



Test Report: XDR-240-12

240W AC/DC High-End Ultra Slim Industrial DIN Rail
Power

■ 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

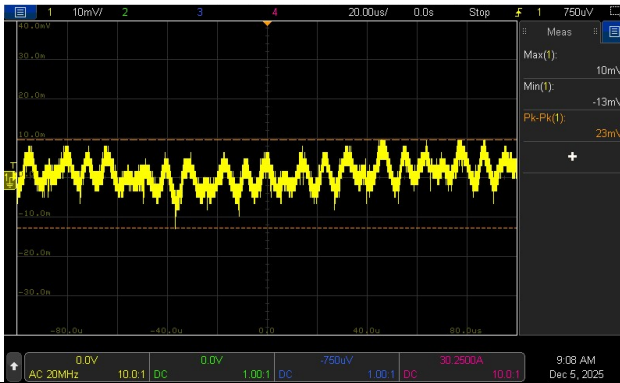
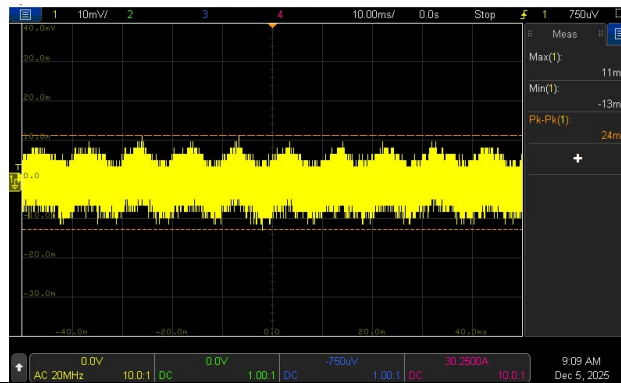
E.M.C. Test

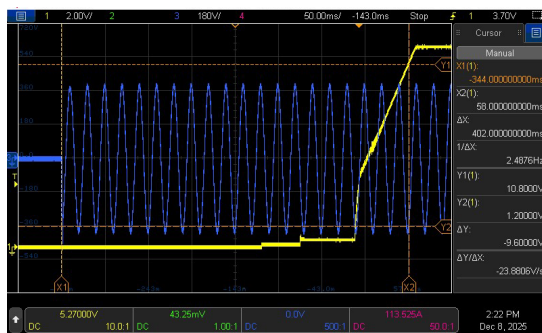
■ RELIABILITY TEST

ENVIRONMENT TEST

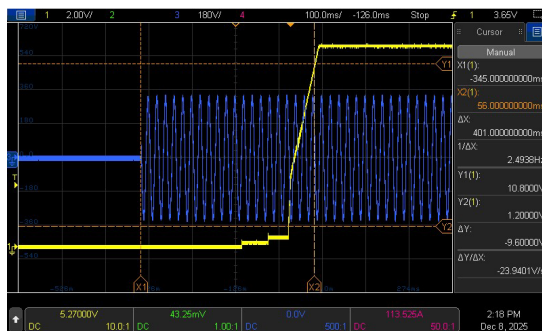
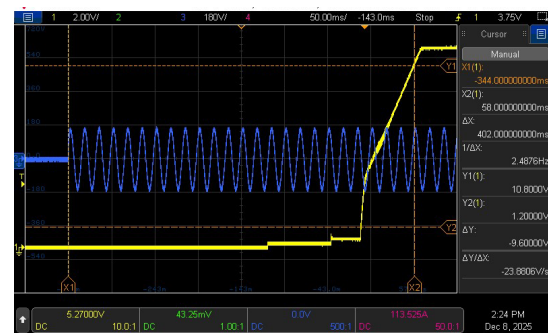
DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 12V~15V	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	11.604V~15.39V/277VAC 11.604V~15.39V/230VAC 11.603V~15.388V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -2% ~ +2%	I/P: 85VAC~305VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: 0% ~0.721 %
3	LINE REGULATION	V1: -0.5% ~ +0.5%	I/P: 85VAC ~ 305VAC O/P:FULL LOAD Ta:25°C	V1: 0% ~ 0.109%
4	LOAD REGULATION	V1: -1% ~ +1%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.3593% ~ 0.3593%
5	OVER/UNDERSHOOT TEST	<±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.60%
6	RIPPLE & NOISE (Max)	V1: 100mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	23mVp-p / high frequency 24mVp-p / low frequency
high frequency :  low frequency : 				
7	SET UP TIME(Max)	277VAC/1500ms 230VAC/1500ms 115VAC/3000ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 402ms 230VAC/ 401ms 115VAC/ 402ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage			INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage	

