



Test Report: DRS-240-36

240W All-In-One Intelligent Security 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

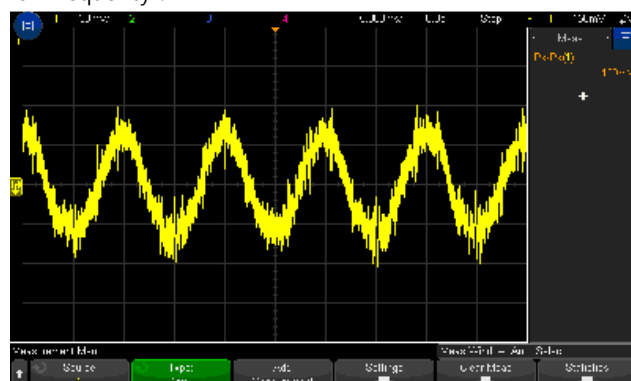
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE(Max) TOLERANCE	V1: -1.0 %~ +1.0 %	I/P: 90VAC /305VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: -0.07%~ 0.064%
2	LINE REGULATION (Max)	V1: -0.5 %~ +0.5 %	I/P: 90VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: -0.017%~ 0.014 %
3	LOAD REGULATION(Max)	V1: -0.5 %~ +0.5 %	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.07%~ 0.064%
4	OVER/UNDERSHOOT TEST	< +5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.7%
5	RIPPLE & NOISE(Max)	V1: 360mVp-p	I/P:230VAC O/P: TESTING LOAD Ta:25°C	V1: 129mVp-p

high frequency :



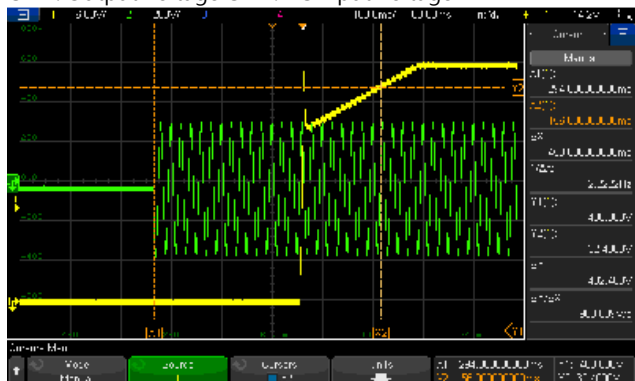
low frequency :



6	SET UP TIME(Max)	230VAC/2400ms 115VAC/2400ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 450.0 ms 115VAC/ 456.0 ms
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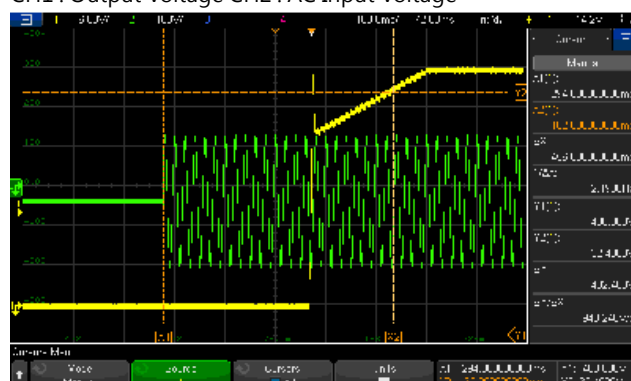
INPUT=230VAC/50HZ @ FULL LOAD

