



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

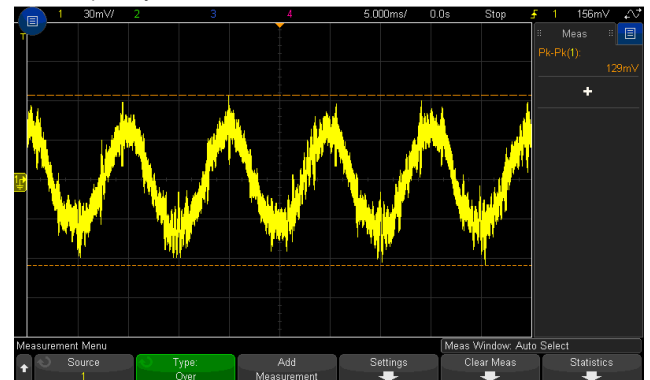
OUTPUT FUNCTION TEST

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 :



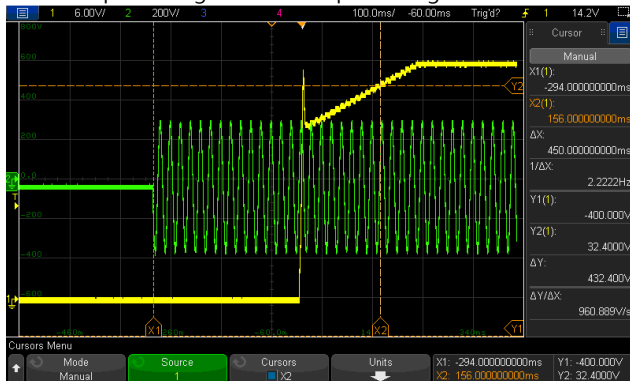
low frequency :



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
---	------------------	--------------------------------	--	--------------------------------------

