230V/60A 277V/75A COLD START	I/P : 115 VAC I/P : 230 VAC I/P : 277 VAC O/P : FULL LOAD Ta : 25°C	I =18.0A/ 115VAC I =44.5A/ 230VAC I =60.4A/ 277VAC T50=2540us/230V
INPUT=115VAC/60HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current		INPUT=230VAC/ 50HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current		



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NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	PEAK POWER MODE From 105% to 200% of rated output power, unit will shut down after 5 seconds of continuous operation. AC repower on to recover. (2 Sec for 12V/15V models)	I/P : 305VAC : 230VAC : 180VAC : 115VAC : 100VAC : 85VAC O/P : TESTING Ta:25°C	106.8%/ 305VAC 106.6%/ 230VAC 105.6%/ 180VAC 74.02%/ 115VAC 63.6%/ 100VAC 59.2%/ 85VAC PROTECTION TYPE : From 105% to 200% of rated output power, unit will shut down after 5 seconds of continuous operation. AC repower on to recover. (2 Sec for 12V/15V models)

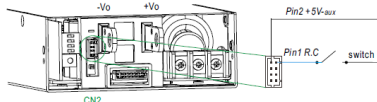
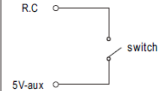
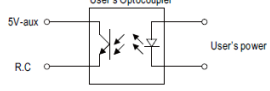
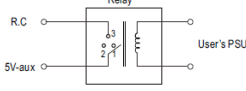
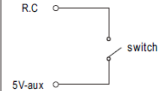
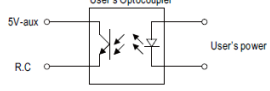
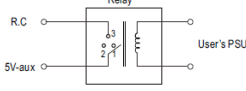
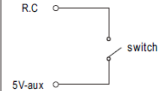
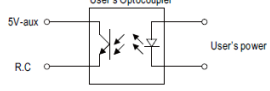
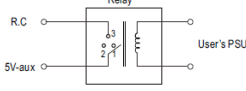


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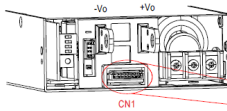
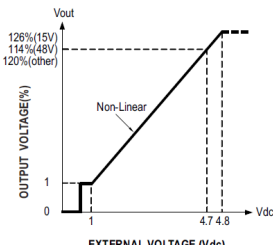
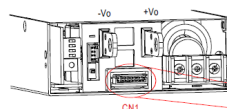
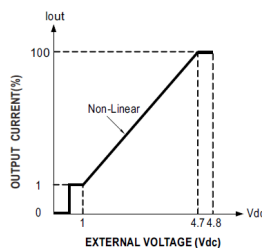
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		PEAK POWER MODE At >200% of rated output power, constant current limiting is activated. Unit will shut down after 5 seconds of continuous operation. AC repower on to recover. (2 Sec for 12V/15V models) Note: Input $\geq$ 220VAC: Peak power = 2 X Rated Power Input < 220VAC: Peak power = 1.33 X Rated Power	I/P : 305VAC : 230VAC : 180VAC : 115VAC : 100VAC : 85VAC O/P : Peak Load Ta: 25°C	202.04% / 305VAC 201.80% / 230VAC 134.2% / 180VAC 91.8% / 115VAC 79.5% / 100VAC 74.6% / 85VAC PROTECTION TYPE : At >200% of rated output power, constant current limiting is activated. Unit will shut down after 5 seconds of continuous operation. AC repower on to recover. (2 Sec for 12V/15V models)
		CURRENT LIMITING MODE Constant current limiting, recovers automatically after abnormal condition is removed	I/P : 305VAC : 230VAC : 180VAC : 115VAC : 100VAC : 85VAC O/P : TESTING Ta: 25°C	106.8% / 305VAC 106.6% / 230VAC 105.6% / 180VAC 74.02% / 115VAC 63.6% / 100VAC 59.2% / 85VAC PROTECTION TYPE : Constant current limiting, recovers automatically after abnormal condition is removed
2	OVER VOLTAGE PROTECTION	56V~60V	I/P: 305VAC I/P: 230VAC I/P: 85VAC O/P: MIN LOAD Ta: 25°C	59.03V / 305VAC 59.12V / 230VAC 59.04V / 85VAC PROTECTION TYPE : Shutdown output voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type : Shut down output voltage, recovers automatically after temperature goes down	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD	O.T.P. Active Protection type : Shut down output voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE PROTECTION TYPE : Shutdown O/P voltage, re-power on to recover

