



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

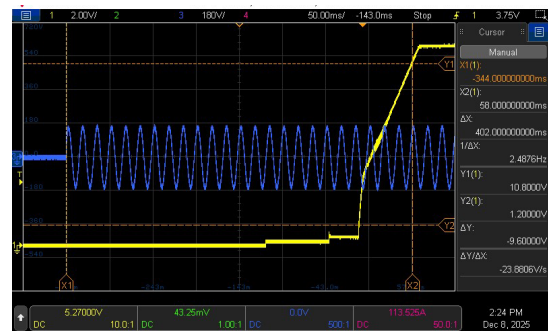
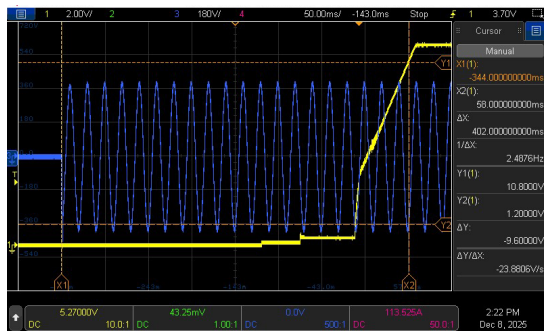
■ RELIABILITY TEST

ENVIRONMENT TEST

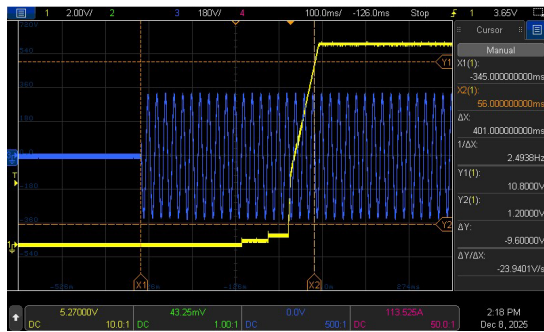
DESIGN VERIFY TEST

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	



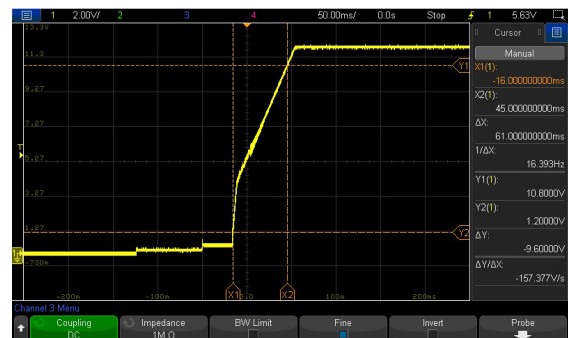
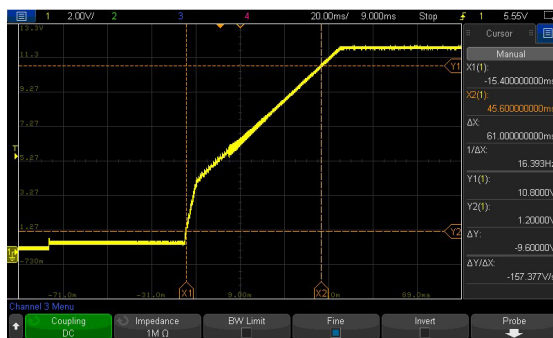
INPUT=230VAC/50HZ @ FULL LOAD
CH1: Output Voltage CH3: AC Input Voltage



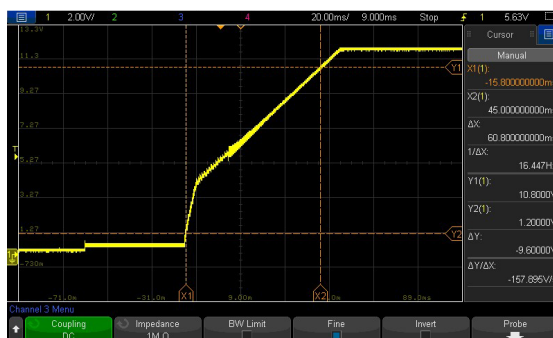
8	RISE TIME (Max)	277VAC/150ms 230VAC/150ms 115VAC/150ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 61ms 230VAC/ 60.8ms 115VAC/ 61ms
---	-----------------	--	---	--