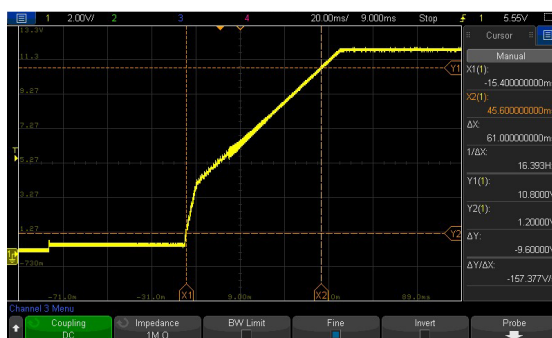


INPUT=230VAC/50HZ @ FULL LOAD
CH1: Output Voltage CH3: AC Input Voltage

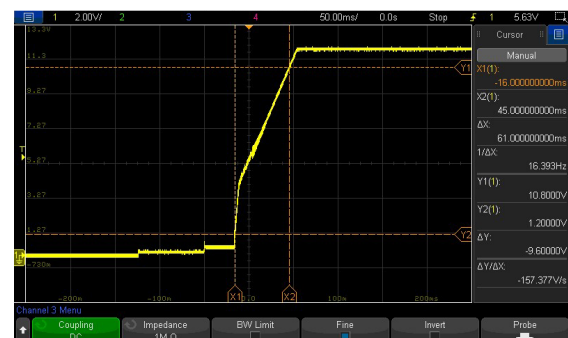


8	RISE TIME (Max)	277VAC/150ms 230VAC/150ms 115VAC/150ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 61ms 230VAC/ 60.8ms 115VAC/ 61ms
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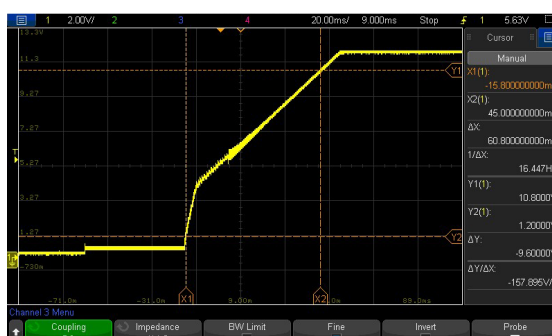
INPUT=277VAC/50HZ @ FULL LOAD
CH1: Output Voltage

