



Test Report: HVG-65-24

65W Constant Voltage + Constant Current LED Driver

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection 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	RIPPLE & NOISE	V1 : 150 mVp-p (Max)	I/P : 347VAC O/P : FULL LOAD Ta : 25°C	V1 : 39 mVp-p (Max)
2	OUTPUT VOLTAGE ADJUST RANGE	CH1 : 22V ~ 27 V	I/P : 480 VAC I/P : 347 VAC O/P : MIN LOAD Ta : 25°C	21.399 V ~ 28.172 V / 480 VAC 21.395 V ~ 28.172 V / 347 VAC
3	OUTPUT CURRENT ADJUST RANGE	CH1 : 1.62A~2.71 A	I/P : 480 VAC I/P : 347 VAC O/P : CV MODE Ta : 25°C	1.161 A ~ 2.921 A / 480 VAC 1.156 A ~ 2.916 A / 347 VAC
4	OUTPUT VOLTAGE TOLERANCE	V1 : 1%~ -1 % (Max)	I/P : 180 VAC / 480 VAC O/P : FULL/ MIN LOAD Ta : 25°C	V1 : 0.23 % ~ 0.23 %
5	LINE REGULATION	V1 : 0.5 %~ -0.5% (Max)	I/P : 180 VAC ~ 480 VAC O/P : FULL LOAD Ta : 25°C	V1 : 0.025 % ~ 0 %
6	LOAD REGULATION	V1 : 0.5 %~ -0.5% (Max)	I/P : 347 VAC O/P : FULL ~ MIN LOAD Ta : 25°C	V1 : 0.13 % ~ 0.32 %
7	SET UP TIME	480 VAC : 400 ms (Max) 347VAC : 400 ms(Max) 230VAC : 500 ms(Max)	I/P : 480 VAC I/P : 347 VAC I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	480 VAC/ 169 ms 347VAC/ 268 ms 230VAC/ 329 ms
8	RISE TIME	480 VAC : 80 ms (Max) 347VAC : 80 ms (Max) 230VAC : 80 ms (Max)	I/P : 480 VAC I/P : 347 VAC I/P : 230 VAC O/P : FULL LOAD Ta : 25°C	480 VAC/ 10.2 ms 347VAC/ 11 ms 230VAC/ 11 ms
9	HOLD UP TIME	480 VAC : 30 ms (TYP) 347VAC : 16 ms (TYP)	I/P : 480 VAC I/P : 347 VAC O/P : FULL LOAD Ta : 25°C	480 VAC/ 42 ms 347VAC/ 20 ms
10	OVER/UNDERSHOOT TEST	< ±5%	I/P : 347 VAC O/P : FULL LOAD Ta : 25°C	TEST : <5 %