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

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

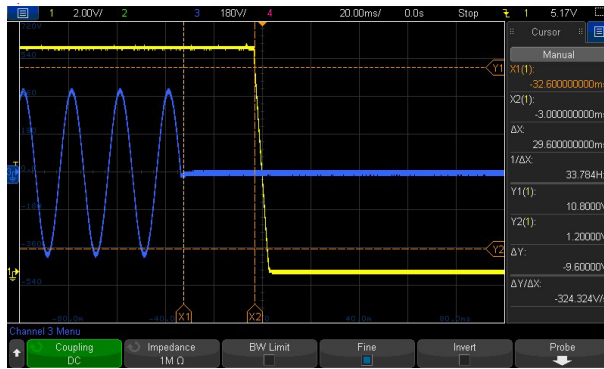


INPUT=230VAC/50HZ @ FULL LOAD
CH1: Output Voltage

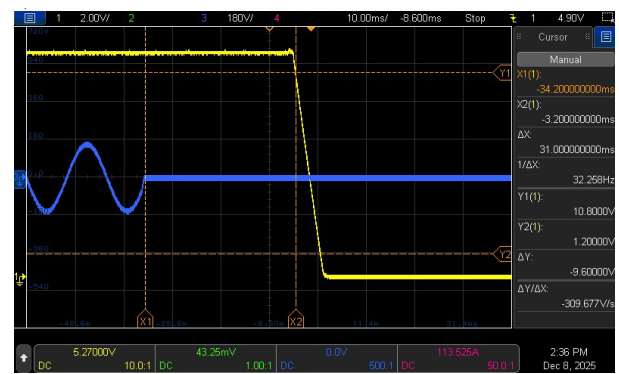


9	HOLD UP TIME (Typ.)	277VAC/20ms	I/P : 277 VAC	277VAC/ 29.6ms
		230VAC/ 20ms	I/P : 230 VAC	230VAC/ 29.4ms
		115VAC/ 20ms	I/P : 115 VAC	115VAC/ 31ms
			O/P : FULL LOAD	
			Ta : 25°C	

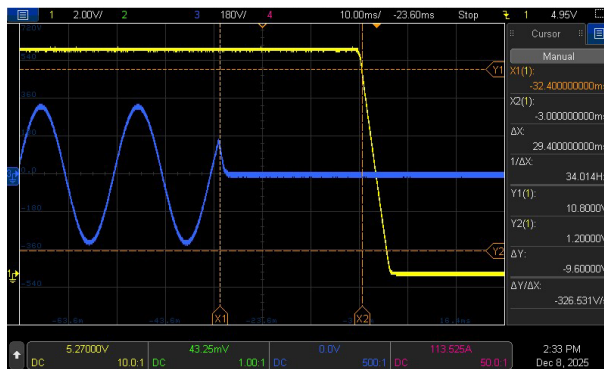
INPUT=277VAC/50HZ @ FULL LOAD
CH1: Output Voltage CH3: AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD
CH1: Output Voltage CH3: AC Input Voltage

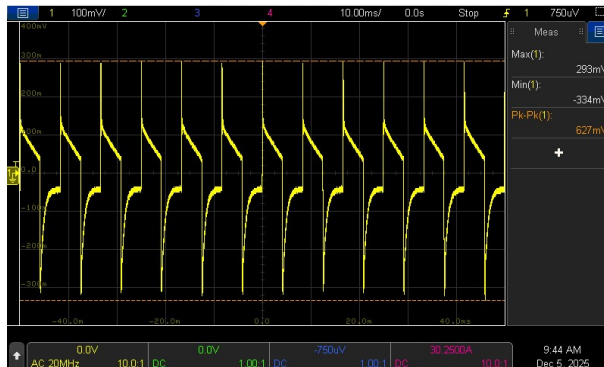


INPUT=230VAC/50HZ @ FULL LOAD
CH1: Output Voltage CH3: AC Input Voltage



10	DYNAMIC LOAD	V1: 1200mVp-p	I/P: 230VAC	627mVp-p
			O/P:	535mVp-p
			(1) FULL/ MIN LOAD 50%DUTY / 120HZ	
			(2) FULL/ MIN LOAD 50%DUTY / 1KHZ	
			Ta:25°C	