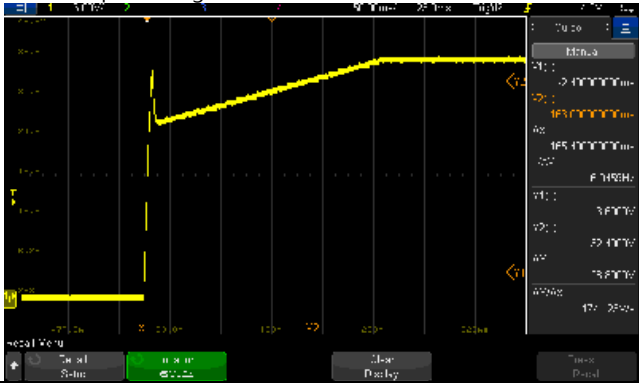
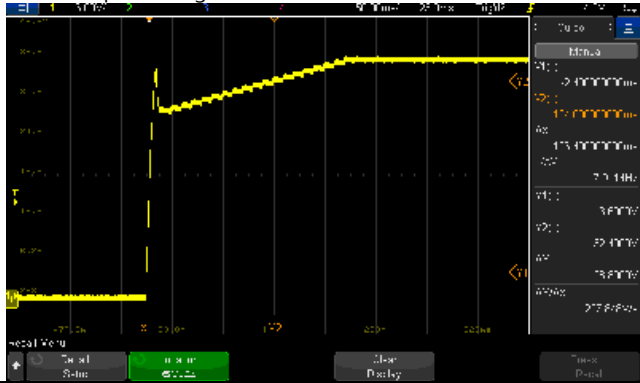
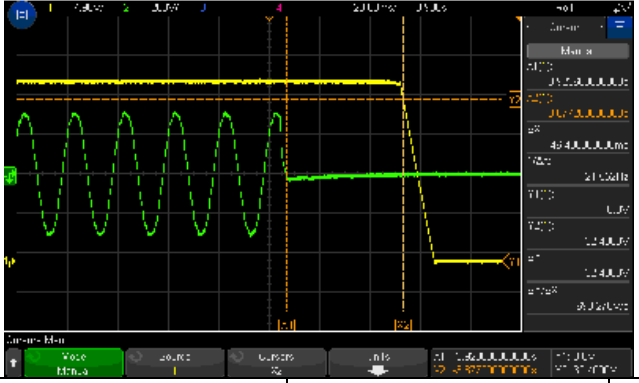
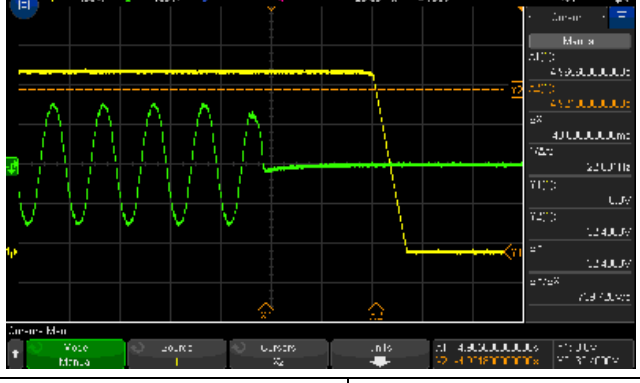
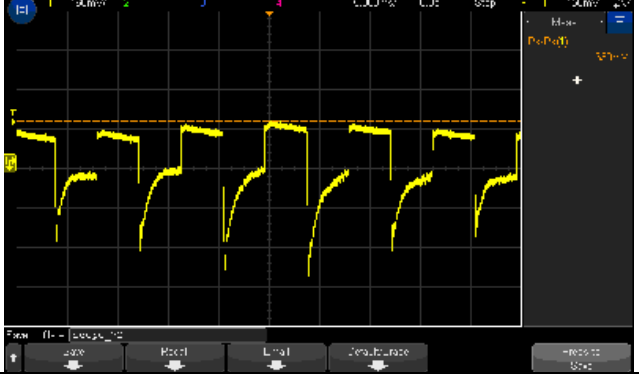
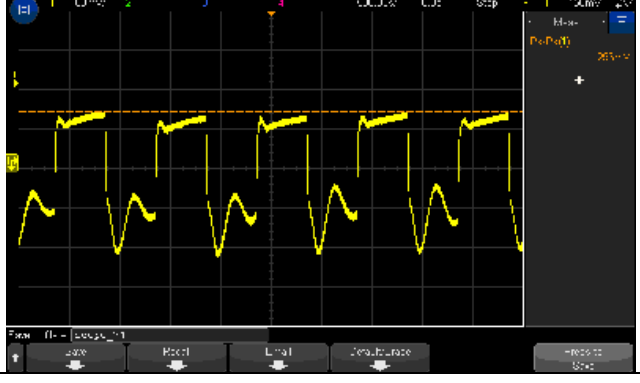
CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD

