



Test Report: DRC-180A

180W Single Output with Battery Charger(UPS Function)

■ 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

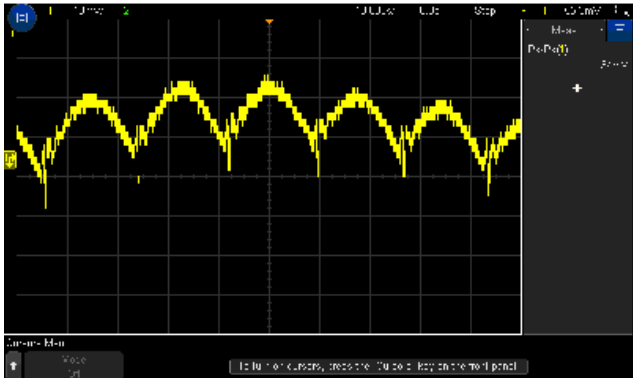
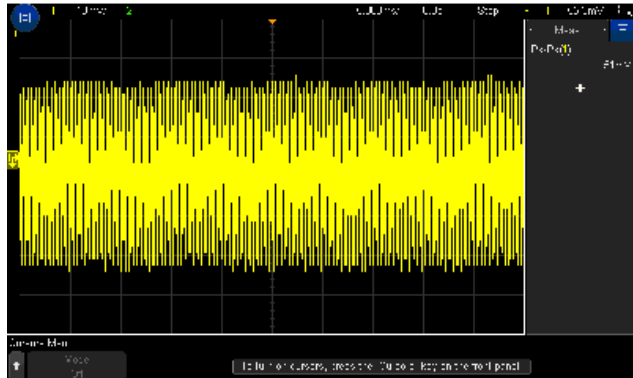
E.M.C. Test