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																		
1	AUXILIARY POWER (AUX)	1. Auxiliary voltage output, 4.25~5.75Vdc, referenced to GND-aux (pin2). The maximum load current is 0.2A. This output has the built-in "Oring diodes" and is not controlled by "R.C" 2. Auxiliary voltage output, 10.2~13.8Vdc, referenced to GND-aux (pin2). The maximum load current is 0.8A. This output has the built-in "Oring diodes" and is not controlled by "R.C". I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result : <table><thead><tr><th>AUX</th><th>TOLERANCE</th><th>RIPPLE</th><th>TEST RESULT</th></tr></thead><tbody><tr><td>5V / 0.2A</td><td>4.25~5.75V</td><td>150mVp-p</td><td>4.92V/ 45mV</td></tr><tr><td>12V / 0.8A</td><td>10.2~13.8V</td><td>450mVp-p</td><td>11.8V/ 90mV</td></tr></tbody></table>	AUX	TOLERANCE	RIPPLE	TEST RESULT	5V / 0.2A	4.25~5.75V	150mVp-p	4.92V/ 45mV	12V / 0.8A	10.2~13.8V	450mVp-p	11.8V/ 90mV								
AUX	TOLERANCE	RIPPLE	TEST RESULT																			
5V / 0.2A	4.25~5.75V	150mVp-p	4.92V/ 45mV																			
12V / 0.8A	10.2~13.8V	450mVp-p	11.8V/ 90mV																			
2	REMOTE ON/OFF CONTROL	※ The power supply can be turned ON/OFF individually or along with other units by using the "Remote Control" function with external switch, photocoupler or relay. <table><thead><tr><th>PSU Vo Status</th><th>Between +5V-aux(Pin 2) and R.C(Pin 1)</th></tr></thead><tbody><tr><td>Power ON</td><td>Switch Short</td></tr><tr><td>Power OFF</td><td>Switch Open</td></tr></tbody></table><table><thead><tr><th>R.C. by external switch.</th><th>R.C. by user's optocoupler control module.</th><th>R.C. by user's Relay control module.</th></tr></thead><tbody><tr><td></td><td></td><td></td></tr></tbody></table> I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result : <table><thead><tr><th>Between 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 2) and R.C(Pin 1)	Power ON	Switch Short	Power OFF	Switch Open	R.C. by external switch.	R.C. by user's optocoupler control module.	R.C. by user's Relay control module.				Between ON/OFF and +5V-AUX	Power Supply Status	SW SHORT	ON	SW OPEN	OFF		
PSU Vo Status	Between +5V-aux(Pin 2) and R.C(Pin 1)																					
Power ON	Switch Short																					
Power OFF	Switch Open																					
R.C. by external switch.	R.C. by user's optocoupler control module.	R.C. by user's Relay control module.																				
																						