CH1 : Output Voltage CH2 : AC Input Voltage



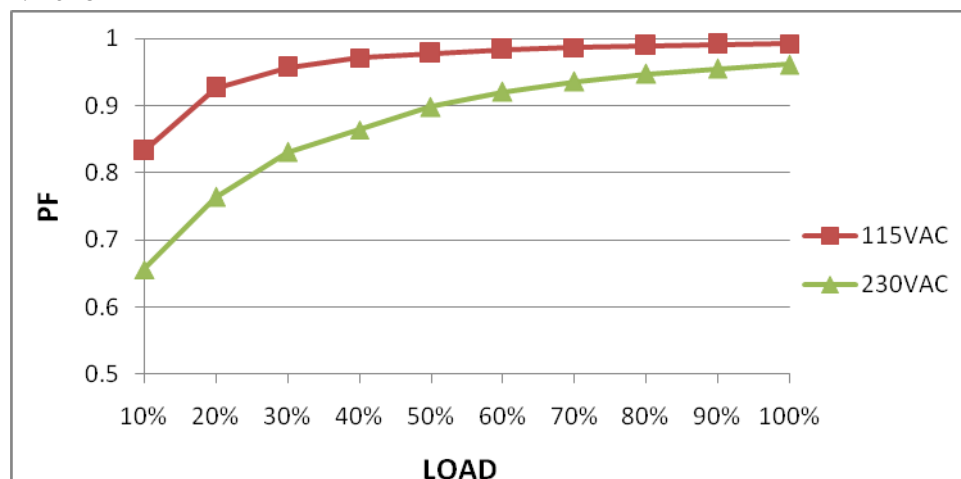
7	RISE TIME (Max)	230VAC/1000ms 115VAC/1000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 165.4 ms 115VAC/ 126.4 ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage				
INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage				
8	HOLD UP TIME (Typ.)	230VAC/16ms 115VAC/10ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 46.4 ms 115VAC/ 43.8 ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage				
INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage				
9	DYNAMIC LOAD	V1: 3600mVp-p	I/P: 230VAC O/P: (1)FULL /MIN LOAD 50%DUTY / 120HZ (2)FULL /MIN LOAD 50%DUTY / 1KHZ Ta:25°C	630mVp-p 296mVp-p
FULL /50% LOAD 50%DUTY / 120HZ				
FULL /50% LOAD 50%DUTY / 1KHZ				

