



# Test Report: XDR-480-24

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480W 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

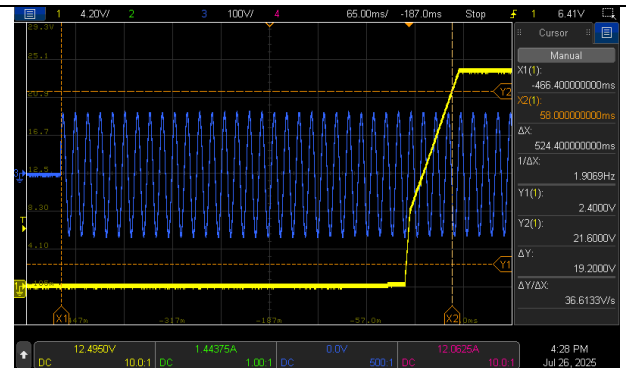
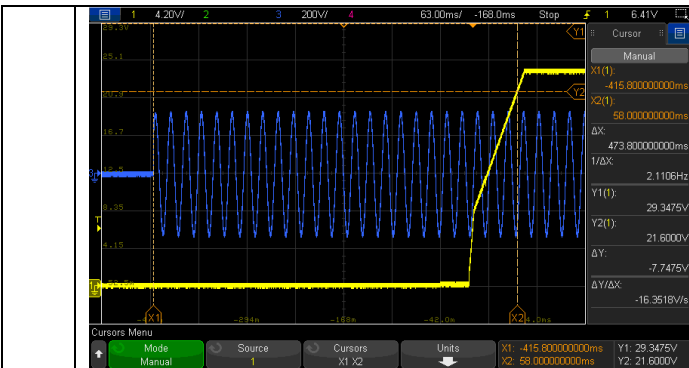
## ■ RELIABILITY TEST

ENVIRONMENT TEST

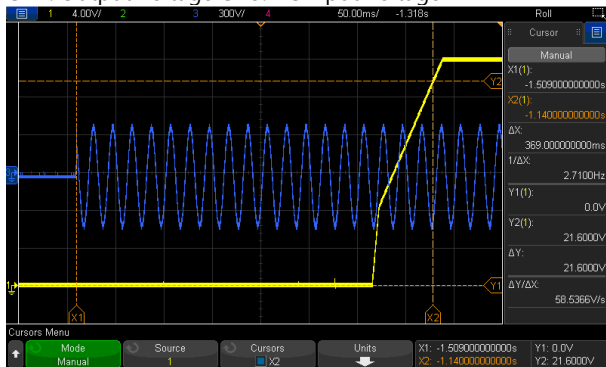
■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 24V~29V	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	23.27V~29.77V/277VAC 23.27V~29.77V/230VAC 23.27V~29.77V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1% ~ +1%	I/P: 85VAC~305VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -0.13% ~ 0.13%
3	LINE REGULATION	V1: -0.5% ~ +0.5%	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: 0% ~ 0.02%
4	LOAD REGULATION	V1: -1% ~ +1%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.13% ~ 0.13%
5	OVER/UNDERSHOOT TEST	<±5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD/ PEAK LOAD Ta:25°C	-4.7%
6	RIPPLE & NOISE (Max )	V1: 100mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	27mVp-p / high frequency 29mVp-p / low frequency 55mVp-p / NO LOAD 43mVp-p / PEAK LOAD
		high frequency :		
		low frequency :		
7	SET UP TIME(Max)	230VAC/1500ms 115VAC/3000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 473.8ms 115VAC/ 524.4ms 277VAC/369ms
INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage			INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage	