Between ON/OFF and +5V-AUX	Power Supply Status																					
SW SHORT	ON																					
SW OPEN	OFF																					
3	REMOTE SENSE	S+ / S- >0.5V 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	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. I/P: 230 VAC O/P: FULL LOAD Ta: 25°C Test Result <table><tr><th>Spec.</th><th>Transition point</th><th>Spec.</th><th>DC OK SIGNAL</th></tr><tr><td>$V_{out} \leq 72\% \sim 82\%$</td><td>77.8%</td><td>High (3.5 ~ 5.5V)</td><td>5.003V</td></tr><tr><td>$V_{out} \geq 75\% \sim 85\%$</td><td>78.46%</td><td>Low (-0.5 ~ 0.5V)</td><td>0.001V</td></tr></table>	Spec.	Transition point	Spec.	DC OK SIGNAL	$V_{out} \leq 72\% \sim 82\%$	77.8%	High (3.5 ~ 5.5V)	5.003V	$V_{out} \geq 75\% \sim 85\%$	78.46%	Low (-0.5 ~ 0.5V)	0.001V						
Spec.	Transition point	Spec.	DC OK SIGNAL																	
$V_{out} \leq 72\% \sim 82\%$	77.8%	High (3.5 ~ 5.5V)	5.003V																	
$V_{out} \geq 75\% \sim 85\%$	78.46%	Low (-0.5 ~ 0.5V)	0.001V																	
5	OUTPUT VOLTAGE PROGRAMMABLE(PV)	(1) Default by potentiometer (SVR) (a) Have the DIP switch position-3 set as  (b) Output voltage can be trimmed by SVR. (2) By Output Voltage Programming (a) Have the DIP switch position-3 set as  (b) The output voltage can be trimmed to 0~120% by applying EXTERNAL VOLTAGE between PV and GND on CN1.  External Voltage (Vdc) Pin5 PV Pin11 GND  I/P: 230 VAC O/P: FULL LOAD Ta: 25°C TEST RESULT : <table><tr><td>External voltage(DC)</td><td>0.8V</td><td>1V</td><td>4.23V</td><td>4.7V</td><td>4.8V</td></tr><tr><td>SPEC(V)</td><td>0</td><td>0~2.88</td><td>45.6~50.4</td><td>52.6~57.4</td><td>52.6~57.4</td></tr><tr><td>Vout</td><td>0.518</td><td>0.518</td><td>48.07</td><td>55.1</td><td>56.36</td></tr></table>	External voltage(DC)	0.8V	1V	4.23V	4.7V	4.8V	SPEC(V)	0	0~2.88	45.6~50.4	52.6~57.4	52.6~57.4	Vout	0.518	0.518	48.07	55.1	56.36
External voltage(DC)	0.8V	1V	4.23V	4.7V	4.8V															
SPEC(V)	0	0~2.88	45.6~50.4	52.6~57.4	52.6~57.4															
Vout	0.518	0.518	48.07	55.1	56.36															
6	OUTPUT CURRENT PROGRAMMABLE (PC)	(1) Default Overload Protection(OLP) value (a) Have the DIP switch position-2 set as  (b) Output current is set default value. (2) By Constant Current Level Programming (a) Have the DIP switch position-2 set as  (b) The constant current level can be trimmed to 0~100% of the rated current by applying EXTERNAL VOLTAGE between PC and GND on CN1.  Pin11 GND Pin6 PC External Voltage (Vdc)  I/P: 230 VAC O/P: TESTING Ta: 25°C																		



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		External voltage(DC)	0.8V	1V	2.831	4.7V	4.8V
		SPEC	0%	1%±10%	50%±10%	100%±10%	102.67%±10%
		Iout	0.96%	1.1%	50.14%	100.3%	102.5%
7	FAN NOISE (Typ.)	10% load @38 dB 70% load @40dB Built-in intelligent fan speed control detect by PSU' S internal temperature		I/P : 230 VAC O/P : TESTING Ta : 25°C		10% load:37.5 dB 70% load: 42.5dB	

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q3 Rated : 650V 52@TC=25°C 37A@TC=100°C VGS : -10V to 22V	AC ON/OFF I/P:High-Line +3V =308V 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 Full Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. VGS (1)OLP (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (5) Dynamic Load Full Load/ Min. Load 50%Duty/120Hz (6)NO LOAD VDS: I/P:Low-Line -3V = 177V O/P: (1)Full Load (2)Output Short	VDS: (1) 449V/18.9A (2) 497V/39.7A (3) 457V/25.1A (4) 445V/21.8A (5) 453V/21.4A (6) 457V/27.9A (7) 453V/34.7A VGS: (1)16.9V (2)16.9V (3)16.9V (4)16.9V (5)17.3V (6)16.9V VDS: (1) 421V/12.6A (2) 433V/31.1A