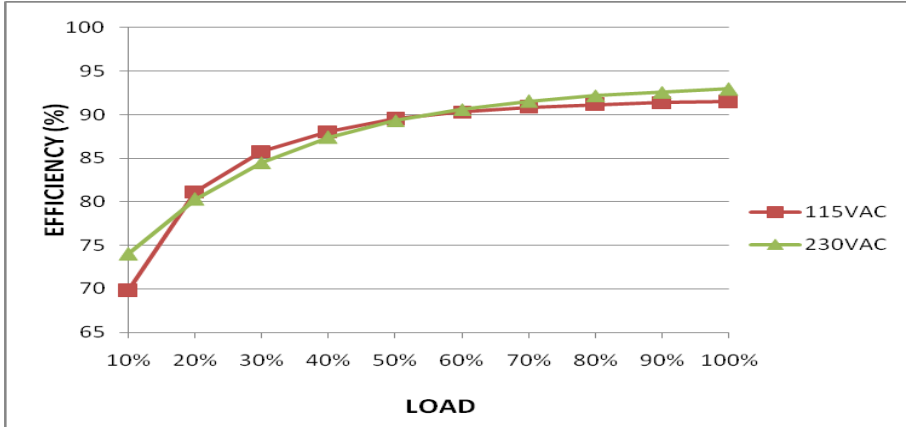
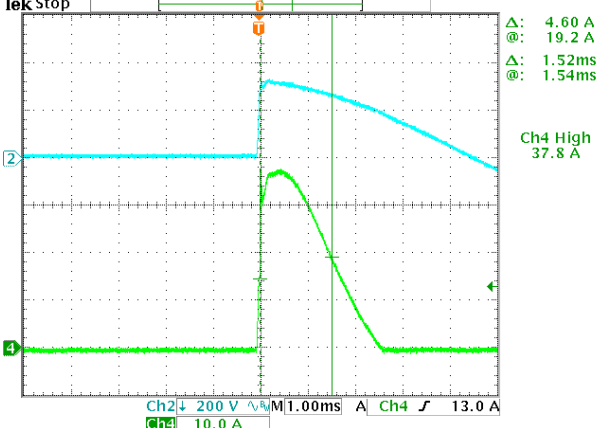
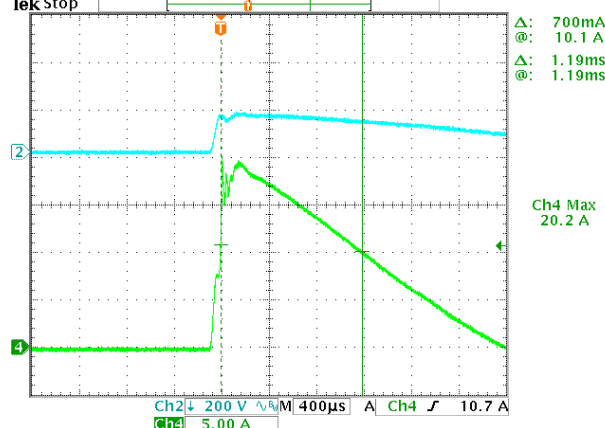
10	TRANSIENT RECOVERY TIME	V1: 3600mVp-p	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	544mVp-p
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INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~305VAC 127VDC~ 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=90 V HIGH-LINE+10=315 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1) 89.8V~305V/full load 89.8V~305V/90% load (2) 120Vdc~431Vdc/FULL LOAD 120Vdc~431Vdc/50% LOAD (3) 120Vdc~431Vdc/FULL LOAD 120Vdc~431Vdc/50% LOAD TEST: OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:90 VAC ~305VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 1.4 A 115V/ 2.8 A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =1.1544A/ 230VAC I =2.2568A/ 115VAC
4	POWER FACTOR (Typ.)	0.95/ 230VAC 0.98/115VAC	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.9645/230VAC PF=0.9927/115VAC

P.F vs LOAD



5	EFFICIENCY(Typ.)	92%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	93.73%
EFFICIENCY vs LOAD 				
6	INRUSH CURRENT(Typ.)	230V/60A 115V/30A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =37.8A/ 230VAC I =20.2A/ 115VAC T50=1.52ms/230V
INPUT=230VAC/50HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current  INPUT=115VAC/ 60HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current 				

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105%~135 % Protection type: Constant current limiting, shutdown output voltage after 5 sec	I/P: 305VAC I/P: 230VAC I/P: 100VAC O/P:TESTING Ta:25°C	118.15%/ 305VAC 118.13%/ 230VAC 118.15%/100VAC Protection type: Constant current limiting, shutdown output voltage after 5 sec