11	DYNAMIC LOAD	V1 : 2400 mVp-p	I/P : 347VAC (1).O/P : FULL /Min LOAD 90%DUTY/ 1KHZ (2).O/P : FULL /Min LOAD 90%DUTY/ 3KHZ (3).O/P : FULL /Min LOAD 90%DUTY/ 5KHZ (4).O/P : FULL /Min LOAD 50%DUTY/ 120HZ Ta : 25°C	(1)277 mVp-p (2)185 mVp-p (3)187 mVp-p (4)671 mVp-p																																																																																																																																																																																																						
12	<p>DIMMER TEST (B Type only) SPEC: ※Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 0 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-. ※Please DO NOT connect "DIM-" to "-V". ※Reference resistance value for output current adjustment (Typical)</p> <table border="1" data-bbox="151 835 1326 947"> <tr> <th>Resistance value</th> <th>Short</th> <th>10K</th> <th>20K</th> <th>30K</th> <th>40K</th> <th>50K</th> <th>60K</th> <th>70K</th> <th>80K</th> <th>90K</th> <th>100K</th> <th>OPEN</th> </tr> <tr> <td>Output current</td> <td>0%</td> <td>10%</td> <td>20%</td> <td>30%</td> <td>40%</td> <td>50%</td> <td>60%</td> <td>70%</td> <td>80%</td> <td>90%</td> <td>100%</td> <td>95%~108%</td> </tr> </table> <p>*1 ~ 10V dimming function for output current adjustment (Typical)</p> <table border="1" data-bbox="151 981 1326 1093"> <tr> <th>Dimming value</th> <th>Short</th> <th>1V</th> <th>2V</th> <th>3V</th> <th>4V</th> <th>5V</th> <th>6V</th> <th>7V</th> <th>8V</th> <th>9V</th> <th>10V</th> <th>OPEN</th> </tr> <tr> <td>Output current</td> <td>0%</td> <td>10%</td> <td>20%</td> <td>30%</td> <td>40%</td> <td>50%</td> <td>60%</td> <td>70%</td> <td>80%</td> <td>90%</td> <td>100%</td> <td>95%~108%</td> </tr> </table> <p>*10V PWM signal for output current adjustment (Typical) : Frequency range :100Hz ~ 3KHz</p> <table border="1" data-bbox="151 1126 1326 1238"> <tr> <th>Duty value</th> <th>Short</th> <th>10%</th> <th>20%</th> <th>30%</th> <th>40%</th> <th>50%</th> <th>60%</th> <th>70%</th> <th>80%</th> <th>90%</th> <th>100%</th> <th>OPEN</th> </tr> <tr> <td>Output current</td> <td>0%</td> <td>10%</td> <td>20%</td> <td>30%</td> <td>40%</td> <td>50%</td> <td>60%</td> <td>70%</td> <td>80%</td> <td>90%</td> <td>100%</td> <td>95%~108%</td> </tr> </table> <p>TEST RESULT: I/P : 230 VAC ;Ta : 25°C</p> <table border="1" data-bbox="151 1305 1369 1727"> <tr> <td rowspan="3">1</td> <td>Resistance value</td> <td>SHORT</td> <td>10K</td> <td>20K</td> <td>30K</td> <td>40K</td> <td>50K</td> <td>60K</td> <td>70K</td> <td>80K</td> <td>90K</td> <td>100K</td> <td>OPEN</td> </tr> <tr> <td>Output current</td> <td>0.000A</td> <td>0.301A</td> <td>0.572A</td> <td>0.845A</td> <td>1.120A</td> <td>1.393A</td> <td>1.669A</td> <td>1.951A</td> <td>2.224A</td> <td>2.506A</td> <td>2.769A</td> <td>2.808A</td> </tr> <tr> <td>%</td> <td>0.00%</td> <td>11.11%</td> <td>21.11%</td> <td>31.18%</td> <td>41.33%</td> <td>51.40%</td> <td>61.59%</td> <td>71.99%</td> <td>82.07%</td> <td>92.47%</td> <td>102.18%</td> <td>103.62%</td> </tr> <tr> <td rowspan="3">2</td> <td>Dimming value</td> <td>SHORT</td> <td>1V</td> <td>2V</td> <td>3V</td> <td>4V</td> <td>5V</td> <td>6V</td> <td>7V</td> <td>8V</td> <td>9V</td> <td>10V</td> <td>OPEN</td> </tr> <tr> <td>Output current</td> <td>0.000A</td> <td>0.321A</td> <td>0.581A</td> <td>0.841A</td> <td>1.110A</td> <td>1.390A</td> <td>1.661A</td> <td>1.922A</td> <td>2.178A</td> <td>2.458A</td> <td>2.719A</td> <td>2.808A</td> </tr> <tr> <td>%</td> <td>0.00%</td> <td>11.85%</td> <td>21.44%</td> <td>31.03%</td> <td>40.96%</td> <td>51.29%</td> <td>61.29%</td> <td>70.92%</td> <td>80.37%</td> <td>90.70%</td> <td>100.33%</td> <td>103.62%</td> </tr> <tr> <td rowspan="3">3</td> <td>Duty value</td> <td>SHORT</td> <td>10%</td> <td>20%</td> <td>30%</td> <td>40%</td> <td>50%</td> <td>60%</td> <td>70%</td> <td>80%</td> <td>90%</td> <td>100%</td> <td>OPEN</td> </tr> <tr> <td>Output current</td> <td>0.000A</td> <td>0.354A</td> <td>0.593A</td> <td>0.860A</td> <td>1.127A</td> <td>1.395A</td> <td>1.662A</td> <td>1.930A</td> <td>2.198A</td> <td>2.466A</td> <td>2.735A</td> <td>2.808A</td> </tr> <tr> <td>%</td> <td>0.00%</td> <td>13.06%</td> <td>21.88%</td> <td>31.73%</td> <td>41.59%</td> <td>51.48%</td> <td>61.33%</td> <td>71.22%</td> <td>81.11%</td> <td>91.00%</td> <td>100.92%</td> <td>103.62%</td> </tr> </table>				Resistance value	Short	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN	Output current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%	Dimming value	Short	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	Output current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%	Duty value	Short	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	Output current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%	1	Resistance value	SHORT	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN	Output current	0.000A	0.301A	0.572A	0.845A	1.120A	1.393A	1.669A	1.951A	2.224A	2.506A	2.769A	2.808A	%	0.00%	11.11%	21.11%	31.18%	41.33%	51.40%	61.59%	71.99%	82.07%	92.47%	102.18%	103.62%	2	Dimming value	SHORT	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN	Output current	0.000A	0.321A	0.581A	0.841A	1.110A	1.390A	1.661A	1.922A	2.178A	2.458A	2.719A	2.808A	%	0.00%	11.85%	21.44%	31.03%	40.96%	51.29%	61.29%	70.92%	80.37%	90.70%	100.33%	103.62%	3	Duty value	SHORT	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN	Output current	0.000A	0.354A	0.593A	0.860A	1.127A	1.395A	1.662A	1.930A	2.198A	2.466A	2.735A	2.808A	%	0.00%	13.06%	21.88%	31.73%	41.59%	51.48%	61.33%	71.22%	81.11%	91.00%	100.92%	103.62%
Resistance value	Short	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN																																																																																																																																																																																														
Output current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%																																																																																																																																																																																														
Dimming value	Short	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN																																																																																																																																																																																														
Output current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%																																																																																																																																																																																														
Duty value	Short	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN																																																																																																																																																																																														
Output current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%																																																																																																																																																																																														
1	Resistance value	SHORT	10K	20K	30K	40K	50K	60K	70K	80K	90K	100K	OPEN																																																																																																																																																																																													
	Output current	0.000A	0.301A	0.572A	0.845A	1.120A	1.393A	1.669A	1.951A	2.224A	2.506A	2.769A	2.808A																																																																																																																																																																																													
	%	0.00%	11.11%	21.11%	31.18%	41.33%	51.40%	61.59%	71.99%	82.07%	92.47%	102.18%	103.62%																																																																																																																																																																																													
2	Dimming value	SHORT	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN																																																																																																																																																																																													
	Output current	0.000A	0.321A	0.581A	0.841A	1.110A	1.390A	1.661A	1.922A	2.178A	2.458A	2.719A	2.808A																																																																																																																																																																																													
	%	0.00%	11.85%	21.44%	31.03%	40.96%	51.29%	61.29%	70.92%	80.37%	90.70%	100.33%	103.62%																																																																																																																																																																																													
3	Duty value	SHORT	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN																																																																																																																																																																																													
	Output current	0.000A	0.354A	0.593A	0.860A	1.127A	1.395A	1.662A	1.930A	2.198A	2.466A	2.735A	2.808A																																																																																																																																																																																													
	%	0.00%	13.06%	21.88%	31.73%	41.59%	51.48%	61.33%	71.22%	81.11%	91.00%	100.92%	103.62%																																																																																																																																																																																													
13	CONSTANT CURRENT REGION	14.4V ~ 24V	I/P : 347 VAC O/P : FULL LOAD Ta : 25°C	O/P=14.4V : 2.798 A O/P=23 V : 2.798 A																																																																																																																																																																																																						