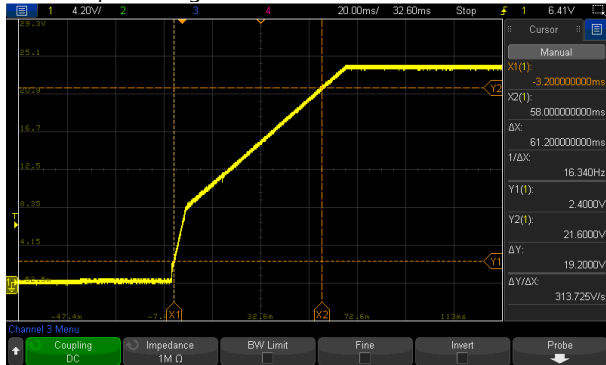


INPUT=277VAC/50HZ @ FULL LOAD  
CH1: Output Voltage CH3: AC Input Voltage

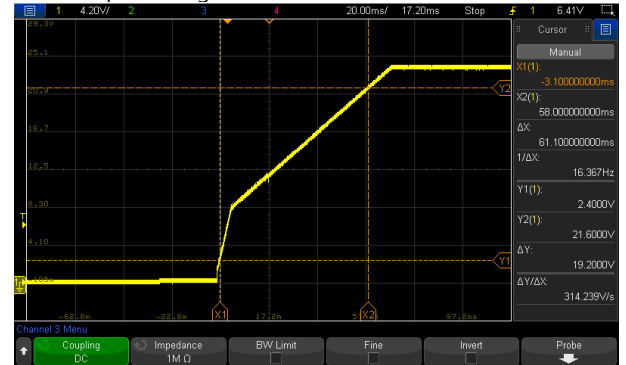


8	RISE TIME (Max)	230VAC/150ms 115VAC/150ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 61.2ms 115VAC/ 61.1ms 277VAC/59.6ms
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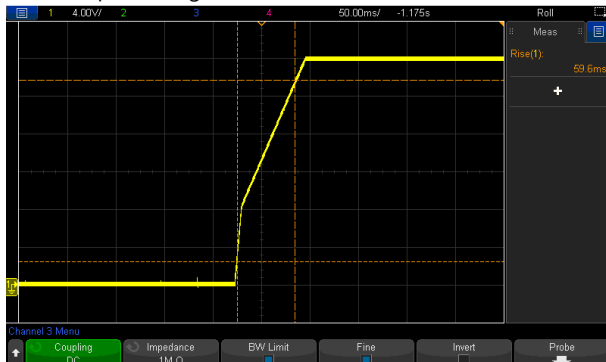
INPUT=230VAC/50HZ @ FULL LOAD  
CH1: Output Voltage



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

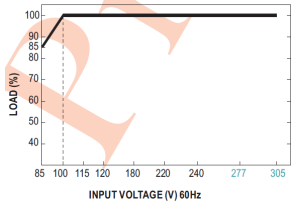
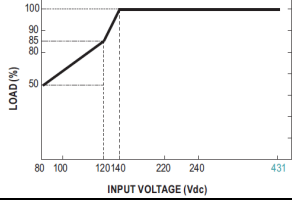


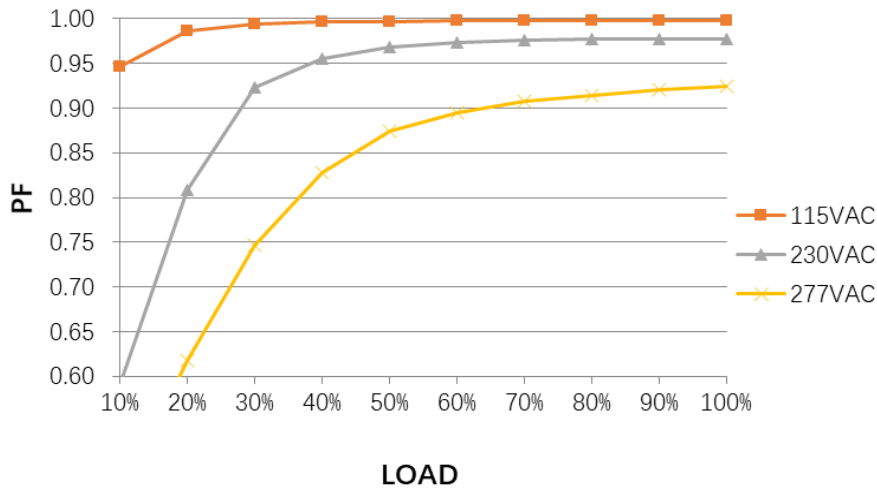
INPUT=277VAC/50HZ @ FULL LOAD  
CH1: Output Voltage