2	OVER VOLTAGE PROTECTION	Load main output : 48.6V~55.9V Protection type : Shut down o/p voltage, re-power on to recover	I/P: 305VAC I/P: 230VAC I/P: 90VAC O/P: MIN LOAD Ta:25°C	51.5 V/ 305VAC 51.5V/ 230VAC 51.5V/ 90VAC Protection type : Shut down o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Automatically drop load with temperature only for bat. load Shut down o/p voltage, recovers automatically after temperature goes down	I/P: 305VAC I/P: 90VAC O/P: FULL LOAD	O.T.P. Active Automatically drop load with temperature only for bat. load Shut down o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	Constant current Range : 6.93A~8.91A 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 90VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Constant current Range: <u>8.1056</u> A PROTECTION TYPE : Constant current limiting, shutdown output voltage after 5 sec, re-power on
5	BATTER CUT OFF	31.3±0.7V	I/P: 230 VAC O/P: BAT. LOAD Ta:25°C	<u>31.246</u> V
6	REVERSE POLARITY	By internal MOSFET, no damage, recovers automatically after fault condition is removed.	I/P: 230 VAC O/P: BAT. LOAD Ta:25°C	By internal MOSFET, no damage, recovers automatically after fault condition is removed.

CONTROL FUNCTION TEST

N O	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	FORM-C RELAY	AC FAIL	Signals AC failure and activates when input voltage drops below : 79~89V of 120VAC, 132~187V of 220VAC. Relay contact output, ON : AC OK ; OFF : AC Fail ; max. rating : 30V/1A	TEST : <u>OK</u> <u>84.98V</u> of 120VAC <u>171.60V</u> of 220VAC
		CHARGER FAIL	Relay contact output, ON : Charger OK ; OFF : Charger Fail ; max. rating : 30V/1A	TEST : <u>OK</u>

		DC OK	Signals normal DC output and activates when output voltage > 90% rated value. Relay contact output, ON : DC OK ; OFF : DC Fail ; max. rating : 30V/1A	TEST : <u>31.901V</u>																																				
		BATTERY LOW/ ABNORMAL/ DISCONNECTED	Relay contact output, ON : Battery OK ; OFF : Battery Low ; max. rating : 30V/1A ; Battery low voltage : < 33V	TEST : <u>OK</u> <u>Vbat <32.651V</u>																																				
2	BATTER START	Restart system directly from battery and does not require AC power	I/P: BAT O/P:FULL LOAD Ta:25°C	TEST : <u>OK</u>																																				
3	DC-UPS	UPS switch to battery power within 10ms of AC failure	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST : <u>OK</u>																																				
4	ADJUSTABLE CURRENT RANGE	20% ~ 100% charging current adjustable by VR	I/P : 230 VAC O/P : TESTING LOAD Ta : 25°C	16.67% ~99.81 %																																				
5	LED INDICATOR	<table><tr><th>Function</th><th>Description</th><th>Output of alarm</th></tr><tr><td rowspan="2">DC OK</td><td>DC fail</td><td>OFF </td></tr><tr><td>DC OK</td><td>Green </td></tr><tr><td rowspan="2">AC fail</td><td>AC fail</td><td>Red </td></tr><tr><td>AC OK</td><td>OFF </td></tr><tr><td rowspan="10">Status</td><td rowspan="2">Charging status</td><td>Float</td><td>Green </td></tr><tr><td>Charging: CC/CV</td><td>Orange </td></tr><tr><td rowspan="8">System diagnosis</td><td>Discharging</td><td>Orange: 1 Blink/Pause  </td></tr><tr><td>Charger fail</td><td>Red : 1 Blink/Pause  </td></tr><tr><td>Battery overvoltage / Battery reverse polarity</td><td>Red : 2 Blink/Pause  </td></tr><tr><td>Battery low / No Battery</td><td>Red : 3 Blink/Pause  </td></tr><tr><td>Battery discharge peak power timeout.</td><td>Red : 4 Blink/Pause  </td></tr><tr><td>Overload / short</td><td>Red : 5 Blink/Pause  </td></tr><tr><td>Overtemperature</td><td>Red : 6 Blink/Pause  </td></tr><tr><td>Timeout</td><td>Red : 7 Blink/Pause  </td></tr></table> I/P: TESTING VAC O/P:TESTING LOAD Ta:25°C		Function	Description	Output of alarm	DC OK	DC fail	OFF 	DC OK	Green 	AC fail	AC fail	Red 	AC OK	OFF 	Status	Charging status	Float	Green 	Charging: CC/CV	Orange 	System diagnosis	Discharging	Orange: 1 Blink/Pause  	Charger fail	Red : 1 Blink/Pause  	Battery overvoltage / Battery reverse polarity	Red : 2 Blink/Pause  	Battery low / No Battery	Red : 3 Blink/Pause  	Battery discharge peak power timeout.	Red : 4 Blink/Pause  	Overload / short	Red : 5 Blink/Pause  	Overtemperature	Red : 6 Blink/Pause  	Timeout	Red : 7 Blink/Pause  	TEST : <u>OK</u>
Function	Description	Output of alarm																																						
DC OK	DC fail	OFF 																																						
	DC OK	Green 																																						
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		Overload / short	Red : 5 Blink/Pause  																																					
		Overtemperature	Red : 6 Blink/Pause  																																					
		Timeout	Red : 7 Blink/Pause  																																					
6	FORCE BUTTON	Bat over discharge protection < 70%Bat rated	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST : <u>25.242V(70.12%)</u>																																				
7	Battery Discharge Peak power	a) 2 Peak power > 4 min ; b) 3 Peak power > 4 s	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	a) TEST : <u>OK</u> b) TEST : <u>OK</u>																																				