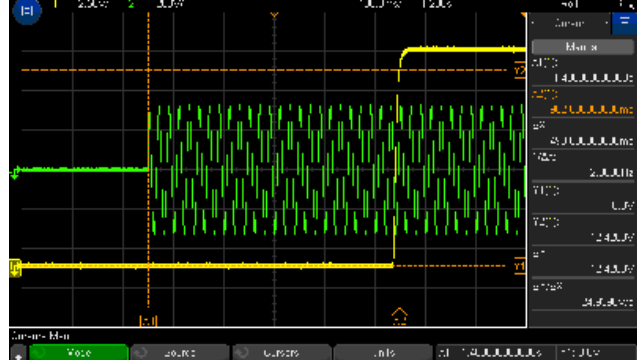
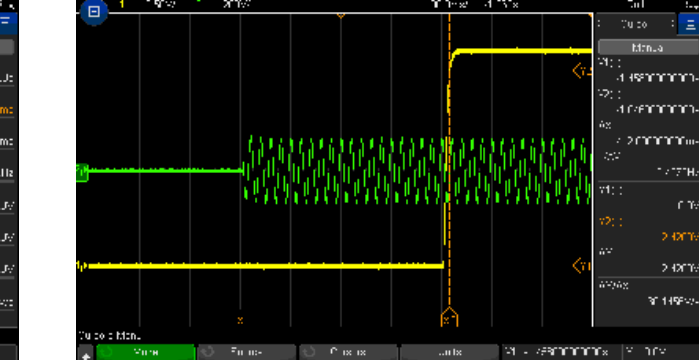
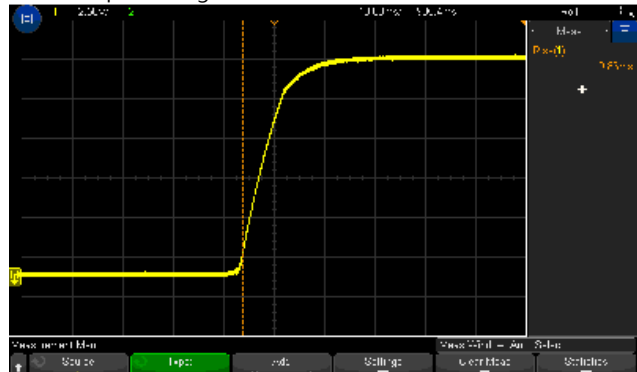
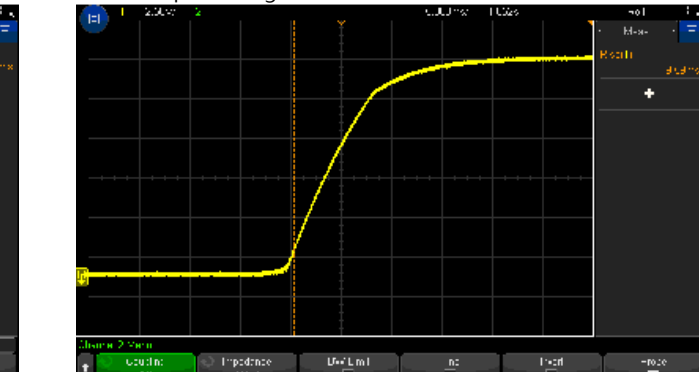
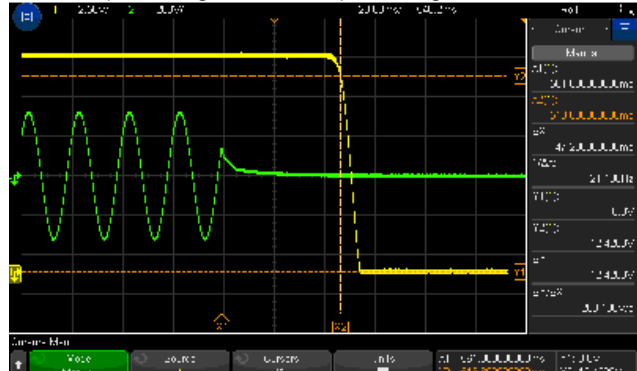
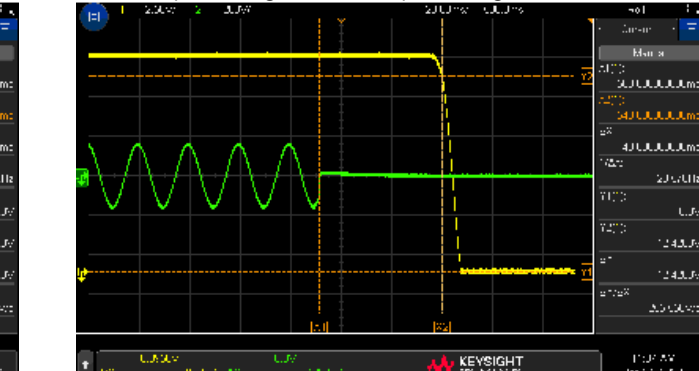
■ RELIABILITY TEST

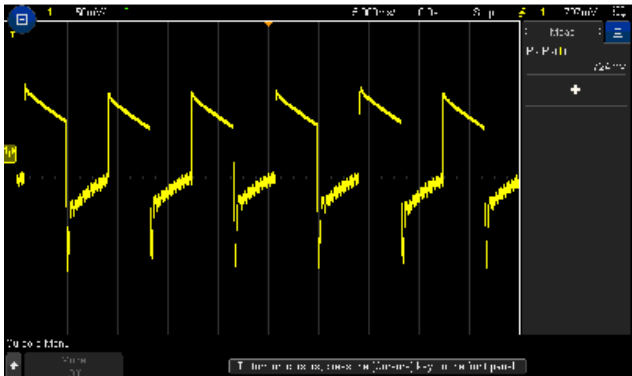
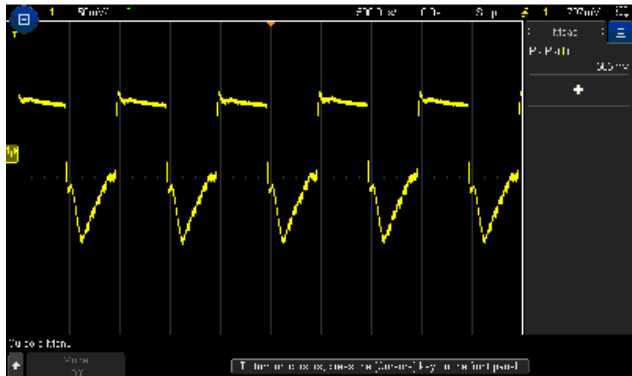
ENVIRONMENT TEST

