



Test Report: DRS-240-48

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

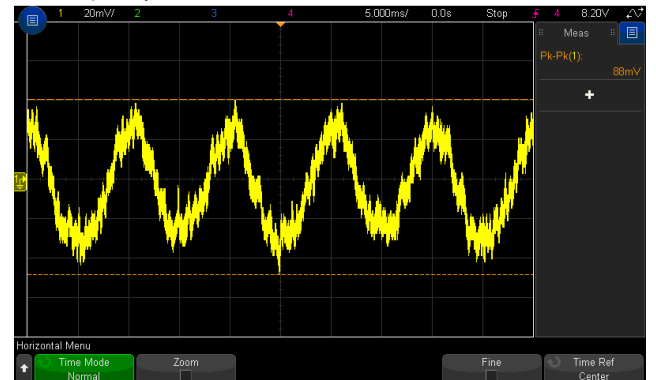
OUTPUT FUNCTION TEST

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: -0.075%~ 0.0417%
2	LINE REGULATION (Max)	V1: -0.5%~ +0.5%	I/P: 90VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: -0.0167%~0.0251%
3	LOAD REGULATION(Max)	V1: -0.5%~ +0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.075%~ 0.0417%
4	OVER/UNDERSHOOT TEST	< +5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.30%
5	RIPPLE & NOISE(Max)	V1: 480mVp-p	I/P:230VAC O/P: TESTING LOAD Ta:25°C	V1: 88mVp-p

high frequency :



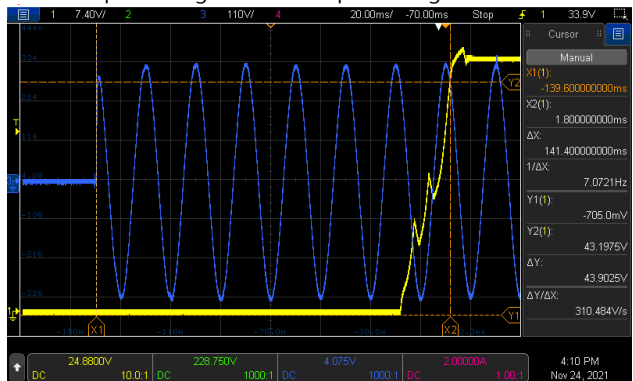
low frequency :



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/141.4ms 115VAC/160.3ms
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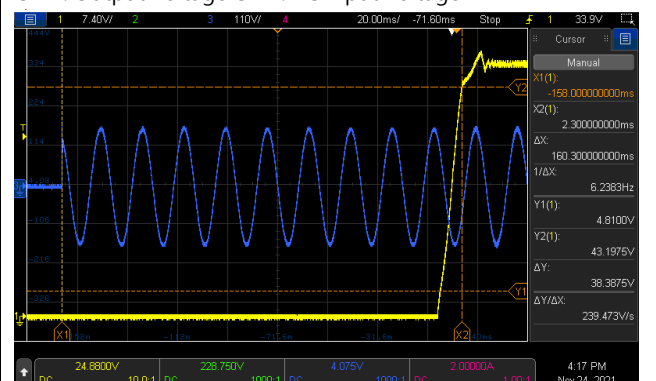
INPUT=230VAC/50HZ @ FULL LOAD

CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD

CH1 : Output Voltage CH2 : AC Input Voltage



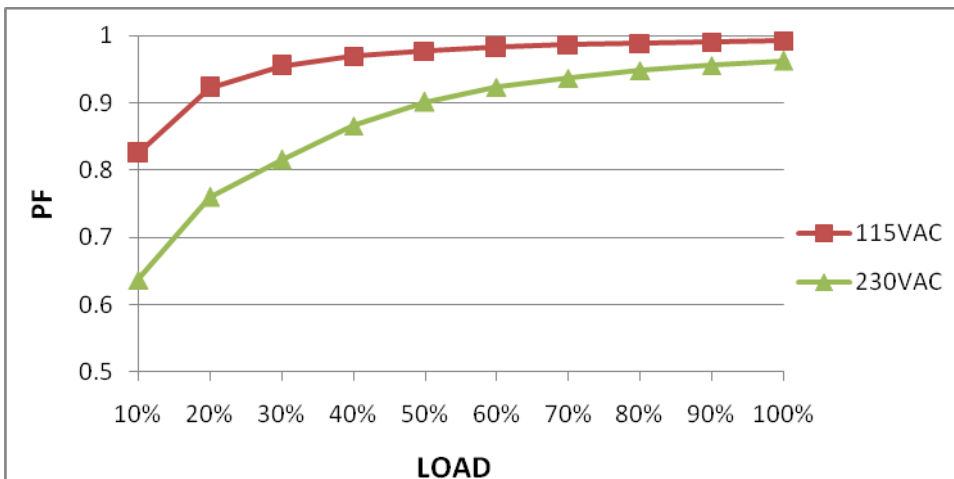
7	RISE TIME (Max)	230VAC/1000ms 115VAC/1000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/13.7ms 115VAC/8.7ms
INPUT=230VAC/50HZ @ FULL LOAD		INPUT=115VAC/60HZ @ FULL LOAD		
CH1 : Output Voltage		CH1 : Output Voltage		
8	HOLD UP TIME (Typ.)	230VAC/16ms 115VAC/10ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/48ms 115VAC/49.4ms
INPUT=230VAC/50HZ @ FULL LOAD		INPUT=115VAC/60HZ @ FULL LOAD		
CH1 : Output Voltage CH2 : AC Input Voltage		CH1 : Output Voltage CH2 : AC Input Voltage		
9	DYNAMIC LOAD	V1: 4800mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	(1)201mVp-p (2)207mVp-p
FULL /50% LOAD 50%DUTY / 120HZ		FULL /50% LOAD 50%DUTY / 1KHZ		