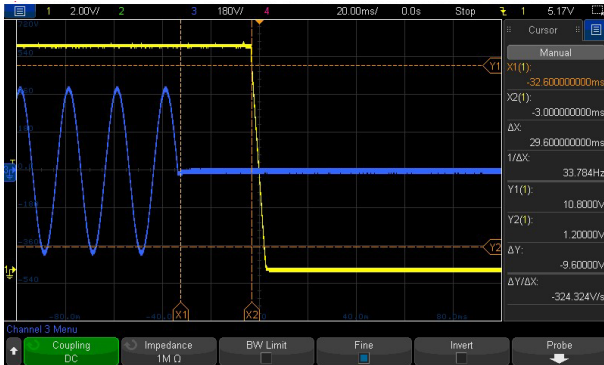
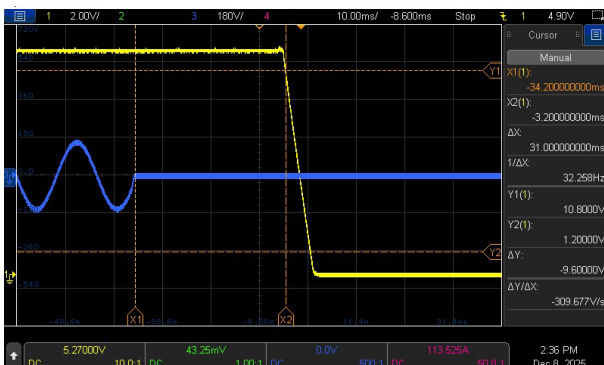
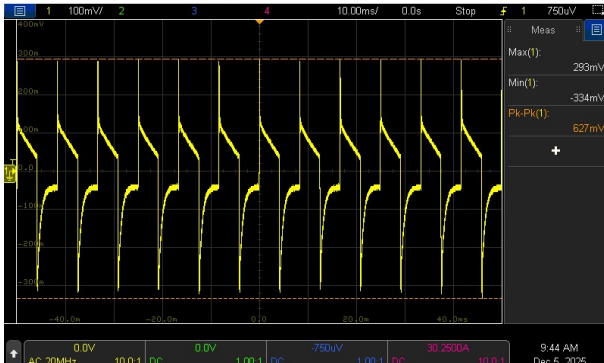
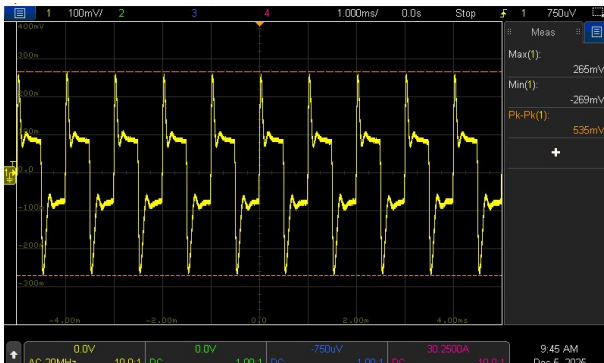


INPUT=115VAC/60HZ @ FULL LOAD
CH1: Output Voltage



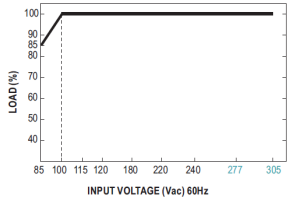
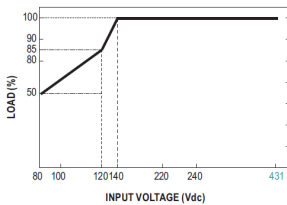
INPUT=230VAC/50HZ @ FULL LOAD
CH1: Output Voltage

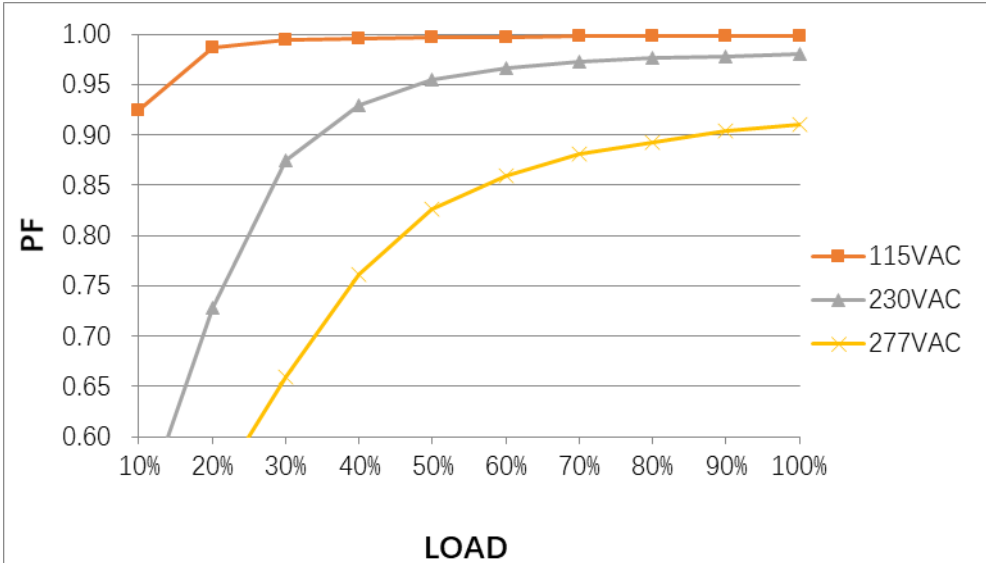
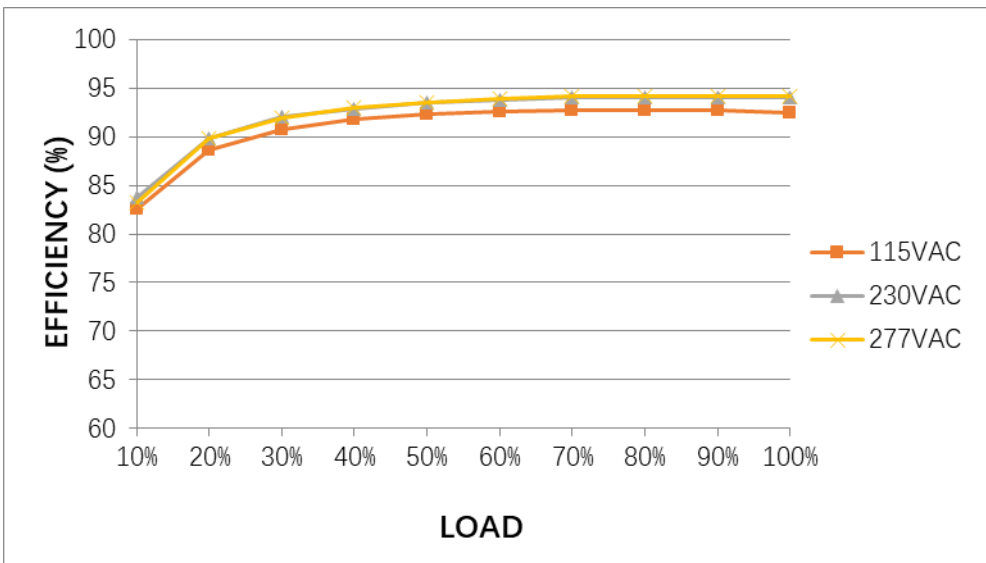