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

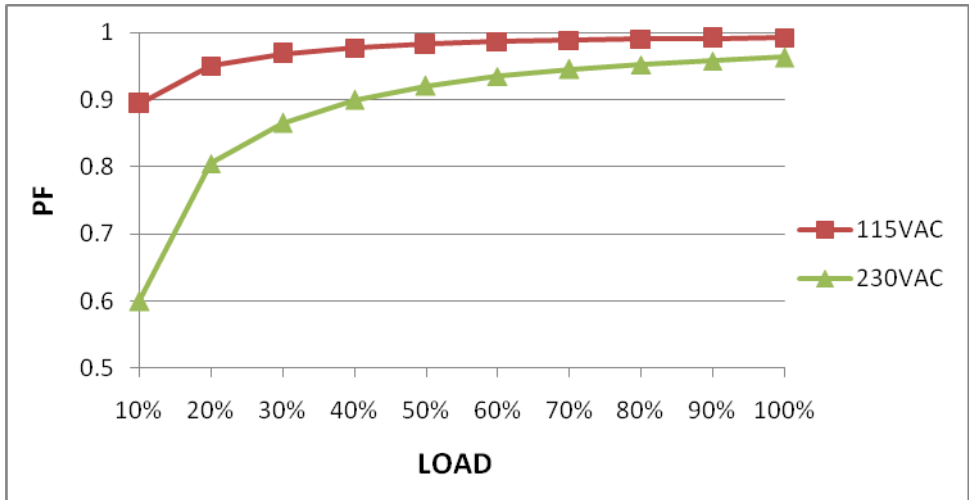
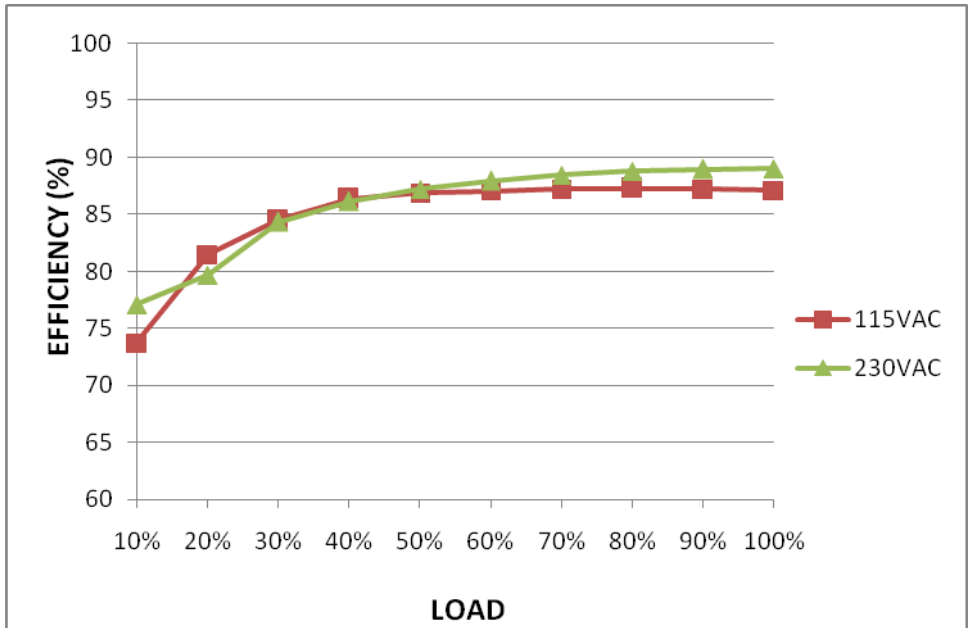
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 12 V~ 15 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	11.515V~15.554V/230VAC 11.515V~15.554V/115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: -1.0 %~ +1.0 %	I/P: 90VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: -0.28%~0.29%
3	LINE REGULATION (Max)	V1: -0.5 %~ +0.5 %	I/P: 90VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: -0.01%~0.01%
4	LOAD REGULATION(Max)	V1: -0.5 %~ +0.5 %	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.28%~0.29%
5	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.3%
6	RIPPLE & NOISE(Max)	V1: 150mVp-p	I/P:230VAC O/P: TESTING LOAD Ta:25°C	V1: 51mVp-p
high frequency :  low frequency : 				
7	SET UP TIME(Max)	230VAC/2000ms 115VAC/2000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/498 ms 115VAC/412ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage			INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage	