10	TRANSIENT RECOVERY TIME	V1: 4800mVp-p	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	213mVp-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	(1) 85.1V~305V/full load 84.9V ~305V/90% load (2) 120.0Vdc~431Vdc/FULL LOAD 120.0Vdc~431Vdc/50% LOAD (3) 120.0Vdc~431Vdc/FULL LOAD 120.0Vdc~431Vdc/50% LOAD
			I/P: LOW-LINE=90V 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 =1.17A/ 230VAC I =2.31A/ 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=0.9663/230VAC PF=0.9925/115VAC

P.F vs LOAD



5	EFFICIENCY(Typ.)	92%(POWER)	I/P:230 VAC O/P:FULL LOAD Ta:25°C	92.47%																																	
<p>EFFICIENCY vs LOAD</p> <table border="1"> <caption>Efficiency vs Load Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC Efficiency (%)</th> <th>230VAC Efficiency (%)</th> </tr> </thead> <tbody> <tr><td>10%</td><td>68</td><td>72</td></tr> <tr><td>20%</td><td>81</td><td>79</td></tr> <tr><td>30%</td><td>85</td><td>83</td></tr> <tr><td>40%</td><td>88</td><td>86</td></tr> <tr><td>50%</td><td>89</td><td>88</td></tr> <tr><td>60%</td><td>90</td><td>90</td></tr> <tr><td>70%</td><td>90</td><td>91</td></tr> <tr><td>80%</td><td>91</td><td>92</td></tr> <tr><td>90%</td><td>91</td><td>92</td></tr> <tr><td>100%</td><td>92</td><td>93</td></tr> </tbody> </table>					LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)	10%	68	72	20%	81	79	30%	85	83	40%	88	86	50%	89	88	60%	90	90	70%	90	91	80%	91	92	90%	91	92	100%	92	93
LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)																																			
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50%	89	88																																			
60%	90	90																																			
70%	90	91																																			
80%	91	92																																			
90%	91	92																																			
100%	92	93																																			
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 =38.2A/ 230VAC I =18.1A/ 115VAC T50=1.46ms/230V																																	
<p>INPUT=230VAC/50HZ @ FULL LOAD INPUT=115VAC/ 60HZ @ FULL LOAD</p> <p>CH2 : AC Input Voltage CH4 : Input current CH2 : AC Input Voltage CH4 : Input current</p>																																					











































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	119.4%/ 305VAC 119.66%/ 230VAC 119.8%/100VAC Protection type: Constant current limiting, shutdown output voltage after 5 sec