9	HOLD UP TIME (Typ.)	277VAC/20ms 230VAC/ 20ms 115VAC/ 20ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 29.6ms 230VAC/ 29.4ms 115VAC/ 31ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage 				
10	DYNAMIC LOAD	V1: 1200mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25°C	627mVp-p 535mVp-p
FULL / MIN LOAD 50%DUTY / 120HZ  FULL / MIN LOAD 50%DUTY / 1KHZ 				

11	TRANSIENT RECOVERY TIME	V1: 1200mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	241mVp-p
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INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	INPUT VOLTAGE RANGE	85VAC~305VAC 80VDC~ 431VDC 	(1) I/P: TESTING O/P: FULL / 85% LOAD (2) I/P: DC TESTING (L: + N: -) O/P: FULL / 85% LOAD/ 50% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 85% LOAD/ 50% LOAD Ta:25°C	(1) 77.8V~305V/ FULL LOAD 77.8V~305V/ 85% LOAD (2) 77.5Vdc~431Vdc/FULL LOAD 77.5Vdc~431Vdc/85% LOAD 77.5Vdc~431Vdc/50% LOAD (3) 77.5Vdc~431Vdc/FULL LOAD 77.5Vdc~431Vdc/85% LOAD 77.5Vdc~431Vdc/50% LOAD												
			I/P: HIGH-LINE+10V=315V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST : OK												
		Derating 50% Load @80VDC	I/P: 80VDC O/P: 50% Load	TEST : OK												
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 85VAC~ 305VAC O/P:FULL~MIN LOAD Ta:25°C	TEST : OK												
3	INPUT CURRENT (Typ.)	277V/ 1.1A 230V/ 1.3A 115V/ 2.6A	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =0.988A/ 277VAC I =1.12A/ 230VAC I =2.278A/ 115VAC												
4	LEAKAGE CURRENT	< 1mA@240Vac < 1.3mA@277Vac	I/P : 240VAC/60HZ I/P : 277VAC/60HZ O/P : Min LOAD Ta : 25°C	0.710mA@240Vac 0.832mA@277Vac												
5	NO LOAD CONSUMPTION	Remote Power OFF: 1W@115Vac & 230Vac Remote Power ON: 2.5W@115Vac & 230Vac	I/P : 115VAC I/P : 230VAC I/P : 277VAC O/P : NO LOAD Ta : 25°C	TEST: <table><tr><td></td><td>Remote Power OFF</td><td>Remote Power ON</td></tr><tr><td>115VAC</td><td>0.621W</td><td>1.583W</td></tr><tr><td>230VAC</td><td>0.705W</td><td>1.632W</td></tr><tr><td>277VAC</td><td>0.769W</td><td>1.673W</td></tr></table>		Remote Power OFF	Remote Power ON	115VAC	0.621W	1.583W	230VAC	0.705W	1.632W	277VAC	0.769W	1.673W
	Remote Power OFF	Remote Power ON														
115VAC	0.621W	1.583W														
230VAC	0.705W	1.632W														
277VAC	0.769W	1.673W														
6	POWER FACTOR (Typ.)	0.9/277VAC 0.95/ 230VAC 0.98/115VAC	I/P : 277VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.923/277VAC PF=0.982/230VAC PF=0.997/115VAC												