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			(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 Full Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load.	(3) 453V/23.0A (4) 433V/14.2A (5) 433V/13.4A (6) 449V/25.5A (7) 457V/37.3A
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q901 Rated: 650 V 55 A@TC=25°C 35 @TC=100°C VGS:± 25 V	I/P:High-Line +3V =308 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 Full Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. VGS: (1)OLP (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (5) Dynamic Load Full Load/ Min. Load 50%Duty/120Hz (6)NO LOAD I/P:Low-Line -3V = 177V 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 Full Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. Ta:25°C	VDS: (1) 527V/16.3A (2) 507V/11.9A (3) 519V/12.5A (4) 519V/15.9A (5) 527V/15.3A (6) 527V/15.7A (7) 495V/13.5A VGS: (1)11.18V (2)11.26V (3)11.66V (4)11.34V (5)11.91V (6)9.49V VDS: (1) 515V/13.1A (2) 531V/12.1A (3) 511V/13.1A (4) 511V/12.3A (5) 511V/13.1A (6) 503V/12.1A (7) 471V/13.1A
3	P.F.C DIODE	D14 Rated: 20 A/650 V	I/P:High-Line +3V =308 V AC ON/OFF	

已註解 [p1]: 缺規格



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			O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (4)Dynamic Load Full Load/ Min. Load 50%Duty/120Hz I/P:Low-Line -3V = 177V AC ON/OFF O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (4)Dynamic Load Full Load/ Min. Load 50%Duty/120Hz Ta:25°C	(1) 418V (2) 438V (3) 434V (4) 438V (1) 422V (2) 410V (3) 418V (4) 406V
4	Diode Peak Voltage	Q800 Rated: 210A/ 250 V VGS: ±20 V Q853 Rated: 210 A/ 250 V VGS: ±20 V	AC ON/OFF I/P:High-Line +3V =308 V <u>VO: SPEC MAX</u> 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 Full Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8).NO LOAD (9)Peak Load <u>VO: standard</u> O/P: (1)Full Load VGS: <u>VO: standard</u> (1)OLP (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (5) Dynamic Load Full Load/ Min. Load 50%Duty/120Hz (6)NO LOAD Ta:25°C	Q800: <u>VO: SPEC MAX</u> VDS: (1) 212.14V (2) 212.02V (3) 218.74V (4) 209.58V (5) 207.99V (6) 233.15V (7) 229.5V (8) 206.52V (9) 247.08V <u>VO: standard</u> (1) 206.4V <u>VO: standard</u> VGS: (1)10.92V (2)11.16 V (3) 11.23V (4)10.69V (5) 10.4V (6) 7.58V Q853: <u>VO: SPEC MAX</u> VDS: (1) 222.65V (2) 222.53V (3) 224.1V (4) 219.84V (5) 216.78V (6) 225.09V (7) 225.21V (8) 205.5V (9) 240.73V <u>VO: standard</u> (1) 216.3V <u>VO: standard</u> VGS: (1)8.52 V (2) 8.67V (3) 8.71V (4) 8.59V (5) 8.69V (6) 5.85V
5	Input Capacitor Voltage	C5 Rated: 100μ / 450V Surge voltage: 495 V	I/P:High-Line +3V =308V O/P: (1)Full Load input on/off (2) Min load input on /Off	(1)449V (2)448V