2	OVER VOLTAGE PROTECTION	Load main output : 64.8V~74.5V 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	68.4V/ 305VAC 68.4V / 230VAC 68.4V/ 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 : 5.25A~6.75A 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 90VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE OK Constant current Range: <u>6.58 A</u> PROTECTION TYPE : Constant current limiting, shutdown output voltage after 5 sec, re-power on
5	BATTER CUT OFF	41.8±1V	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	<u>41.92 V</u>
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	OK 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 : 79V~89V of 120VAC, 132V~187 of 220VAC. Relay contact output, ON : AC OK ; OFF : AC Fail ; max. rating : 30V/1A	TEST : <u>OK</u> <u>85.3V</u> of 120VAC, <u>174.58V</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>43.27V</u>																																		
		BATTERY LOW/ ABNORMAL/ DISCONNECTED	Relay contact output, ON : Battery OK ; OFF : Battery Low ; max. rating : 30V/1A ; Battery low voltage : < 44V	TEST : <u>OK</u> <u>Vbat < 44.09V</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	17.06%~99.76%																																		
5	LED INDICATOR	<p>4.LED alarm</p> <table border="1"> <thead> <tr> <th>Function</th> <th>Description</th> <th>Output of alarm</th> </tr> </thead> <tbody> <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">DC OK</td> <td>DC fail</td> <td>OFF ○</td> </tr> <tr> <td>DC OK</td> <td>Green ●</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="7">System diagnosis</td> <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 > 4min.</td> <td>Red : 4 Blink/Pause  </td> </tr> <tr> <td>Over load / short</td> <td>Red : 5 Blink/Pause  </td> </tr> <tr> <td>Over temperature</td> <td>Red : 6 Blink/Pause  </td> </tr> <tr> <td>Communication error</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	AC fail	AC fail	Red ●	AC OK	OFF ○	DC OK	DC fail	OFF ○	DC OK	Green ●	Charging status	Float	Green ●	Charging: CC/CV	Orange ●	Status	System diagnosis	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 > 4min.	Red : 4 Blink/Pause  	Over load / short	Red : 5 Blink/Pause  	Over temperature	Red : 6 Blink/Pause  	Communication error	Red : 7 Blink/Pause  	TEST : <u>OK</u>
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6	FORCE BUTTON	Bat over discharge protection < 70%Bat rated	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST : <u>(33.561V) 69.91% OK</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)
			59.4±0.48V	57.6±0.48V	56.52±0.48V
	TEST RESULT:	59.166V	57.409V	56.334V	

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/ 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. Ta:25°C	Q15 VDS: (1) 477V (2) 513V (3) 485V (4) 489V (5) 481V (6) 485V (7) 477V	Q16 VDS: (1) 488V (2) 548V (3) 468V (4) 472V (5) 472V (6) 472V (7) 468V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1/Q2 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) 524V (2) 544V (3) 528V (4) 532V (5) 528V (6) 528V (7) 520V	
3	AUX MOS	U505 Rated : 1.04A / 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) 623V (2) 617V (3) 617V	Q504 VDS: (1) 147V (2) 147V (3) 147V

			<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) 629V (5) 629V (6) 629V (7) 617V</p>	<p>(4) 146V (5) 148V (6) 147V (7) 147V</p>
4	P.F.C DIODE	D 8 Rated : 8A/600V	<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) 539V (2) 539V (3) 533V (4) 533V</p>	
5	Diode Peak Voltage	Q101/Q102 Rated: 27.4A/150V	<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) 131V (2) 138V (3) 132V (4) 131V (5) 131V (6) 132V (7) 137V (8) 130V</p>	<p>Q102: VDS: (1) 131V (2) 137V (3) 131V (4) 131V (5) 130V (6) 131V (7) 131V (8) 123V</p>
6	Input Capacitor Voltage	C5 Rated: : 150 μ / 450 V	<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)441V (2)429V (3)441V (4)441V</p>	
7	Control IC Voltage Test	<p>PWM IC U3 Rated 8.9V~15.5V 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) 13.7V (2) 14.2V (3) 13.6V (4) 13.6V (5) 13.7V</p>	<p>U801 (1) 12.4V (2) 12.4V (3) 12.4V (4) 12.4V (5) 12.4V U1 (1) 14.4V (2) 14.2V</p>

		MCU U303 Rated 2.4V~3.6V		(3) 14.3V (4) 14.1V (5) 14.3V	(3) 3.31V (4) 3.31V (5) 3.31V
		AUX IC U502 Rated 8.5V~30V		U100 (1) 11.7V (2) 11.7V (3) 11.7V (4) 11.7V (5) 11.7V	U502 (1) 11.7V (2) 11.7V (3) 11.6V (4) 11.6V (5) 11.6V

■ 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:10.77mA I/P-FG:8.70mA O/P-FG:19.50m 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-240-48 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																																																																																																						
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		NO	Position	ROOM AMBIENT Ta= 25.0°C	HIGH AMBIENT Ta= 50.0 °C
		25	T600	56.1°C	83.2°C
		26	T500	56.5°C	84.6°C
		27	Q101	53.3°C	81.3°C
		28	C103	49.2°C	76.5°C
		29	C106	45.2°C	73.0°C
		30	U502	55.2°C	82.5°C
		31	Q522	37.7°C	65.5°C
		32	Q303	37.7°C	65.5°C
		33	U505	44.7°C	72.2°C
		34	D651	60.9°C	87.8°C
		35	Q504	55.2°C	82.4°C
		36	D503	57.4°C	84.4°C
		37	Q519	49.9°C	77.2°C
		38	U303	46.4°C	73.9°C
		39	U801	49.2°C	76.4°C
		40	U150	45.4°C	72.9°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 117%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) 698042HRS (2) 105213.1HRS (3) 138955.6HRS (4) 168490.1HRS
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