				
8	RISE TIME (Max)	230VAC/30ms 115VAC/30ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 9.86ms 115VAC/ 9.59ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage 	
9	HOLD UP TIME (Typ.)	230VAC/20ms 115VAC/20ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 47.2ms 115VAC/48.6ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage 	
10	DYNAMIC LOAD	V1: 1380mVp-p	I/P: 230VAC O/P: (1)FULL/0%LOAD50%DUTY/120HZ (2)FULL/0%LOAD 50%DUTY/ 1KHZ Ta:25°C	724mVp-p 585mVp-p

	FULL /50% LOAD 50%DUTY / 120HZ		FULL /50% LOAD 50%DUTY / 1KHZ	
				
11	TRANSIENT RECOVERY TIME	V1: 1380mVp-p	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	366mVp-p
12	CHARGE CURRENT	4A±0.4A	I/P: 230 VAC O/P: CV=12V Ta:25°C	4.12A

INPUT FUNCTION TEST

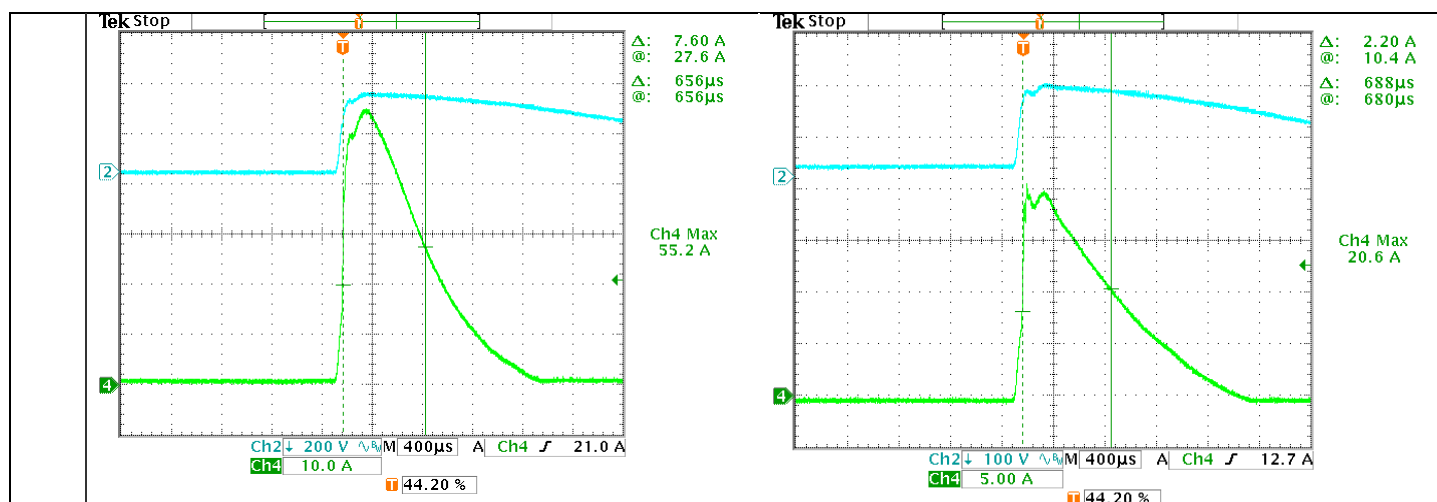
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC 127VDC~ 370VDC	(1) I/P:TESTING O/P:FULL LOAD (2) I/P:DC TESTING(L:+ N:-) O/P: FULL / 50% LOAD (3) I/P:DC TESTING(L:- N:+) O/P: FULL / 50% LOAD Ta:25°C	(1) 79.2V~264V/FULL LOAD (2) 80Vdc~370Vdc/FULL LOAD 75Vdc~370Vdc/50% LOAD (3) 80Vdc~370Vdc/FULL LOAD 75Vdc~370Vdc/50% LOAD
			I/P: LOW-LINE-3V=97 V HIGH-LINE+15% =300V 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 ~264VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	LEAKAGE CURRENT	< 2 mA / 240VAC	I/P: 240 VAC O/P:Min LOAD Ta:25°C	1.38 mA
4	INPUT CURRENT (Typ.)	230V/ 1.5 A 115V/ 2.5 A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =0.902A/ 230VAC I =1.810A/ 115VAC