7	P.F vs LOAD 			
	EFFICIENCY(Typ.)	94%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	94.40%
8	EFFICIENCY vs LOAD 			
	INRUSH CURRENT(Typ.)	277V/15A 230V/10A 115V/6A COLD START	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =10.8A / 277VAC I =9.2A / 230VAC I =4.32A / 115VAC T50=2008us/230V
INPUT=277VAC/50HZ @ FULL LOAD CH1: AC Input Voltage CH4: Input current		INPUT=230VAC/50HZ @ FULL LOAD CH1: AC Input Voltage CH4: Input current		



INPUT=115VAC/ 60HZ @ FULL LOAD
CH1: AC Input Voltage CH4: Input current

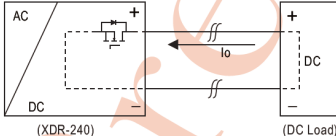


T50@230VAC :

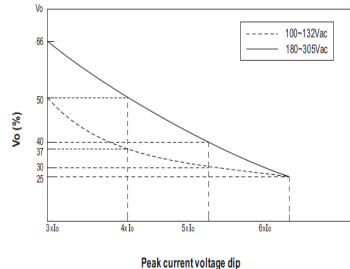


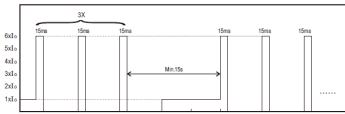
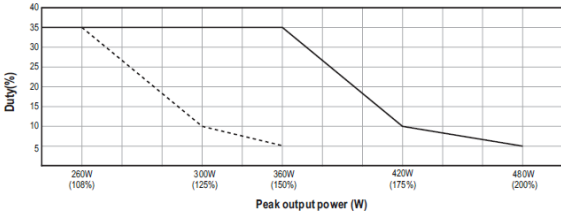
PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	Protection type: 105%~200% rated output power for more than 5 sec then constant current limiting at rate current without shutdown when $V_o=30\%\sim 100\%$; Hiccup mode when $V_o<30\%$ rated voltage	I/P: 305VAC I/P: 230VAC I/P: 100VAC O/P: TESTING Ta:25°C	TEST : 126%/305VAC 126%/230VAC , 126%/100VAC Protection type: 105%~200% rated output power for more than 5 sec then constant current limiting at rate current without shutdown when $V_o=30\%\sim 100\%$; Hiccup mode when $V_o<30\%$ rated voltage
2	OVER VOLTAGE PROTECTION	16V~19V Protection type: Shut down o/p voltage, re-power on to recover	I/P: 305VAC I/P: 85VAC O/P: MIN LOAD Ta:25°C	17.6V/ 305VAC 17.6V/ 85VAC PROTECTION TYPE : Shut down o/p voltage, re-power on to recover

3	OVER TEMPERATURE PROTECTION	Protection type: Shut down o/p 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 o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Protection type: Hiccup mode when $V_o < 30\%$ rated voltage , recovers automatically after fault condition is removed	I/P: 305VAC I/P: 85VAC O/P:FULL LOAD	TEST : <u>OK</u> NO DAMAGE PROTECTION TYPE : Hiccup mode when $V_o < 30\%$ rated voltage , recovers automatically after fault condition is removed
5	Protection against Inverse Voltages from the Load	Prevent PSU damage from Back Electro magnetic Force during deceleration of motor or inductive load 	I/P: 230VAC O/P:TESTING $T_a: 25^\circ\text{C}$	TEST : <u>OK</u>