9	HOLD UP TIME (Typ.)	230VAC/ 15ms 115VAC/ 15ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 34.46ms 115VAC/ 34.66ms 277VAC/30.20ms
INPUT=230VAC/50HZ @ FULL LOAD		INPUT=115VAC/60HZ @ FULL LOAD		
CH1: Output Voltage CH3: AC Input Voltage		CH1: Output Voltage CH3: AC Input Voltage		
INPUT=277VAC/50HZ @ FULL LOAD				
CH1: Output Voltage CH3: AC Input Voltage				
10	DYNAMIC LOAD	V1: 2400mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25°C	1440mVp-p 1340mVp-p
FULL / MIN LOAD 50%DUTY / 120HZ		FULL / MIN LOAD 50%DUTY / 1KHZ		
11	TRANSIENT RECOVERY TIME	V1: 2400mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	593mVp-p

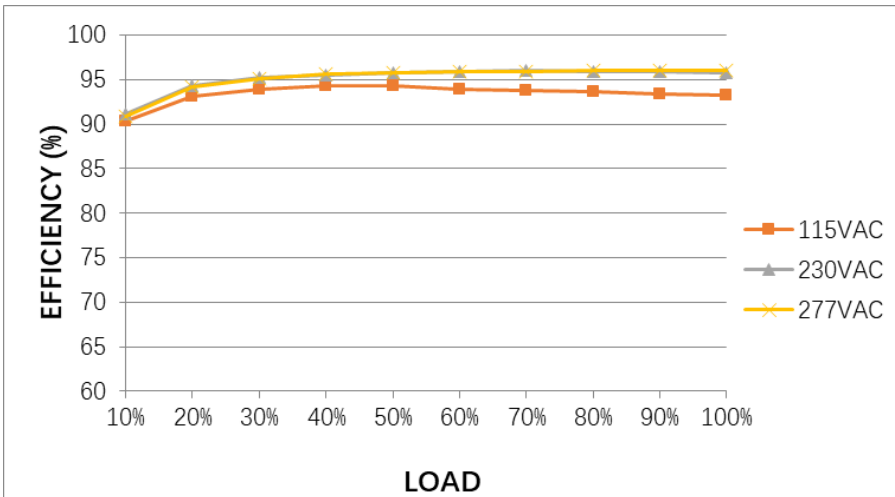
### INPUT FUNCTION TEST

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 (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 85% LOAD Ta:25°C	(1) 80 V~305V/ FULL LOAD 79.6V~305V/ 85% LOAD (2) 75Vdc~431Vdc/FULL LOAD 75Vdc~431Vdc/85% LOAD (3) 75Vdc~431Vdc/FULL LOAD 75Vdc~431Vdc/85% 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(23.987V)	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/ 2.5A 230V/ 3A 115V/ 6A	I/P : 277VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =1.959A/ 277VAC I =2.237A/ 230VAC I =4.507A/ 115VAC												
4	LEAKAGE CURRENT	< 1mA@240Vac < 1.5mA@277Vac	I/P : 240VAC/60HZ I/P : 277VAC/60HZ O/P : Min LOAD Ta : 25°C	0.675mA@240Vac 0.759mA@277Vac												
5	NO LOAD CONSUMPTION	Remote Power OFF: 1W@115Vac & 230Vac & 277Vac Remote Power ON: 3W@115Vac & 230Vac & 277Vac	I/P : 115VAC I/P : 230VAC O/P : NO LOAD Ta : 25°C	TEST: <table border="1" data-bbox="1145 1473 1501 1697"> <thead> <tr> <th></th> <th>Remote Power OFF</th> <th>Remote Power ON</th> </tr> </thead> <tbody> <tr> <td>115VAC</td> <td>0.578W</td> <td>2.201W</td> </tr> <tr> <td>230VAC</td> <td>0.694W</td> <td>2.284W</td> </tr> <tr> <td>277 VAC</td> <td>0.793W</td> <td>2.284</td> </tr> </tbody> </table>		Remote Power OFF	Remote Power ON	115VAC	0.578W	2.201W	230VAC	0.694W	2.284W	277 VAC	0.793W	2.284
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115VAC	0.578W	2.201W														
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277 VAC	0.793W	2.284														
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=0.9232/277VAC PF=0.9796/230VAC PF=0.9978/115VAC												
	P.F vs LOAD															