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	180VAC~528 VAC	I/P : TESTING O/P : FULL LOAD Ta : 25°C	160V~480V
			I/P : LOW-LINE-3V=177V HIGH-LINE+3V=531 V O/P : FULL/MIN LOAD ON : 30 Sec . OFF : 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST : OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P : 180VAC ~ 528 VAC O/P : FULL-MIN LOAD Ta : 25°C	TEST : OK
3	POWER FACTOR	0.98 / 230 VAC(TYP) 0.97 / 277VAC(TYP) 0.97 /347 VAC(TYP) 0.93 / 480 VAC(TYP)	I/P : 230VAC I/P : 277VAC I/P : 347VAC I/P : 480VAC O/P : FULL LOAD Ta : 25°C	PF= 0.9914 / 230 VAC PF= 0.9882 / 277 VAC PF= 0.9767 / 347VAC PF= 0.9765 / 480VAC
4	EFFICIENCY	89 % (TYP)	I/P : 347 VAC O/P : FULL LOAD Ta : 25°C	89.8 %
5	INPUT CURRENT	347V/ 0.22 A (TYP) 480V/ 0.18 A (TYP)	I/P : 347 VAC I/P : 480 VAC O/P : FULL LOAD Ta : 25°C	I = 0.202 A/ 347 VAC I = 0.148 A/ 480 VAC
6	INRUSH CURRENT	480V/ 25 A (TYP) (twidth=420us measured at 50% Ipeak) COLD START	I/P : 480VAC O/P : FULL LOAD Ta : 25°C	I = 19.4 A/ 480VAC T50= 396 us
7	LEAKAGE CURRENT	< 0.75 mA / 480 VAC	I/P : 480 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.26 mA N-FG : 0.24 mA
8	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 60% or higher at 230VAC / 277VAC / 347VAC	I/P : 230VAC I/P : 277VAC I/P : 347VAC O/P : 60% LOAD Ta : 25°C	THD : 11.84 % THD : 14.28 % THD : 14.04 %
		Total harmonic distortion will be lower than 20% when output loading is 75% or higher at 480VAC	I/P : 480VAC O/P : 75% LOAD Ta : 25°C	THD : 14.4 %