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																				
1	DC OK CONTACT RATINGS	30VDC/1A , 30VAC/0.5A RESISTIVE LOAD	I/P:230VAC O/P:FULL LOAD Ta:25℃	TEST: <u>OK</u>																																				
2	REMOTE CONTROL	Power ON: Pin9 and Pin10 Short or keep 4~5Vdc Power OFF: Pin9 and Pin10 Open or keep < 0.5Vdc	I/P:230VAC O/P:FULL LOAD Ta:25℃	TEST: <u>OK</u>																																				
3	PULSE CURRENT CAPABILTY (	 <table><thead><tr><th>Load</th><th>100~132Vac Vo(%)</th><th>180~305Vac Vo(%)</th><th>Time</th></tr></thead><tbody><tr><td>3xIo</td><td>50</td><td>66</td><td>100ms</td></tr><tr><td>4xIo</td><td>37</td><td>50</td><td>70ms</td></tr><tr><td>5xIo</td><td>30</td><td>40</td><td>40ms</td></tr><tr><td>6xIo</td><td>25</td><td>25</td><td>15ms</td></tr></tbody></table>	Load	100~132Vac Vo(%)	180~305Vac Vo(%)	Time	3xIo	50	66	100ms	4xIo	37	50	70ms	5xIo	30	40	40ms	6xIo	25	25	15ms	I/P: 180VAC I/P: 100VAC O/P: TESTING Ta:25℃	180VAC : <table><thead><tr><th>Load</th><th>lout_Time(ms)</th></tr></thead><tbody><tr><td>3xIo</td><td>109.8</td></tr><tr><td>4xIo</td><td>86</td></tr><tr><td>5xIo</td><td>57.4</td></tr><tr><td>6xIo</td><td>43.8</td></tr></tbody></table> 100VAC : <table><thead><tr><th>Load</th><th>lout_Time(ms)</th></tr></thead><tbody><tr><td>3xIo</td><td>107.4</td></tr><tr><td>4xIo</td><td>84</td></tr></tbody></table>	Load	lout_Time(ms)	3xIo	109.8	4xIo	86	5xIo	57.4	6xIo	43.8	Load	lout_Time(ms)	3xIo	107.4	4xIo	84
Load	100~132Vac Vo(%)	180~305Vac Vo(%)	Time																																					
3xIo	50	66	100ms																																					
4xIo	37	50	70ms																																					
5xIo	30	40	40ms																																					
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4xIo	84																																							

				5xlo 6xlo	56 44.2																				
4	PULSE CURRENT CAPABILTY		I/P:230VAC O/P: TESTING Ta:25°C	TEST : <u>OK</u>																					
5	LED Status Indictors	<table><tr><th>Description</th><th>Output of alarm</th></tr><tr><td>Restore Factory Settings</td><td>Green: 3 Blink/Phase </td></tr><tr><td>DC OK</td><td>Green </td></tr><tr><td>DC Fail</td><td>Red </td></tr><tr><td>Overload (115VAC: >130% rated current) (230VAC: >150% rated current)</td><td>Red: 1 Blink/Phase </td></tr><tr><td>Over voltage</td><td>Red: 2 Blink/Phase </td></tr><tr><td>Over temperature</td><td>Red: 3 Blink/Phase </td></tr><tr><td>Against Inverse Voltages From The Load</td><td>Red: 4 Blink/Phase </td></tr><tr><td>High Ambient Temperature Warning</td><td>Red: Blink </td></tr><tr><td>Others (None)</td><td>Red: 5 Blink/Phase </td></tr></table> Note: Others include protection status AC UVP, Internal Communication error and EEPROM error.	Description	Output of alarm	Restore Factory Settings	Green: 3 Blink/Phase 	DC OK	Green 	DC Fail	Red 	Overload (115VAC: >130% rated current) (230VAC: >150% rated current)	Red: 1 Blink/Phase 	Over voltage	Red: 2 Blink/Phase 	Over temperature	Red: 3 Blink/Phase 	Against Inverse Voltages From The Load	Red: 4 Blink/Phase 	High Ambient Temperature Warning	Red: Blink 	Others (None)	Red: 5 Blink/Phase 	I/P:230VA0C O/P: TESTING Ta:25°C	TEST : <u>OK</u>	
Description	Output of alarm																								
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High Ambient Temperature Warning	Red: Blink 																								
Others (None)	Red: 5 Blink/Phase 																								
6	PARALLEL	Up to 960W (3+1), please refer to Function Manual for more details	I/P: TESTING O/P: TESTING LOAD Ta:25°C	TEST : <u>OK</u>																					
7	PEAK Power	I/P: 100/200VAC O/P:  -----100VAC ————200VAC		TEST: <u>OK</u>																					