FULL / MIN LOAD 50%DUTY / 120HZ



FULL / MIN LOAD 50%DUTY / 1KHZ



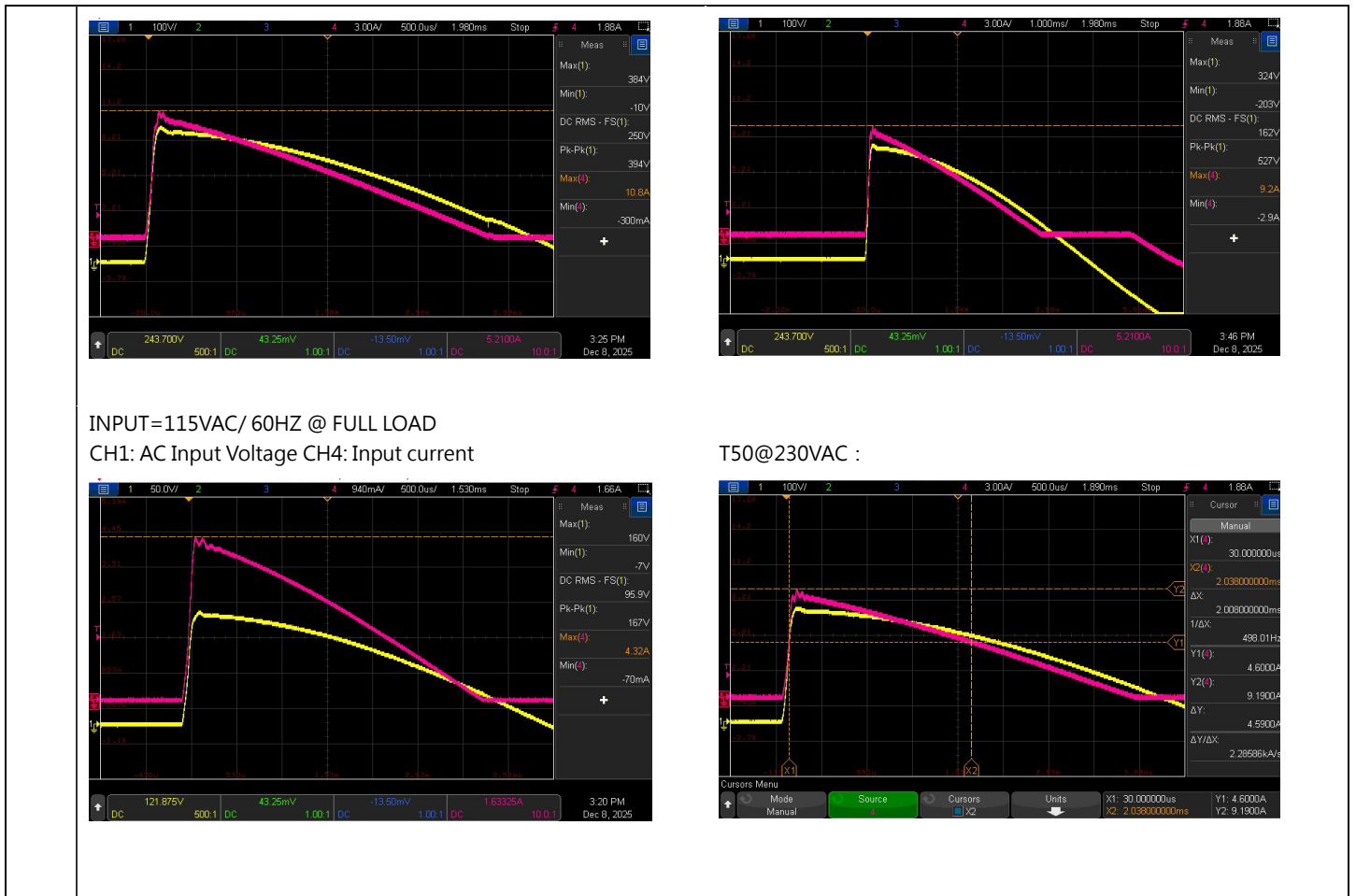


11	TRANSIENT RECOVERY TIME	V1: 1200mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	241mVp-p
----	-------------------------	-------------------------	--	----------