8	TEMPERATURE COMPENSATION	I/P: 230 VAC O/P: BAT. LOAD Ta:25°C			
		Constant Voltage			
		SPEC:	Ta=0°C (17K Ω)	Ta=25°C (5K Ω)	Ta=50°C (1.7K Ω)
			44.55±0.36V	43.2±0.36V	42.39±0.36V
		TEST RESULT:	44.528V	43.166V	42.397V

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q 15/Q16ated : 18A/ 600 V	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. Ta:25°C	Q15 VDS: (1) 457V (2) 493V (3) 457V (4) 461V (5) 461V (6) 465V (7) 466V	Q16 VDS: (1) 456V (2) 528V (3) 460V (4) 452V (5) 456V (6) 452V (7) 456V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated : 13 A/ 600 V	I/P: High-Line +3V =308V AC ON/OFF O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. Ta:25°C	Q1 VDS: (1) 536V (2) 536V (3) 524V (4) 524V (5) 524V (6) 436V (7) 436V	
3	AUX MOS	U505 Rated : 1.04 A/ 725 V Q504 Rated : 5A/200V	I/P: High-Line +3V =308 V AC ON/OFF O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/	U505 VDS: (1) 610V (2) 610V (3) 610V	Q504 VDS: (1) 152V (2) 148V (3) 152V

			Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. Ta:25°C	(4) 605V (5) 615V (6) 605V (7) 610V	(4) 149V (5) 149V (6) 149V (7) 152V
4	P.F.C DIODE	D 8 Rated : 8 A/ 600 V	I/P:High-Line +3V =308V 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 Ta:25°C	(1) 528V (2) 520V (3) 524V (4) 556V	
5	Diode Peak Voltage	Q101 /Q102 Rated : 56A/ 120 V	AC ON/OFF I/P:High-Line +3V =308V O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8).NO LOAD Ta:25°C	Q101: VDS: (1) 100.2V (2) 108.2V (3) 101.0V (4) 100.2V (5) 99.4V (6) 100.2V (7) 105V (8) 94.6V	Q102: VDS: (1) 103.4V (2) 115.5V (3) 103.4V (4) 103.4V (5) 103.4V (6) 103.4V (7) 111.5V (8) 101.8V
6	Input Capacitor Voltage	C5 Rated: : 150 μ / 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 Ta:25°C	(1)436V (2)432V (3)436V (4) 436V	
7	Control IC Voltage Test	PWM IC U3 Rated 8.9V~15V PFC IC U1 Rated 9.75V~ 35V O/P IC U100 Rated 8V~24V IC U801 Rated 4.5V~36V	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 (LOW LINE) Ta:25°C	U3 (1) 13.60V (2) 13.60V (3) 13.50V (4) 13.60V (5) 13.50V U1 (1) 14.20V (2) 14.10V	U801 (1) 12.40V (2) 12.40V (3) 12.40V (4) 12.40V (5) 12.40V U303 (1) 3.33V (2) 3.33V