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			(3)Full Load /Min load Change (4)Full load continue Ta:25°C	(3)449V (4)449V
6	Control IC Voltage Test	PFC U330 Rated 10.5V ~ 22V O/P U850 Rated 8 V~ 24 V MCU U401 Rated 2.4V~ 3.6V AUX U200 Rated 25V	AC ON/OFF I/P:High-Line +3V =308 V O/P(1)Full Load (2) Output Short (3)O.L.P (4)O.V.P. (5)No Load VR min (Low Line) MCU : (1) Full Load (2) Output Short (3)O.L.P (4)O.V.P. (5)No Load VR min (LOW LINE) Ta:25°C	U330 (1) 13.1V (2) 13.1V (3) 13.1V (4) 13.0V (5) 13.1V U850 (1) 12.9V (2) 12.8V (3) 12.9V (4) 12.9V (5) 12.9V U200 (1) 13.5V (2) 13.5V (3) 13.5V (4) 13.6V (5) 13.5V
7	TOP SWITCHING STAND BY POWER	U200 Rated: 20 A/ 800V	AC ON/OFF I/P:High-Line +3V =308 V O/P: (1)Full Load (2)Remote On/Off I/P:Low-Line -3V =177 V O/P: (1)Full Load (2)Remote On/Off Ta:25°C	(1) 645V/ 1.453A (2) 592V/ 1.123A (1) 584V/ 1.72A (2) 604V/ 1.081A

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4 K VAC/min I/P-FG : 2 K VAC/min O/P-FG: 1.5 KVAC/min	I/P-O/P: 4.4 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 4.25 mA I/P-FG: 2.05 mA O/P-FG: 11.19 mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P: 500 VDC>100MΩ I/P-FG: 500 VDC>100MΩ O/P-FG: 500 VDC >100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC	I/P-O/P: >30 GΩ I/P-FG: >30 GΩ O/P-FG: >30 GΩ

Model: NSP-2400-48 Test Report 13 / 16



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			Ta:25°C	NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	42A / 2min Ta:25°C	28mΩ

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,EN55011 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	EN55032,EN55011 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 MEDICAL 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 : NSP-2400-48 1. ROOM AMBIENT BURN-IN : 1HRS 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= 60 °C		



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		NO	Position	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 60 °C
		1	LF2	57.7°C	77.5°C
		2	BD1	82.6°C	99.5°C
		3	Q901	74.4°C	91.2°C
		4	Q903	74.5°C	90.4°C
		5	L40	41.8°C	66.5°C
		6	Q1	88.5°C	102.6°C
		7	Q4	96.9°C	110.1°C
		8	Q801	65.7°C	85.3°C
		9	Q803	60.4°C	81.5°C
		10	Q852	59.4°C	80.1°C
		11	Q850	66.9°C	86.2°C
		12	T1 -1	104.7°C	106.2°C
		13	T1 -2	58.3°C	73.0°C
		14	T1 Core	65.6°C	79.3°C
		15	L100	83.4°C	101.6°C
		16	U850	70.1°C	87.9°C
		17	C105	33.4°C	61.5°C
		18	RT10	65.6°C	81.8°C
		19	CN451	65.7°C	80.9°C
		20	RT12	53.3°C	73.9°C
		21	Q712	48.2°C	73.9°C
		22	L100 PCB	78.2°C	94.4°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 110%LOAD Ta : 25°C	TEST : OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR		I/P : 305VAC/180VAC 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 60 °C/95 %R.H NO DAMAGE		I/P : 315 VAC O/P : FULL LOAD Ta= 60 °C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	± 0.03 %/°C(0~60°C)		I/P : 230 VAC O/P : FULL LOAD	± 0.009 %/°C(0~60°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	-30~60°C		1. Thermal shock Temperature : -35°C~ +65°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	



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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= 60 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 60 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 60 °C LIFE TIME Note: 15years(131,400h) is the maximum so that the deterioration of the sealing material	(1) 131400HRS (2) 131400HRS (3) 131400HRS (4) 131400HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 566.1K hrs min. Telcordia SR-332 (Bellcore) ; 47.3K hrs min. MIL-HDBK-217F (25°C)	
11	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=60°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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