INPUT FUNCTION TEST

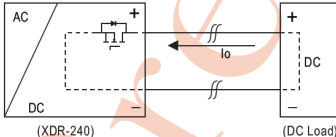
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	INPUT VOLTAGE RANGE	85VAC~305VAC 80VDC~ 431VDC	(1) I/P: TESTING O/P: FULL / 85% LOAD (2) I/P: DC TESTING (L: + N: -) O/P: FULL / 85% LOAD/ 50% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 85% LOAD/ 50% LOAD Ta:25°C	(1) 77.8V~305V/ FULL 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 border="1"> <thead> <tr> <th></th> <th>Remote Power OFF</th> <th>Remote Power ON</th> </tr> </thead> <tbody> <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> </tbody> </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												

	<p>P.F vs LOAD</p> <table border="1"> <caption>P.F vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC</th> <th>230VAC</th> <th>277VAC</th> </tr> </thead> <tbody> <tr><td>10%</td><td>0.92</td><td>0.60</td><td>0.60</td></tr> <tr><td>20%</td><td>0.98</td><td>0.73</td><td>0.60</td></tr> <tr><td>30%</td><td>0.99</td><td>0.87</td><td>0.66</td></tr> <tr><td>40%</td><td>0.99</td><td>0.93</td><td>0.76</td></tr> <tr><td>50%</td><td>0.99</td><td>0.95</td><td>0.83</td></tr> <tr><td>60%</td><td>0.99</td><td>0.96</td><td>0.86</td></tr> <tr><td>70%</td><td>0.99</td><td>0.97</td><td>0.88</td></tr> <tr><td>80%</td><td>0.99</td><td>0.97</td><td>0.89</td></tr> <tr><td>90%</td><td>0.99</td><td>0.97</td><td>0.90</td></tr> <tr><td>100%</td><td>0.99</td><td>0.98</td><td>0.91</td></tr> </tbody> </table>			LOAD (%)	115VAC	230VAC	277VAC	10%	0.92	0.60	0.60	20%	0.98	0.73	0.60	30%	0.99	0.87	0.66	40%	0.99	0.93	0.76	50%	0.99	0.95	0.83	60%	0.99	0.96	0.86	70%	0.99	0.97	0.88	80%	0.99	0.97	0.89	90%	0.99	0.97	0.90	100%	0.99	0.98	0.91	
LOAD (%)	115VAC	230VAC	277VAC																																													
10%	0.92	0.60	0.60																																													
20%	0.98	0.73	0.60																																													
30%	0.99	0.87	0.66																																													
40%	0.99	0.93	0.76																																													
50%	0.99	0.95	0.83																																													
60%	0.99	0.96	0.86																																													
70%	0.99	0.97	0.88																																													
80%	0.99	0.97	0.89																																													
90%	0.99	0.97	0.90																																													
100%	0.99	0.98	0.91																																													
7	EFFICIENCY(Typ.)	94%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	94.40%																																												
	<p>EFFICIENCY vs LOAD</p> <table border="1"> <caption>EFFICIENCY vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC</th> <th>230VAC</th> <th>277VAC</th> </tr> </thead> <tbody> <tr><td>10%</td><td>83</td><td>83</td><td>83</td></tr> <tr><td>20%</td><td>89</td><td>89</td><td>89</td></tr> <tr><td>30%</td><td>91</td><td>91</td><td>91</td></tr> <tr><td>40%</td><td>92</td><td>92</td><td>92</td></tr> <tr><td>50%</td><td>92.5</td><td>92.5</td><td>93</td></tr> <tr><td>60%</td><td>93</td><td>93</td><td>93.5</td></tr> <tr><td>70%</td><td>93.5</td><td>93.5</td><td>94</td></tr> <tr><td>80%</td><td>93.5</td><td>93.5</td><td>94</td></tr> <tr><td>90%</td><td>93.5</td><td>93.5</td><td>94</td></tr> <tr><td>100%</td><td>93</td><td>93</td><td>94</td></tr> </tbody> </table>			LOAD (%)	115VAC	230VAC	277VAC	10%	83	83	83	20%	89	89	89	30%	91	91	91	40%	92	92	92	50%	92.5	92.5	93	60%	93	93	93.5	70%	93.5	93.5	94	80%	93.5	93.5	94	90%	93.5	93.5	94	100%	93	93	94	
LOAD (%)	115VAC	230VAC	277VAC																																													
10%	83	83	83																																													
20%	89	89	89																																													
30%	91	91	91																																													
40%	92	92	92																																													
50%	92.5	92.5	93																																													
60%	93	93	93.5																																													
70%	93.5	93.5	94																																													
80%	93.5	93.5	94																																													
90%	93.5	93.5	94																																													
100%	93	93	94																																													
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 =10.8A / 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																																													