7	EFFICIENCY(Typ.)	95.5%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	95.63%
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EFFICIENCY vs LOAD



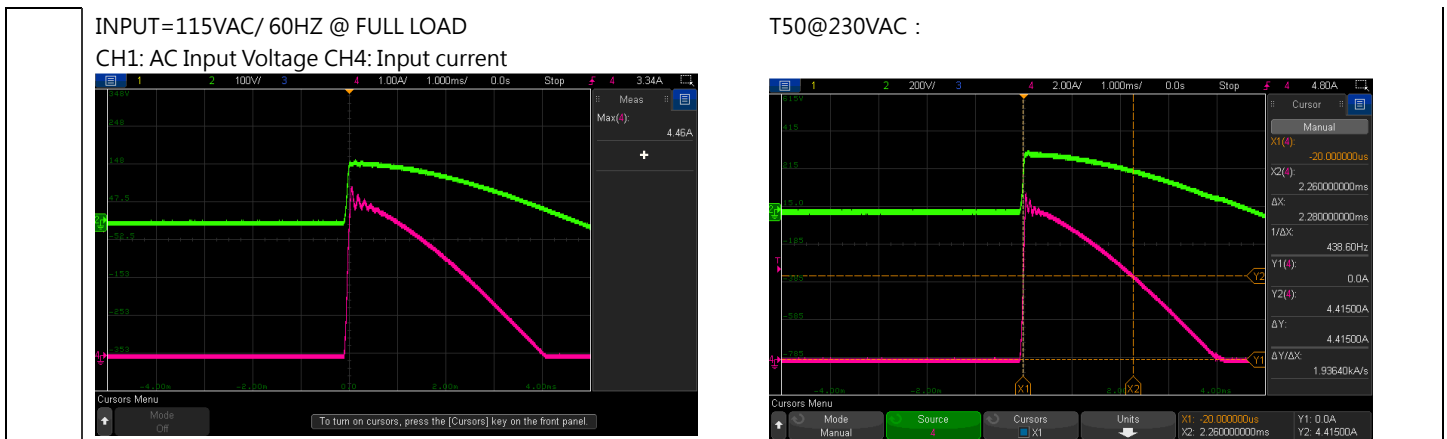
8	INRUSH CURRENT(Typ.)	277V/15A 230V/10A 115V/6A COLD START	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =10.7A/ 277VAC I =8.83A/ 230VAC I =4.46A/ 115VAC T50=2280us/230V
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INPUT=277VAC/50HZ @ FULL LOAD  
CH1: AC Input Voltage CH4: Input current



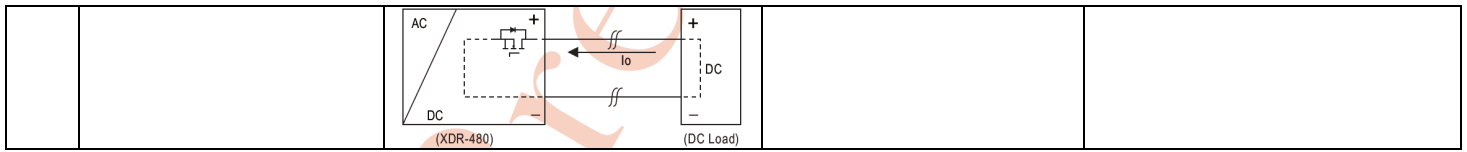
INPUT=230VAC/50HZ @ FULL LOAD  
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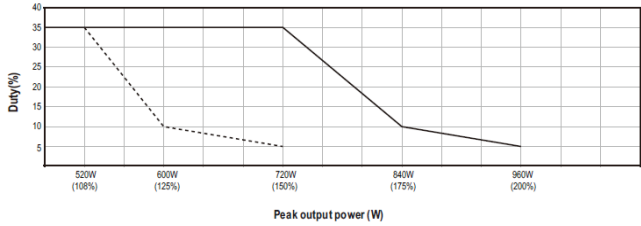
### PROTECTION FUNCTION TEST