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q5/Q6 : Rated: 600V/21A	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 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8) Peak Load Ta:25°C	Q5 VDS: (1) 533V (2) 513V (3) 520V (4) 530V (5) 533V (6) 530V (7) 546V (8) 530V	Q6 VDS: (1) 520V (2) 539V (3) 517V (4) 520V (5) 507V (6) 520V (7) 517V (8) 533V

2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 : Rated: 600V/34A	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 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8) Peak Load Ta:25°C	VDS: (1) 478V (2) 475V (3) 475V (4) 472V (5) 472V (6) 478V (7) 472V (8) 478V
3	P.F.C DIODE	D1 : Rated: 4A/650V	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/5KHz (4) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (5) Peak Load Ta:25°C	(1) 433V (2) 427V (3) 436V (4) 436V (5) 436V
4	Diode Peak Voltage	Q101/Q103: Rated: 60V/140A	AC ON/OFF I/P: High-Line +3V =308 V <u>VO=Vomax</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 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8).NO LOAD (9) Peak Load <u>VO=Vonormal</u> O/P: (1) Full Load Ta:25°C	Q101: <u>VO=Vomax</u> VDS: (1) 39.3V (2) 37.6V (3) 39.3V (4) 39.3V (5) 39V (6) 39V (7) 37.6V (8) 35.6V (9) 39V <u>VO=Vonormal</u> (1) 35V Q103: <u>VO=Vomax</u> VDS: (1) 34.8V (2) 34.4V (3) 34.6V (4) 38.9V (5) 36.5V (6) 42.7V (7) 36.2V (8) 32.5V (9) 35.4V <u>VO=Vonormal</u> (1) 39.2V
5	Input Capacitor Voltage	C5 : Rated: 100μ /450V	I/P: High-Line +3V =308V O/P: (1)Full Load input on/off (2) Min load input on /Off	(1) 442V (2) 446V (3) 444V

			(3) Full Load /Min load Change (4) Full load continue (5) Peak Load on/off (6) Peak Load continue Ta:25°C	(4) 444V (5) 446V (6) 446V
6	Control IC Voltage Test	PFC/PWM IC U1 : Rated : 12.5V~ 27.9V O/P IC U101: Rated: 4.75V~38V IC U404 : Rated : 3V~36V MCU IC U9 : Rated : 2V~3.6V Level: 3.2835~3.3165V MCU IC U306: Rated : 2.4V~ 3.6V Level: 3.2835~3.3165V	AC ON/OFF I/P: High-Line +3V =308V 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	U1 (1) 13.5V (2) 13.5V (3) 13.4V (4) 13.5V (5) 13.5V U9 (1) 3.306V (2) 3.306V (3) 3.306V (4) 3.306V (5) 3.306V U101 (1) 14.8V (2) 14.8V (3) 13.8V (4) 13.8V (5) 14.8V U306 (1) 3.298V (2) 3.298V (3) 3.298V (4) 3.298V (5) 3.298V U404 (1) 5.45V (2) 5.45V (3) 5.45V (4) 5.45V (5) 5.45V