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT	95% - 108%	I/P : 480 VAC I/P : 347 VAC O/P : TESTING Ta : 25°C	102.1%/ 480 VAC 102.06%/ 347 VAC Constant current limiting, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	CH1 : 28V ~ 34 V	I/P : 480 VAC I/P : 347 VAC O/P : MIN LOAD Ta : 25°C	43.06V/ 480VAC 38.51V/ 347 VAC Shut down o/p voltage with auto-recovery or re-power on to recovery
3	OVER TEMPERATURE PROTECTION	SPEC : NO DAMAGE	I/P : 347 VAC O/P : FULL LOAD	O.T.P. Active Shut down o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	NO DAMAGE	I/P : 528VAC O/P : FULL LOAD Ta : 25°C	NO DAMAGE Constant current limiting, recovers automatically after fault condition is removed

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q3 Rated : 5 9A/950V	I/P : High-Line +3V = 531 V O/P : (1)Full Load Turn on (2) Output Short (3)Full load continue Ta : 25°C	(1) 762 V (2) 706 V (3) 521 V
2	Diode Peak Voltage	D101 Rated : 30A/100V	I/P : High-Line +3V = 531 V O/P : (1)Full Load Turn on (2)Output Short (3)Full load continue Ta : 25°C	(1) 80 V (2) 65.6 V (3) 79.2 V
3	Input Capacitor Voltage	C5 Rated : 22u/450V	I/P : High-Line +3V = 531 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta : 25°C	(1) 412 V (2) 400 V (3) 400 V
4	Control IC Voltage Test	U1 Rated : 10.3V~22.5V U2 Rated : 11V~28V	I/P : High-Line +3V = 531 V O/P : (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Ta : 25°C	(1) 19.2 V (2) 19.4 V (3) 19.0 V (4) 17.0 V (5) 17.6 V (6) 16.2 V

5	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated : 9A/950V	I/P : High-Line +3V = 531 V O/P : (1) Full Load Turn on (2) Output Short (3) Full load continue Ta : 25°C	(1)	841	V
				(2)	768	V
				(3)	752	V

SAFETY & E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P : 3.75 KVAC/min I/P-FG : 2 KVAC/min O/P-FG : 1.5KVAC/min	I/P-O/P : 4 KVAC/min I/P-FG : 2.4 KVAC/min O/P-FG : 1.8 KVAC/min Ta : 25°C	I/P-O/P : 3.38 mA I/P-FG : 2.945 mA O/P-FG : 2.078 mA 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/70%RH	I/P-O/P : 1.74 GΩ I/P-FG : 1.51 GΩ O/P-FG : 5.96 GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta : 25°C / 70%RH	19 mΩ