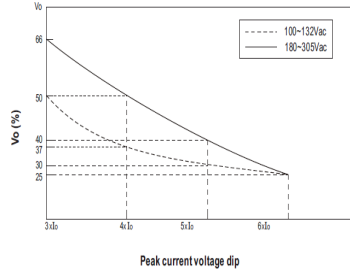


PROTECTION FUNCTION TEST

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  (XDR-240) (DC 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 CAPABILITY ( <table border="1" data-bbox="542 1825 805 1982"> <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°C	180VAC : <table border="1" data-bbox="1165 1556 1524 1825"> <thead> <tr> <th>Load</th> <th>Io_{out}(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 border="1" data-bbox="1165 1870 1524 2016"> <thead> <tr> <th>Load</th> <th>Io_{out}(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	Io _{out} (ms)	3xIo	109.8	4xIo	86	5xIo	57.4	6xIo	43.8	Load	Io _{out} (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																																					
6xIo	25	25	15ms																																					
Load	Io _{out} (ms)																																							
3xIo	109.8																																							
4xIo	86																																							
5xIo	57.4																																							
6xIo	43.8																																							
Load	Io _{out} (ms)																																							
3xIo	107.4																																							
4xIo	84																																							

				5xlo	56
				6xlo	44.2
4	PULSE CURRENT CAPABILTY		I/P:230VAC O/P: TESTING Ta:25°C	TEST : <u>OK</u>	
5	LED Status Indictors		I/P:230VA0C O/P: TESTING Ta:25°C	TEST : <u>OK</u>	
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: 		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: Q103: <u>VO=Vomax</u> <u>VO=Vomax</u> VDS: VDS: (1) 39.3V (1) 34.8V (2) 37.6V (2) 34.4V (3) 39.3V (3) 34.6V (4) 39.3V (4) 38.9V (5) 39V (5) 36.5V (6) 39V (6) 42.7V (7) 37.6V (7) 36.2V (8) 35.6V (8) 32.5V (9) 39V (9) 35.4V <u>VO=Vonormal</u> <u>VO=Vonormal</u> (1) 35V (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	<p>PFC/PWM IC U1 : Rated : 12.5V~ 27.9V</p> <p>O/P IC U101: Rated: 4.75V~38V</p> <p>IC U404 : Rated : 3V~36V</p> <p>MCU IC U9 : Rated : 2V~3.6V Level: 3.2835~3.3165V</p> <p>MCU IC U306: Rated : 2.4V~ 3.6V Level: 3.2835~3.3165V</p>	<p>AC ON/OFF</p> <p>I/P: High-Line +3V =308V</p> <p>O/P: (1) Full Load (2) Output Short (3) O.L.P (4) O.V.P. (5) No Load VR min (Low Line)</p> <p>MCU : (1) Full Load (2) Output Short (3) O.L.P (4) O.V.P. (5) No Load VR min (LOW LINE)</p> <p>Ta:25°C</p>	<p>U1 (1) 13.5V (2) 13.5V (3) 13.4V (4) 13.5V (5) 13.5V</p> <p>U9 (1) 3.306V (2) 3.306V (3) 3.306V (4) 3.306V (5) 3.306V</p> <p>U101 (1) 14.8V (2) 14.8V (3) 13.8V (4) 13.8V (5) 14.8V</p> <p>U306 (1) 3.298V (2) 3.298V (3) 3.298V (4) 3.298V (5) 3.298V</p> <p>U404 (1) 5.45V (2) 5.45V (3) 5.45V (4) 5.45V (5) 5.45V</p>

■ 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

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



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= 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) 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

2020.10.1 TAG-QA-009