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4 KVAC/min I/P-FG : 2 KVAC/min O/P-FG:1.5 KVAC/min O/P-DC OK: 0.5 KVAC/min	I/P-O/P: 4.4 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG: 1.8 KVAC/min O/P-DC OK: 0.6 KVAC/min Ta:25°C	I/P-O/P: 3.92mA I/P-FG: 3.75mA O/P-FG: 4.22mA O/P-DC OK: 0.008mA 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: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25°C	I/P-O/P: > 50GΩ I/P-FG: > 50GΩ O/P-FG: > 50GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100mΩ	40A /2min Ta:25°C	5mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	BS EN/EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	BS EN/EN55032 (CISPR32) BS EN/EN61204-3 CNS15936 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	BS EN/EN55032 (CISPR32) BS EN/EN61204-3 CNS15936 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	BS EN/EN 61000-4-2 AIR : 15KV / Contact : 8KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	BS EN/EN 61000-4-4 INPUT : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	BS E /EN 61000-4-5 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 : XDR-240-12 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=26.9°C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta= 59.5°C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=26.9°C</th><th>HIGH AMBIENT Ta=59.5°C</th></tr><tr><td>1</td><td>R12</td><td>46.2°C</td><td>81.5°C</td></tr><tr><td>2</td><td>RTH2</td><td>49.3°C</td><td>83.6°C</td></tr><tr><td>3</td><td>RY1</td><td>52.1°C</td><td>86.5°C</td></tr><tr><td>4</td><td>L2</td><td>50.5°C</td><td>84.8°C</td></tr><tr><td>5</td><td>C9</td><td>51.2°C</td><td>85.2°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta=26.9°C	HIGH AMBIENT Ta=59.5°C	1	R12	46.2°C	81.5°C	2	RTH2	49.3°C	83.6°C	3	RY1	52.1°C	86.5°C	4	L2	50.5°C	84.8°C	5	C9	51.2°C	85.2°C
NO	Position	ROOM AMBIENT Ta=26.9°C	HIGH AMBIENT Ta=59.5°C																									
1	R12	46.2°C	81.5°C																									
2	RTH2	49.3°C	83.6°C																									
3	RY1	52.1°C	86.5°C																									
4	L2	50.5°C	84.8°C																									
5	C9	51.2°C	85.2°C																									

NO	Position	ROOM AMBIENT Ta=26.9℃	HIGH AMBIENT Ta=59.5℃
6	L1	55.1℃	89.3℃
7	RTH3	53.3℃	87.3℃
8	Q1	53.9℃	88.3℃
9	C5	51.1℃	85.1℃
10	C6	50.1℃	84.3℃
11	T1coil	72.0℃	106.0℃
12	T1core	52.9℃	87.2℃
13	Q5	54.7℃	89.0℃
14	Q6	55.7℃	90.1℃
15	Q110	68.1℃	102.9℃
16	C106	62.1℃	96.3℃
17	C108	61.7℃	96.3℃
18	C202	52.5℃	87.6℃
19	D200	58.5℃	92.9℃
20	RG6	60.8℃	94.5℃
21	U205	62.0℃	96.1℃
22	U404	60.6℃	94.6℃
23	Q201	56.3℃	90.7℃
24	U306	59.3℃	93.8℃
25	U303	62.2℃	96.1℃
26	U400	56.7℃	91.4℃
27	U200	55.0℃	89.4℃
28	C7	53.9℃	88.2℃
29	C8	56.4℃	90.8℃
30	BD1	56.2℃	89.8℃
31	U4	53.6℃	87.3℃
32	R6	52.9℃	86.8℃
33	D1	59.6℃	93.9℃
34	U1	60.5℃	94.2℃
35	Q103	65.9℃	100.0℃
36	U2	58.5℃	93.0℃
37	J101	68.4℃	102.4℃
38	U101	65.0℃	102.8℃
39	Q101	62.7℃	96.9℃
40	ZNR1	46.0℃	80.8℃
41	LF1	48.5℃	83.5℃
42	R1	50.0℃	84.8℃
43	LF2	53.6℃	87.6℃
44	U9	50.3℃	84.8℃
45	RTH5	57.9℃	92.6℃
46	LF100	76.6℃	113.9℃
47	RY100	67.3℃	100.5℃
48	C109	64.4℃	98.3℃
49	C41	56.4℃	91.0℃

2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 123%LOAD Ta : 25°C	TEST : OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/100VAC O/P : 80%/100 %LOAD Ta= -45°C/-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 : 315VAC 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	± 0.002%/°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	
8	VIBRATION TEST	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	1 Carton & 1 Set (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 C109 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 60°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		(1) 5334086 HRS (2) 81670 HRS (3) 336558 HRS (4) 948549 HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 1066.2K hrs min. Telcordia SR-332 (Bellcore) ; 129.1K 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	Hanxr	Liutt	Wangdz

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