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	127%/305VAC 127%/230VAC 127%/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	30V~34V 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	32.2V/ 305VAC 32.2V/ 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	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 Ta:25°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°C	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°C	TEST: <u>OK</u>																																								
3	PULSE CURRENT CAPABILTY	<table border="1"> <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:230VAC O/P:FULL LOAD Ta:25°C	<b>180VAC :</b> <table border="1"> <thead> <tr> <th>Load</th> <th>Iout_Time(ms)</th> </tr> </thead> <tbody> <tr> <td>3xIo</td> <td>115.4</td> </tr> <tr> <td>4xIo</td> <td>113.6</td> </tr> <tr> <td>5xIo</td> <td>54.4</td> </tr> <tr> <td>6xIo</td> <td>51.4</td> </tr> </tbody> </table> <b>100V :</b> <table border="1"> <thead> <tr> <th>Load</th> <th>Iout_Time(ms)</th> </tr> </thead> <tbody> <tr> <td>3xIo</td> <td>115.4</td> </tr> <tr> <td>4xIo</td> <td>111.8</td> </tr> <tr> <td>5xIo</td> <td>56.0</td> </tr> <tr> <td>6xIo</td> <td>51.6</td> </tr> </tbody> </table>	Load	Iout_Time(ms)	3xIo	115.4	4xIo	113.6	5xIo	54.4	6xIo	51.4	Load	Iout_Time(ms)	3xIo	115.4	4xIo	111.8	5xIo	56.0	6xIo	51.6
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4	PULSE CURRENT CAPABILTY		I/P:230VAC O/P: TESTING Ta:25°C	TEST : <u>OK</u>																																								
5	LED Status Indictors	<b>LED :</b> <table border="1"> <thead> <tr> <th>Description</th> <th>Output of alarm</th> </tr> </thead> <tbody> <tr> <td>Restore Factory Settings</td> <td>Green : 3 Blink/Pause </td> </tr> <tr> <td>DC OK</td> <td>Green </td> </tr> <tr> <td>DC Fail</td> <td>Red </td> </tr> <tr> <td>Overload (115Vac: &gt;150% rated current) (230Vac: &gt;200% rated current)</td> <td>Red : 1 Blink/Pause </td> </tr> <tr> <td>Over voltage</td> <td>Red : 2 Blink/Pause </td> </tr> <tr> <td>Over temperature</td> <td>Red : 3 Blink/Pause </td> </tr> <tr> <td>Against Inverse Voltages From The Load</td> <td>Red : 4 Blink/Pause </td> </tr> <tr> <td>High Ambient Temperature Warning</td> <td>Red : Blink </td> </tr> <tr> <td>Others (None)</td> <td>Red : 5 Blink/Pause </td> </tr> </tbody> </table> <p><small>Note: Others include protection status,AC UVP, Internal Communication error and EEPROM error.</small></p>	Description	Output of alarm	Restore Factory Settings	Green : 3 Blink/Pause	DC OK	Green	DC Fail	Red	Overload (115Vac: >150% rated current) (230Vac: >200% rated current)	Red : 1 Blink/Pause	Over voltage	Red : 2 Blink/Pause	Over temperature	Red : 3 Blink/Pause	Against Inverse Voltages From The Load	Red : 4 Blink/Pause	High Ambient Temperature Warning	Red : Blink	Others (None)	Red : 5 Blink/Pause	I/P:230VAC O/P: TESTING Ta:25°C	TEST : <u>OK</u>																				
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6	PARALLEL	Up to 1920W(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	<p>I/P: 100/200VAC O/P:</p>  <p style="text-align: center;">-----100VAC      ————200VAC</p>	TEST : <u>OK</u>
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### 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: 45A/ 600V	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                      Q6 VDS:                      VDS: (1) 510V                      (1) 490V (2) 546V                      (2) 482V (3) 510V                      (3) 490V (4) 510V                      (4) 490V (5) 510V                      (5) 490V (6) 506V                      (6) 482V (7) 522V                      (7) 498V (8) 522V                      (8) 490V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1/Q2 : Rated: 31A/ 600V	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	Q1 VDS: (1) 474V (2) 437V (3) 476V (4) 476V (5) 488V (6) 480V (7) 460V (8) 464V