		MCU U303 Rated 2.4V~3.6V		(3) 14.10V (4) 14.10V (5) 14.20V	(3) 3.33V (4) 3.33V (5) 3.33V
		AUX IC U502 Rated 8.5V~30V		U100 (1) 11.50V (2) 11.50V (3) 11.50V (4) 11.50V (5) 11.70V	U502 (1) 11.70V (2) 11.70V (3) 11.70V (4) 11.70V (5) 11.70V

■ 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	I/P-O/P: 4.2 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:1.8 KVAC/min Ta:25°C	I/P-O/P:10.79mA I/P-FG:8.73mA O/P-FG:19.58m A NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P:9999MΩ I/P-FG: 9999MΩ O/P-FG: 9999MΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	5mΩ

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 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	EN55032 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 AIR : 8KV / Contact : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	■ CRITERIA A
5	E.F.T	EN61000-4-4 INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	■ CRITERIA A

6	SURGE	IEC61000-4-5 L-N : 1KV L,N-PE : 2KV	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 : DRS-240-36 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25.0 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50.0 °C																																																																																																						
		<table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 25.0°C</th><th>HIGH AMBIENT Ta= 50.0 °C</th></tr><tr><td>1</td><td>LF1</td><td>36.6°C</td><td>63.7°C</td></tr><tr><td>2</td><td>C3</td><td>43.0°C</td><td>70.2°C</td></tr><tr><td>3</td><td>LF3</td><td>44.6°C</td><td>71.4°C</td></tr><tr><td>4</td><td>RTH1</td><td>44.5°C</td><td>71.0°C</td></tr><tr><td>5</td><td>BD1</td><td>58.7°C</td><td>82.8°C</td></tr><tr><td>6</td><td>C26</td><td>44.2°C</td><td>70.5°C</td></tr><tr><td>7</td><td>C7</td><td>47.3°C</td><td>73.3°C</td></tr><tr><td>8</td><td>C5</td><td>48.7°C</td><td>73.8°C</td></tr><tr><td>9</td><td>L1</td><td>48.7°C</td><td>74.0°C</td></tr><tr><td>10</td><td>RTH4</td><td>43.4°C</td><td>69.3°C</td></tr><tr><td>11</td><td>L3</td><td>47.9°C</td><td>73.7°C</td></tr><tr><td>12</td><td>D12</td><td>48.0°C</td><td>73.3°C</td></tr><tr><td>13</td><td>Q2</td><td>51.2°C</td><td>76.4°C</td></tr><tr><td>14</td><td>C39</td><td>48.0°C</td><td>73.3°C</td></tr><tr><td>15</td><td>U4</td><td>46.1°C</td><td>71.7°C</td></tr><tr><td>16</td><td>R4</td><td>54.6°C</td><td>78.8°C</td></tr><tr><td>17</td><td>U1</td><td>45.6°C</td><td>71.3°C</td></tr><tr><td>18</td><td>Q16</td><td>50.0°C</td><td>75.4°C</td></tr><tr><td>19</td><td>Q15</td><td>49.5°C</td><td>75.1°C</td></tr><tr><td>20</td><td>T1coil</td><td>63.7°C</td><td>89.0°C</td></tr><tr><td>21</td><td>T1core</td><td>60.1°C</td><td>85.1°C</td></tr><tr><td>22</td><td>C60</td><td>53.2°C</td><td>78.5°C</td></tr><tr><td>23</td><td>RTH5</td><td>55.9°C</td><td>81.4°C</td></tr><tr><td>24</td><td>U3</td><td>44.9°C</td><td>70.7°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta= 