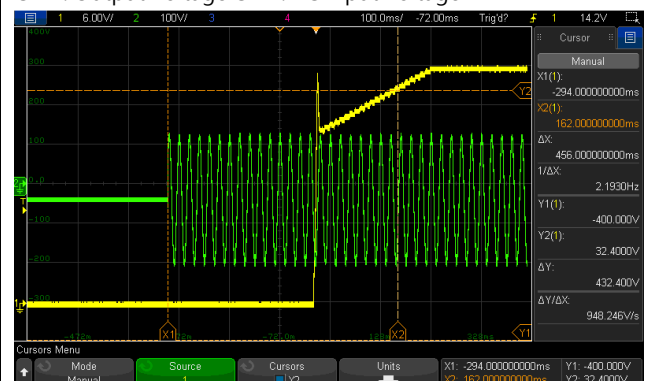
INPUT=230VAC/50HZ @ FULL LOAD

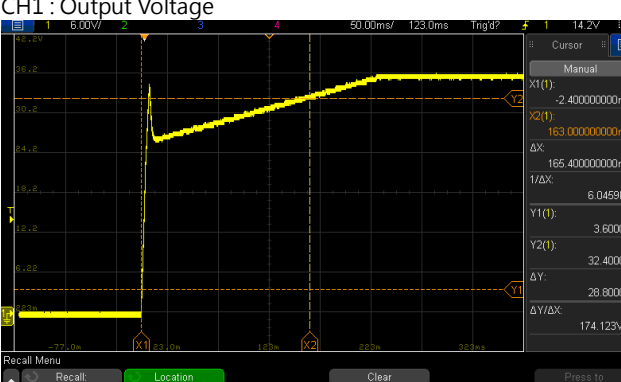
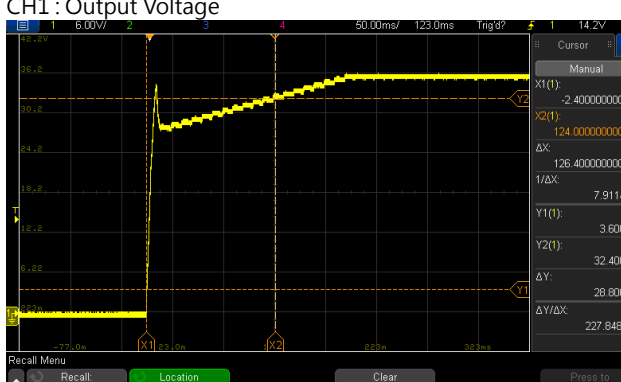
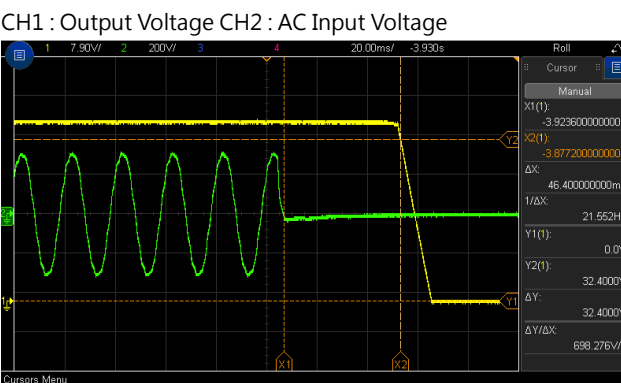
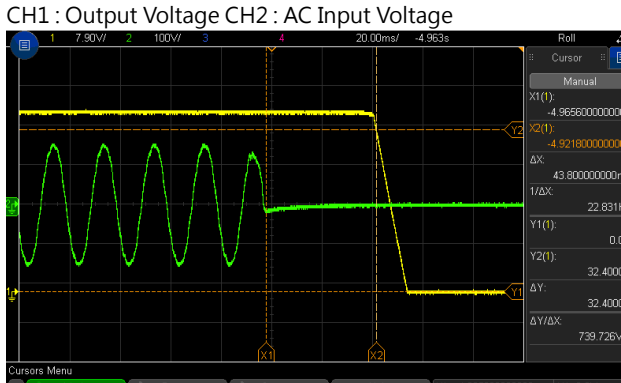
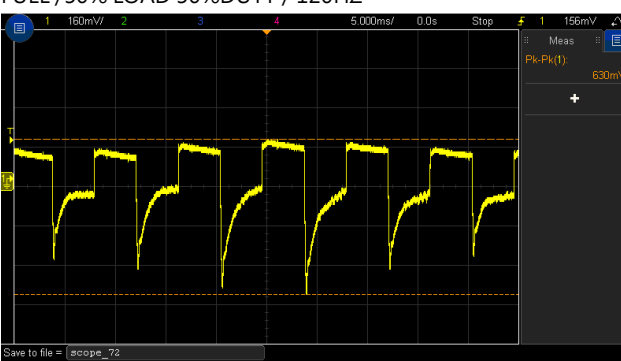
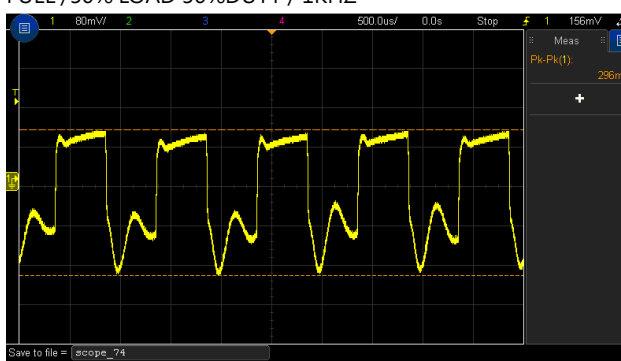
CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD

CH1 : Output Voltage CH2 : AC Input Voltage



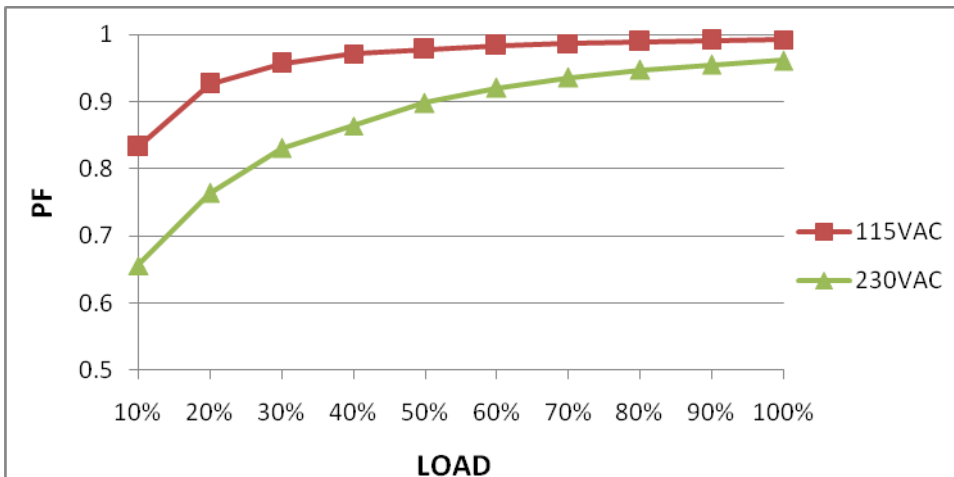
7	RISE TIME (Max)	230VAC/1000ms 115VAC/1000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 165.4 ms 115VAC/ 126.4 ms
<p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p> 		<p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage</p> 		
8	HOLD UP TIME (Typ.)	230VAC/16ms 115VAC/10ms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