3	P.F.C DIODE	D1 : Rated: 10A/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) 443V (2) 451V (3) 451V (4) 462V (5) 459V
4	Diode Peak Voltage	Q100/Q103: Rated: 80V/145A	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	Q100: <u>VO=Vomax</u> VDS: (1) 65.6V (2) 65.6V (3) 65.6V (4) 65.6V (5) 65.6V (6) 66.0V (7) 65.6V (8) 65.6V (9) 65.6V <u>VO=Vonormal</u> (1) 60.0V Q103: <u>VO=Vomax</u> VDS: (1) 66.2V (2) 64.8V (3) 66.6V (4) 66.6V (5) 66.6V (6) 67.0V (7) 64.8V (8) 64.6V (9) 67.0V <u>VO=Vonormal</u> (1) 60.2V
5	Input Capacitor Voltage	C5 : Rated: 150μ /450V	I/P: High-Line +3V =308V O/P: (1)Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change (4) Full load continue (5) Peak Load on/off (6) Peak Load continue Ta:25°C	(1) 436V (2) 436V (3) 436V (4) 436V (5) 436V (6) 436V
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  AUX IC U2 : Rated : 5.65V~6.8V	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) Ta:25°C	U1 (1) 13.96V (2) 14.19V (3) 14.03V (4) 13.96V (5) 13.96V  U2 (1) 6.47V (2) 6.48V (3) 6.48V (4) 6.54V (5) 6.40V  U101 (1) 15.30V (2) 15.39V (3) 15.39V  U9 (1) 3.307V (2) 3.307V (3) 3.307V

		MCU IC U9 : Rated : 2V~3.6V Level: 3.2835~3.3165V		(4) 15.39V (5) 15.21V	(4) 3.307V (5) 3.307V
		MCU IC U306: Rated : 2.4V~ 3.6V Level: 3.2835~3.3165V		U404 (1) 5.57V (2) 5.57V (3) 5.61V (4) 5.61V (5) 5.61V	U306 (1) 3.303V (2) 3.303V (3) 3.303V (4) 3.303V (5) 3.303V

## ■ 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: 3.27mA I/P-FG: 2.56mA O/P-FG: 3.05mA 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	22mΩ