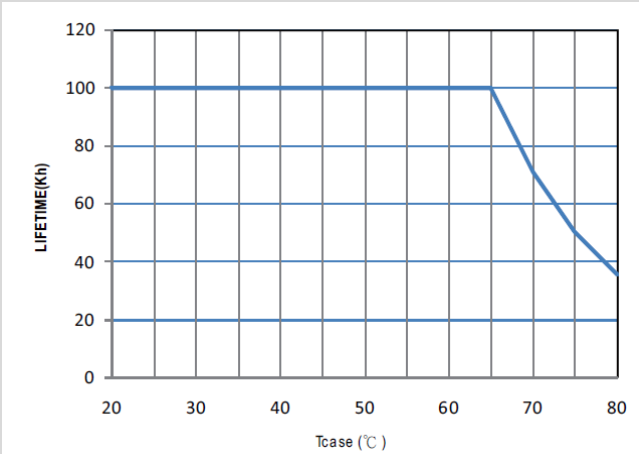
E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P:230VAC/380VAC/50HZ/60HZ O/P:100/60%ELECTRONIC LOAD O/P:100%LED LOAD Ta:25°C	PASS
2	CONDUCTION	EN55015 CLASS B FCC Part 15 Subpart B	I/P: 230VAC/380VAC/50HZ/60HZ O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	EN55015 CLASS B FCC Part 15 Subpart B	I/P: 230VAC/380VAC/50HZ/60HZ O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 230VAC/380VAC/50HZ/60HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT : 1KV	I/P: 230VAC/380VAC/50HZ/60HZ O/P:FULL LOAD Ta:25°C	CRITERIA A
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230VAC/380VAC/50HZ/60HZ O/P:FULL LOAD Ta:25°C	CRITERIA A

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																
1	TEMPERATURE RISE TEST	MODEL : HVG-65-24 1. ROOM AMBIENT BURN-IN : 4.5 HRS I/P : 347VAC O/P : FULL LOAD Ta=33.2 °C 2. HIGH AMBIENT BURN-IN : 1 HRS I/P : 347VAC O/P : FULL LOAD Ta=65.5 °C	<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 33.2 °C</th> <th>HIGH AMBIENT Ta= 65.5 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>BD1</td><td>52.5°C</td><td>82.2°C</td></tr> <tr><td>2</td><td>L2</td><td>55.3°C</td><td>84.7°C</td></tr> <tr><td>3</td><td>Q1</td><td>57.8°C</td><td>86.9°C</td></tr> <tr><td>4</td><td>U1</td><td>55.3°C</td><td>85.1°C</td></tr> <tr><td>5</td><td>Q3</td><td>60.1°C</td><td>88.9°C</td></tr> <tr><td>6</td><td>C5</td><td>56.6°C</td><td>85.4°C</td></tr> <tr><td>7</td><td>RTH2</td><td>54.1°C</td><td>83.5°C</td></tr> <tr><td>8</td><td>T1</td><td>65.0°C</td><td>93.4°C</td></tr> <tr><td>9</td><td>C62</td><td>56.7°C</td><td>85.6°C</td></tr> <tr><td>10</td><td>C46</td><td>51.7°C</td><td>81.8°C</td></tr> <tr><td>11</td><td>D101</td><td>65.5°C</td><td>95.1°C</td></tr> <tr><td>12</td><td>C102</td><td>60.3°C</td><td>89.5°C</td></tr> <tr><td>13</td><td>C203</td><td>58.9°C</td><td>87.8°C</td></tr> <tr><td>14</td><td>LF100</td><td>55.1°C</td><td>84.7°C</td></tr> <tr><td>15</td><td>C104</td><td>55.7°C</td><td>85.3°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 33.2 °C	HIGH AMBIENT Ta= 65.5 °C	1	BD1	52.5°C	82.2°C	2	L2	55.3°C	84.7°C	3	Q1	57.8°C	86.9°C	4	U1	55.3°C	85.1°C	5	Q3	60.1°C	88.9°C	6	C5	56.6°C	85.4°C	7	RTH2	54.1°C	83.5°C	8	T1	65.0°C	93.4°C	9	C62	56.7°C	85.6°C	10	C46	51.7°C	81.8°C	11	D101	65.5°C	95.1°C	12	C102	60.3°C	89.5°C	13	C203	58.9°C	87.8°C	14	LF100	55.1°C	84.7°C	15	C104	55.7°C	85.3°C	
NO	Position	ROOM AMBIENT Ta= 33.2 °C	HIGH AMBIENT Ta= 65.5 °C																																																																	
1	BD1	52.5°C	82.2°C																																																																	
2	L2	55.3°C	84.7°C																																																																	
3	Q1	57.8°C	86.9°C																																																																	
4	U1	55.3°C	85.1°C																																																																	
5	Q3	60.1°C	88.9°C																																																																	
6	C5	56.6°C	85.4°C																																																																	
7	RTH2	54.1°C	83.5°C																																																																	
8	T1	65.0°C	93.4°C																																																																	
9	C62	56.7°C	85.6°C																																																																	
10	C46	51.7°C	81.8°C																																																																	
11	D101	65.5°C	95.1°C																																																																	
12	C102	60.3°C	89.5°C																																																																	
13	C203	58.9°C	87.8°C																																																																	
14	LF100	55.1°C	84.7°C																																																																	
15	C104	55.7°C	85.3°C																																																																	
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 528VAC/180VAC O/P : 100 % LOAD Ta= -40 °C	TEST : OK																																																																
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60°C NO DAMAGE	I/P : 528 VAC O/P : FULL LOAD Ta= 60 °C HUMIDITY= 95 %R.H	TEST : OK																																																																
4	TEMPERATURE COEFFICIENT	± 0.03%(0-60°C)	I/P : 347 VAC O/P : FULL LOAD	± 0.011 %(0-60°C)																																																																
5	STORAGE TEMPERATURE TEST	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 : 5 CYCLE 5. Input/Output condition : STATIC		OK																																																																
6	THERMAL SHOCK TEST	1. Thermal shock Temperature : -45°C~ +65°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 : 347VAC/Fu11 Load AC ON/OFF TEST turn on 58sec ; turn off 2sec		OK																																																																