5	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=0.962/230VAC PF=0.989/115VAC																																	
P.F vs LOAD																																					
 <table><caption>Power Factor (PF) vs Load Data</caption><thead><tr><th>LOAD (%)</th><th>115VAC PF</th><th>230VAC PF</th></tr></thead><tbody><tr><td>10%</td><td>0.90</td><td>0.60</td></tr><tr><td>20%</td><td>0.95</td><td>0.80</td></tr><tr><td>30%</td><td>0.97</td><td>0.85</td></tr><tr><td>40%</td><td>0.98</td><td>0.88</td></tr><tr><td>50%</td><td>0.99</td><td>0.90</td></tr><tr><td>60%</td><td>0.99</td><td>0.92</td></tr><tr><td>70%</td><td>0.99</td><td>0.93</td></tr><tr><td>80%</td><td>0.99</td><td>0.94</td></tr><tr><td>90%</td><td>0.99</td><td>0.95</td></tr><tr><td>100%</td><td>1.00</td><td>0.95</td></tr></tbody></table>					LOAD (%)	115VAC PF	230VAC PF	10%	0.90	0.60	20%	0.95	0.80	30%	0.97	0.85	40%	0.98	0.88	50%	0.99	0.90	60%	0.99	0.92	70%	0.99	0.93	80%	0.99	0.94	90%	0.99	0.95	100%	1.00	0.95
LOAD (%)	115VAC PF	230VAC PF																																			
10%	0.90	0.60																																			
20%	0.95	0.80																																			
30%	0.97	0.85																																			
40%	0.98	0.88																																			
50%	0.99	0.90																																			
60%	0.99	0.92																																			
70%	0.99	0.93																																			
80%	0.99	0.94																																			
90%	0.99	0.95																																			
100%	1.00	0.95																																			
6	EFFICIENCY(Typ.)	88%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	89.36%																																	
EFFICIENCY vs LOAD																																					
 <table><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>74</td><td>77</td></tr><tr><td>20%</td><td>81</td><td>79</td></tr><tr><td>30%</td><td>85</td><td>84</td></tr><tr><td>40%</td><td>86</td><td>86</td></tr><tr><td>50%</td><td>87</td><td>87</td></tr><tr><td>60%</td><td>87</td><td>88</td></tr><tr><td>70%</td><td>87</td><td>88</td></tr><tr><td>80%</td><td>87</td><td>89</td></tr><tr><td>90%</td><td>87</td><td>89</td></tr><tr><td>100%</td><td>87</td><td>89</td></tr></tbody></table>					LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)	10%	74	77	20%	81	79	30%	85	84	40%	86	86	50%	87	87	60%	87	88	70%	87	88	80%	87	89	90%	87	89	100%	87	89
LOAD (%)	115VAC Efficiency (%)	230VAC Efficiency (%)																																			
10%	74	77																																			
20%	81	79																																			
30%	85	84																																			
40%	86	86																																			
50%	87	87																																			
60%	87	88																																			
70%	87	88																																			
80%	87	89																																			
90%	87	89																																			
100%	87	89																																			
7	NRUSH CURRENT(Typ.)	230V/70A 115V/35A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =55.2A/ 230VAC I =20.6A/ 115VAC																																	
INPUT=230VAC/50HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current																																					
INPUT=115VAC/ 60HZ @ FULL LOAD CH2 : AC Input Voltage CH4 : Input current																																					