### 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-480-24 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=26.0°C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=60.1°C																																																																																														
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=26.0°C</th> <th>HIGH AMBIENT Ta=60.1°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>C1</td><td>53.3°C</td><td>86.7°C</td></tr> <tr><td>2</td><td>U9</td><td>54.7°C</td><td>89.0°C</td></tr> <tr><td>3</td><td>ZNR1</td><td>48.8°C</td><td>83.5°C</td></tr> <tr><td>4</td><td>BD1</td><td>58.3°C</td><td>91.9°C</td></tr> <tr><td>5</td><td>LF1</td><td>53.7°C</td><td>88.2°C</td></tr> <tr><td>6</td><td>LF2</td><td>56.4°C</td><td>90.6°C</td></tr> <tr><td>7</td><td>LF100</td><td>62.3°C</td><td>96.3°C</td></tr> <tr><td>8</td><td>C108</td><td>60.8°C</td><td>94.5°C</td></tr> <tr><td>9</td><td>C109</td><td>55.1°C</td><td>88.6°C</td></tr> <tr><td>10</td><td>C10</td><td>53.8°C</td><td>88.7°C</td></tr> <tr><td>11</td><td>U5</td><td>46.2°C</td><td>81.9°C</td></tr> <tr><td>12</td><td>R1</td><td>47.0°C</td><td>82.3°C</td></tr> <tr><td>13</td><td>RY1</td><td>53.1°C</td><td>88.1°C</td></tr> <tr><td>14</td><td>R40</td><td>51.2°C</td><td>86.7°C</td></tr> <tr><td>15</td><td>L2</td><td>54.7°C</td><td>89.9°C</td></tr> <tr><td>16</td><td>C7</td><td>60.9°C</td><td>95.2°C</td></tr> <tr><td>17</td><td>RTH3</td><td>62.0°C</td><td>95.9°C</td></tr> <tr><td>18</td><td>D22</td><td>65.0°C</td><td>98.8°C</td></tr> <tr><td>19</td><td>T2</td><td>53.7°C</td><td>89.6°C</td></tr> <tr><td>20</td><td>C5</td><td>56.7°C</td><td>90.6°C</td></tr> <tr><td>21</td><td>R7</td><td>54.4°C</td><td>88.7°C</td></tr> <tr><td>22</td><td>L1</td><td>59.4°C</td><td>93.3°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=26.0°C	HIGH AMBIENT Ta=60.1°C	1	C1	53.3°C	86.7°C	2	U9	54.7°C	89.0°C	3	ZNR1	48.8°C	83.5°C	4	BD1	58.3°C	91.9°C	5	LF1	53.7°C	88.2°C	6	LF2	56.4°C	90.6°C	7	LF100	62.3°C	96.3°C	8	C108	60.8°C	94.5°C	9	C109	55.1°C	88.6°C	10	C10	53.8°C	88.7°C	11	U5	46.2°C	81.9°C	12	R1	47.0°C	82.3°C	13	RY1	53.1°C	88.1°C	14	R40	51.2°C	86.7°C	15	L2	54.7°C	89.9°C	16	C7	60.9°C	95.2°C	17	RTH3	62.0°C	95.9°C	18	D22	65.0°C	98.8°C	19	T2	53.7°C	89.6°C	20	C5	56.7°C	90.6°C	21	R7	54.4°C	88.7°C	22	L1	59.4°C	93.3°C
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		NO	Position	ROOM AMBIENT Ta=26.0°C	HIGH AMBIENT Ta=60.1°C
		23	U1	66.0°C	99.9°C
		24	U8	63.4°C	97.4°C
		25	C42	62.6°C	96.7°C
		26	T1coil	71.3°C	105.1°C
		27	T1core	68.5°C	102.6°C
		28	D200	61.2°C	95.0°C
		29	C202	57.4°C	92.0°C
		30	C105	58.5°C	93.4°C
		31	C107	59.4°C	93.4°C
		32	Q112	59.8°C	94.1°C
		33	U4	56.8°C	90.8°C
		34	U101	62.0°C	96.0°C
		35	U2	77.9°C	105.5°C
		36	Q103	63.2°C	97.4°C
		37	Q100	60.6°C	94.8°C
		38	J100	61.9°C	95.0°C
		39	RTH5	58.5°C	92.4°C
		40	R101	61.7°C	95.4°C
		41	U306	61.5°C	95.3°C
		42	D2	56.0°C	89.9°C
		43	U200	62.0°C	96.2°C
		44	U400	62.2°C	95.8°C
		45	RG6	62.8°C	96.2°C
		46	U205	62.5°C	95.9°C
		47	Q201	62.2°C	96.0°C
		48	C8	58.2°C	92.8°C
		49	Q14	62.0°C	95.6°C
		50	Q1	59.6°C	93.5°C
		51	Q5	60.5°C	95.2°C
		52	Q2	60.1°C	94.0°C
		53	D1	64.7°C	98.6°C
		54	Q6	59.9°C	94.7°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )		I/P : 230 VAC O/P : 126%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	± 0.008%/°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 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= 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) 743222 HRS (2) 66149 HRS (3) 118114 HRS (4) 192649 HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 1139.7K hrs min. Telcordia SR-332 (Bellcore) ; 154.5K 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	Wangzd

2020.10.1 TAG-QA-009