7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10-500Hz (3) Sweep Time : 12min/sweep cycle (4) Acceleration : 5G (5) Test Time : 72min in each axis (X.Y.Z) (6) Ta : 25°C	TEST : OK																				
8	CAPACITOR LIFE CYCLE	SUPPOSE C102 IS THE MOST CRITICAL COMPONENT (1) I/P : 347VAC O/P : FULL LOAD Ta= 25 °C LIFE TIME (2) I/P : 347VAC O/P : FULL LOAD Ta= 60 °C LIFE TIME (3) I/P : 347VAC O/P : 75% LOAD Ta= 60 °C LIFE TIME (4) I/P : 347VAC O/P : 50% LOAD Ta= 60 °C LIFE TIME	(1) 579367 HRS (2) 63534 HRS (3) 68662 HRS (4) 99873 HRS																				
9	MTBF	Conducted by Parts Stress Analysis Prediction 612.6K hrs min. Telcordia SR-332 (Bellcore) ; 208K hrs min. MIL-HDBK-217F (25°C)																					
10	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 50,000 hours @ Tcase 75°C <div data-bbox="469 831 1110 1283" data-label="Figure">  <table border="1"> <caption>Graph Data: Lifetime vs Tcase</caption> <thead> <tr> <th>Tcase (°C)</th> <th>Lifetime (kh)</th> </tr> </thead> <tbody> <tr><td>20</td><td>100</td></tr> <tr><td>30</td><td>100</td></tr> <tr><td>40</td><td>100</td></tr> <tr><td>50</td><td>100</td></tr> <tr><td>60</td><td>100</td></tr> <tr><td>65</td><td>100</td></tr> <tr><td>70</td><td>70</td></tr> <tr><td>75</td><td>50</td></tr> <tr><td>80</td><td>35</td></tr> </tbody> </table> </div>		Tcase (°C)	Lifetime (kh)	20	100	30	100	40	100	50	100	60	100	65	100	70	70	75	50	80	35
Tcase (°C)	Lifetime (kh)																						
20	100																						
30	100																						
40	100																						
50	100																						
60	100																						
65	100																						
70	70																						
75	50																						
80	35																						

RESULT	TESTER	REVIEW	APPROVAL
PASS	DANIEL GAO	SANFORD SU	VINCENT TSENG

12.10.30 A50-F031