25.0°C	HIGH AMBIENT Ta= 50.0 °C	1	LF1	36.6°C	63.7°C	2	C3	43.0°C	70.2°C	3	LF3	44.6°C	71.4°C	4	RTH1	44.5°C	71.0°C	5	BD1	58.7°C	82.8°C	6	C26	44.2°C	70.5°C	7	C7	47.3°C	73.3°C	8	C5	48.7°C	73.8°C	9	L1	48.7°C	74.0°C	10	RTH4	43.4°C	69.3°C	11	L3	47.9°C	73.7°C	12	D12	48.0°C	73.3°C	13	Q2	51.2°C	76.4°C	14	C39	48.0°C	73.3°C	15	U4	46.1°C	71.7°C	16	R4	54.6°C	78.8°C	17	U1	45.6°C	71.3°C	18	Q16	50.0°C	75.4°C	19	Q15	49.5°C	75.1°C	20	T1coil	63.7°C	89.0°C	21	T1core	60.1°C	85.1°C	22	C60	53.2°C	78.5°C	23	RTH5	55.9°C	81.4°C	24	U3	44.9°C	70.7°C
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			NO	Position	ROOM AMBIENT Ta= 25.0℃	HIGH AMBIENT Ta= 50.0 ℃
			25	U100	59.1℃	84.9℃
			26	Q101	56.7℃	84.4℃
			27	C103	48.1℃	74.7℃
			28	LF100	48.0℃	74.5℃
			29	C106	44.8℃	71.2℃
			30	Q522	37.8℃	64.7℃
			31	T600	53.5℃	79.0℃
			32	T500	48.2℃	73.5℃
			33	Q504	56.3℃	81.2℃
			34	U502	64.0℃	88.3℃
			35	Q303	35.9℃	62.4℃
			36	U505	51.5℃	77.3℃
			37	D503	62.1℃	86.0℃
			38	Q500	51.0℃	76.4℃
			39	U303	46.1℃	72.3℃
			40	Q352	40.9℃	67.2℃
			41	U801	46.2℃	72.5℃
			42	U150	44.7℃	70.9℃
			43	U151	39.0℃	65.3℃
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 116.7%LOAD Ta : 25℃	TEST : OK	
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR		I/P : 264VAC/100VAC O/P : 100%LOAD Ta= -35℃	TEST : OK	
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 ℃/95 %R.H NO DAMAGE		I/P : 272 VAC O/P : FULL LOAD Ta=50.7℃ HUMIDITY= 95 %R.H	TEST : OK	
5	TEMPERATURE COEFFICIENT	± 0.03%/℃(0~50℃)		I/P : 230 VAC O/P : FULL LOAD	±0.006%/℃(0~50℃)	
6	STORAGE TEMPERATURE TEST	-40~85℃		1. Thermal shock Temperature : -45℃~ +90℃ 2. Temperature change rate : 25℃ / 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	-30~50℃		1. Thermal shock Temperature : -35℃~ +55℃ 2. Temperature change rate : 25℃ / 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, 5G 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 : 6G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C
9	CAPACITOR LIFE CYCLE	SUPPOSE C103 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta= 50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME	(1) 620236.5HRS (2) 98133.6HRS (3) 144632.1HRS (4) 195431.9HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 564.7K hrs min. Telcordia SR-332 (Bellcore) ; 73.3K hrs min. MIL-HDBK-217F (25°C)	
11	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 30,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Liutt		Wangdz

2020.10.1 TAG-QA-009