180W Single Output with Battery Charger(UPS Function)

DRC-180 series



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105%~150% Protection type : Hiccup mode, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 230VAC I/P: 100VAC O/P: TESTING Ta: 25°C	127.07%/ 264VAC 127.07%/ 230VAC 127.07%/ 100VAC Protection type : Hiccup mode, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	CH1: 15.8V~19.5V Protection type : Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 90VAC O/P: MIN LOAD Ta: 25°C	18.0V/ 264VAC 18.0V/ 230VAC 18.0V/ 90VAC Protection type : Shut down o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type : Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 90VAC O/P: FULL LOAD	O.T.P. Active OK Protection type : Shut down o/p voltage, re-power on to recover
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264VAC I/P: 90VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE OK PROTECTION TYPE : Hiccup mode, recovers automatically after fault condition is removed
5	BATTER CUT OFF	10±0.5V	I/P: BAT. O/P: FULL LOAD Ta: 25°C	10.3 V
6	REVERSE POLARITY	Protection type : By FUSE	I/P: 230 VAC O/P: BAT. LOAD Ta: 25°C	TEST : OK By FUSE



ALARM FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	AC OK	Relay contact output, Closed : AC OK ; Open : AC Fail ; Max. rating : 30V / 1A	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST : <u>OK</u>
2	BATTER LOW	Relay contact output, Open : Battery OK ; Closed : Battery Low ; Max. rating : 30V / 1A Battery low voltage : < 11V	I/P: 230 VAC O/P:BAT. LOAD Ta:25°C	TEST : <u>OK</u> Battery low voltage : <u>10.6</u> V

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q 2 Rated : 14 A/ 800 V	AC ON/OFF I/P: High-Line +3V =267V 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	VDS: (1) 650V (2) 525V (3) 670V (4) 664V (5) 659V (6) 659V (7) 630V
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 =267V 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	VDS: (1) 533V (2) 456V (3) 538V (4) 538V (5) 533V (6) 533V (7) 456V



180W Single Output with Battery Charger(UPS Function)

DRC-180 series

3	P.F.C DIODE	D 1 Rated : 8 A/ 600 V	I/P:High-Line +3V =267V 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) 420V (2) 396V (3) 420V (4) 420V
4	Diode Peak Voltage	Q101 Rated : 100 A/ 120 V	AC ON/OFF I/P:High-Line +3V =267V VRmax 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 Vo O/P: (1)Full Load Ta:25°C	Q101: VRmax VDS: (1) 75.5V (2) 102.8v (3) 74.7V (4) 74.7V (5) 74.7V (6) 74.7V (7) 73.1V (8) 73.9V Vo (1) 74.7V
5	Input Capacitor Voltage	C5 Rated : 150μ / 400 V	I/P:High-Line +3V =267V 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)394V (2)390V (3)394V (4)394V
6	Control IC Voltage Test	PWM IC U4 : Rated : 9V~ 28 V PFC IC U1 : Rated : 9.5V~ 35 V O/P IC U101 : Rated : 4.2V~ 35 V IC U102 : Rated : 3V~ 32 V	AC ON/OFF I/P:High-Line +3V =267V O/P(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VRmin(LOW LINE) Ta:25°C	U4 (1) 17.2V (2) 17.2V (3) 17.2V (4) 17.2V (5) 17.2V U101 (1) 14.0V (2) 1.1V (3) 1.2V (4) 17.7V (5) 11.1V U1 (1) 16.2V (2) 15.9V (3) 15.9V (4) 15.9V (5) 15.9V U102 (1) 13.4V (2) 0.3V (3) 7.9V (4) 17.3V (5) 11.0V



180W Single Output with Battery Charger(UPS Function)