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

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	(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
			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)	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%
<p>EFFICIENCY vs LOAD</p>				
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
<div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>INPUT=230VAC/50HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current</p> </div> <div style="width: 45%;"> <p>INPUT=115VAC/ 60HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current</p> </div> </div>				

















































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, 132~187Vof 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 border="1"> <thead> <tr> <th>Function</th> <th>Description</th> <th>Output of alarm</th> </tr> </thead> <tbody> <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="2">Charging status</td> <td>Float</td> <td>Green ●</td> </tr> <tr> <td>Charging: CC/CV</td> <td>Orange ●</td> </tr> <tr> <td rowspan="7">Status</td> <td rowspan="2">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> </tbody> </table> <p>I/P: TESTING VAC O/P:TESTING LOAD Ta:25°C</p>	Function	Description	Output of alarm	DC OK	DC fail	OFF ○	DC OK	Green ●	AC fail	AC fail	Red ●	AC OK	OFF ○	Charging status	Float	Green ●	Charging: CC/CV	Orange ●	Status	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 ●																																				
AC fail	AC fail	Red ●																																				
	AC OK	OFF ○																																				
Charging status	Float	Green ●																																				
	Charging: CC/CV	Orange ●																																				
Status	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  																																					
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/Q16 rated : 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

			<p>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</p>	<p>(4) 605V (5) 615V (6) 605V (7) 610V</p>	<p>(4) 149V (5) 149V (6) 149V (7) 152V</p>
4	P.F.C DIODE	D 8 Rated : 8 A/ 600 V	<p>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</p>	<p>(1) 528V (2) 520V (3) 524V (4) 556V</p>	
5	Diode Peak Voltage	Q101 /Q102 Rated : 56A/ 120 V	<p>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</p>	<p>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</p>	<p>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</p>
6	Input Capacitor Voltage	C5 Rated: : 150 μ / 450V	<p>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</p>	<p>(1)436V (2)432V (3)436V (4) 436V</p>	
7	Control IC Voltage Test	<p>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</p>	<p>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</p>	<p>U3 (1) 13.60V (2) 13.60V (3) 13.50V (4) 13.60V (5) 13.50V</p>	<p>U801 (1) 12.40V (2) 12.40V (3) 12.40V (4) 12.40V (5) 12.40V</p> <p>U1 (1) 14.20V (2) 14.10V</p> <p>U303 (1) 3.33V (2) 3.33V</p>

		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 border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 25.0°C</th> <th>HIGH AMBIENT Ta= 50.0 °C</th> </tr> </thead> <tbody> <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> </tbody> </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
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																																																																																																					

		NO	Position	ROOM AMBIENT Ta= 25.0°C	HIGH AMBIENT Ta= 50.0 °C
		25	U100	59.1°C	84.9°C
		26	Q101	56.7°C	84.4°C
		27	C103	48.1°C	74.7°C
		28	LF100	48.0°C	74.5°C
		29	C106	44.8°C	71.2°C
		30	Q522	37.8°C	64.7°C
		31	T600	53.5°C	79.0°C
		32	T500	48.2°C	73.5°C
		33	Q504	56.3°C	81.2°C
		34	U502	64.0°C	88.3°C
		35	Q303	35.9°C	62.4°C
		36	U505	51.5°C	77.3°C
		37	D503	62.1°C	86.0°C
		38	Q500	51.0°C	76.4°C
		39	U303	46.1°C	72.3°C
		40	Q352	40.9°C	67.2°C
		41	U801	46.2°C	72.5°C
		42	U150	44.7°C	70.9°C
		43	U151	39.0°C	65.3°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 116.7%LOAD Ta : 25°C	TEST : OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR		I/P : 264VAC/100VAC 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 50 °C/95 %R.H NO DAMAGE		I/P : 272 VAC O/P : FULL LOAD Ta=50.7°C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	± 0.03%/°C(0~50°C)		I/P : 230 VAC O/P : FULL LOAD	±0.006%/°C(0~50°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	-30~50°C		1. Thermal shock Temperature : -35°C~ +55°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, 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