DRC-180 series

7	Clamp Diode Peak Voltage	D8 Rated : 650V /1 A	AC ON/OFF I/P : High-Line +3V = 267 V O/P : (1) Dynamic Load 90%Duty/1KHz (2)Full load continue Ta : 25°C	(1) 551V (2) 547V
---	--------------------------	----------------------	--	----------------------

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC/min I/P-FG :2KVAC/min O/P-FG:0.5KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:0.6 KVAC/min Ta:25°C	I/P-O/P: 8.23mA I/P-FG: 7.03mA O/P-FG: 8.77m 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	3mΩ

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:230VAC(50HZ)/110VAC(60HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	EN55032 CLASS B	I/P:230VAC(50HZ)/110VAC(60HZ) O/P : FULL/50% 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 : 1KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-4-5 LIGHT INDUSTRY 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 : DRC-180A 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 45 °C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 25 °C</th><th>HIGH AMBIENT Ta= 45 °C</th></tr><tr><td>1</td><td>ZNR1</td><td>40.7°C</td><td>60.8°C</td></tr><tr><td>2</td><td>C1</td><td>43.2°C</td><td>63.7°C</td></tr><tr><td>3</td><td>LF1</td><td>45.5°C</td><td>66.0°C</td></tr><tr><td>4</td><td>C3</td><td>47.6°C</td><td>67.7°C</td></tr><tr><td>5</td><td>LF2</td><td>56.7°C</td><td>75.9°C</td></tr><tr><td>6</td><td>RTH1</td><td>70.4°C</td><td>86.5°C</td></tr><tr><td>7</td><td>ZNR3</td><td>48.3°C</td><td>68.7°C</td></tr><tr><td>8</td><td>BD1</td><td>62.4°C</td><td>81.3°C</td></tr><tr><td>9</td><td>RTH2</td><td>73.8°C</td><td>89.5°C</td></tr><tr><td>10</td><td>LF100</td><td>66.4°C</td><td>87.6°C</td></tr><tr><td>11</td><td>C113</td><td>63.6°C</td><td>84.1°C</td></tr><tr><td>12</td><td>R1</td><td>49.3°C</td><td>69.4°C</td></tr><tr><td>13</td><td>C106</td><td>76.9°C</td><td>98.5°C</td></tr><tr><td>14</td><td>C104</td><td>71.6°C</td><td>92.7°C</td></tr><tr><td>15</td><td>Q102</td><td>67.5°C</td><td>89.0°C</td></tr><tr><td>16</td><td>C47</td><td>64.1°C</td><td>85.0°C</td></tr><tr><td>17</td><td>RTH3</td><td>72.6°C</td><td>94.9°C</td></tr><tr><td>18</td><td>T1coil</td><td>81.1°C</td><td>97.5°C</td></tr><tr><td>19</td><td>T1core</td><td>77.0°C</td><td>97.3°C</td></tr><tr><td>20</td><td>C5</td><td>62.8°C</td><td>83.2°C</td></tr><tr><td>21</td><td>C6</td><td>52.4°C</td><td>72.9°C</td></tr><tr><td>22</td><td>L1</td><td>44.6°C</td><td>64.8°C</td></tr><tr><td>23</td><td>C38</td><td>63.1°C</td><td>83.7°C</td></tr><tr><td>24</td><td>L2</td><td>49.9°C</td><td>69.8°C</td></tr><tr><td>25</td><td>R5</td><td>52.7°C</td><td>73.4°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 45 °C	1	ZNR1	40.7°C	60.8°C	2	C1	43.2°C	63.7°C	3	LF1	45.5°C	66.0°C	4	C3	47.6°C	67.7°C	5	LF2	56.7°C	75.9°C	6	RTH1	70.4°C	86.5°C	7	ZNR3	48.3°C	68.7°C	8	BD1	62.4°C	81.3°C	9	RTH2	73.8°C	89.5°C	10	LF100	66.4°C	87.6°C	11	C113	63.6°C	84.1°C	12	R1	49.3°C	69.4°C	13	C106	76.9°C	98.5°C	14	C104	71.6°C	92.7°C	15	Q102	67.5°C	89.0°C	16	C47	64.1°C	85.0°C	17	RTH3	72.6°C	94.9°C	18	T1coil	81.1°C	97.5°C	19	T1core	77.0°C	97.3°C	20	C5	62.8°C	83.2°C	21	C6	52.4°C	72.9°C	22	L1	44.6°C	64.8°C	23	C38	63.1°C	83.7°C	24	L2	49.9°C	69.8°C	25	R5	52.7°C	73.4°C
NO	Position	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 45 °C																																																																																																									
1	ZNR1	40.7°C	60.8°C																																																																																																									
2	C1	43.2°C	63.7°C																																																																																																									
3	LF1	45.5°C	66.0°C																																																																																																									
4	C3	47.6°C	67.7°C																																																																																																									
5	LF2	56.7°C	75.9°C																																																																																																									
6	RTH1	70.4°C	86.5°C																																																																																																									
7	ZNR3	48.3°C	68.7°C																																																																																																									
8	BD1	62.4°C	81.3°C																																																																																																									
9	RTH2	73.8°C	89.5°C																																																																																																									
10	LF100	66.4°C	87.6°C																																																																																																									
11	C113	63.6°C	84.1°C																																																																																																									
12	R1	49.3°C	69.4°C																																																																																																									
13	C106	76.9°C	98.5°C																																																																																																									
14	C104	71.6°C	92.7°C																																																																																																									
15	Q102	67.5°C	89.0°C																																																																																																									
16	C47	64.1°C	85.0°C																																																																																																									
17	RTH3	72.6°C	94.9°C																																																																																																									
18	T1coil	81.1°C	97.5°C																																																																																																									
19	T1core	77.0°C	97.3°C																																																																																																									
20	C5	62.8°C	83.2°C																																																																																																									
21	C6	52.4°C	72.9°C																																																																																																									
22	L1	44.6°C	64.8°C																																																																																																									
23	C38	63.1°C	83.7°C																																																																																																									
24	L2	49.9°C	69.8°C																																																																																																									
25	R5	52.7°C	73.4°C																																																																																																									

			NO	Position	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 45 °C
			26	Q1	63.0℃	83.4℃
			27	Q2	66.1℃	87.3℃
			28	D1	60.9℃	80.1℃
			29	U220	71.5℃	91.4℃
			30	J100	72.1℃	92.7℃
			31	U101	82.8℃	102.9℃
			32	U3	59.1℃	79.6℃
			33	U4	72.1℃	93.3℃
			34	D301	63.3℃	84.2℃
			35	Q301	68.2℃	89.8℃
			36	D13	68.1℃	89.0℃
			37	Q30	71.9℃	93.1℃
			38	D30	63.4℃	84.2℃
			39	D5	59.0℃	81.1℃
			40	U1	53.3℃	73.8℃
			41	U2	58.9℃	56.7℃
			42	U102	64.1℃	85.2℃
			43	C9	79.4℃	102.8℃
			44	D9	71.5℃	93.1℃
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 115%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= -25℃		TEST : OK	
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45 °C/95 %R.H NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 45.1℃ HUMIDITY= 95 %R.H		TEST : OK	
5	TEMPERATURE COEFFICIENT	± 0.03 %/℃(0~40℃)	I/P : 230 VAC O/P : FULL LOAD		± 0.009%/℃(0~40℃)	
6	STORAGE TEMPERATURE TEST	-20~85℃	1. Thermal shock Temperature : -25℃~ +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	-20~45℃	1. Thermal shock Temperature : -25℃~ +50℃ 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			



180W Single Output with Battery
Charger(UPS Function)

DRC-180 series

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 : 12min/sweep cycle (4) Acceleration : 3G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C
9	CAPACITOR LIFE CYCLE	SUPPOSE C106 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= 45 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 45 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 45 °C LIFE TIME	(1) 49215.2HRS (2) 11012.2HRS (3) 37498.4HRS (4) 88528.4HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 1536.3K hrs min. Telcordia SR-332 (Bellcore) ; 245.6K 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

2020.10.01 TAG-QA-009