



# Test Report: NGE65U15-P1J

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65W AC-DC Reliable Wall-mounted Interchangeable  
Type Green Adaptor

## ■ 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

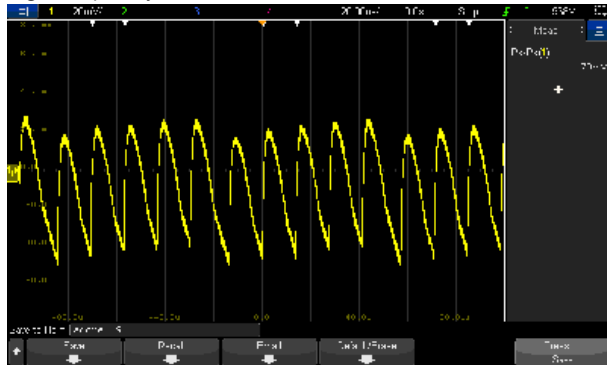
ENVIRONMENT TEST

■ DESIGN VERIFY TEST

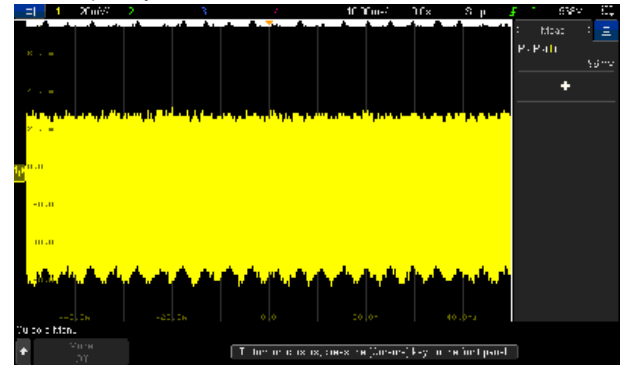
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE TOLERANCE	V1: -3%~ +3%	I/P: 80VAC~264VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -1.41 %~1.35%
2	LINE REGULATION	V1: -1%~ +1%	I/P: 80VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: -0.001 %~0.001%
3	LOAD REGULATION	V1: -3%~ +3%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -1.33 %~1.32%
4	OVER/UNDERSHOOT TEST	<±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	3.3%
5	RIPPLE & NOISE (Max)	V1: 150mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 79mVp-p / high frequency 96 mVp-p / low frequency

high frequency :

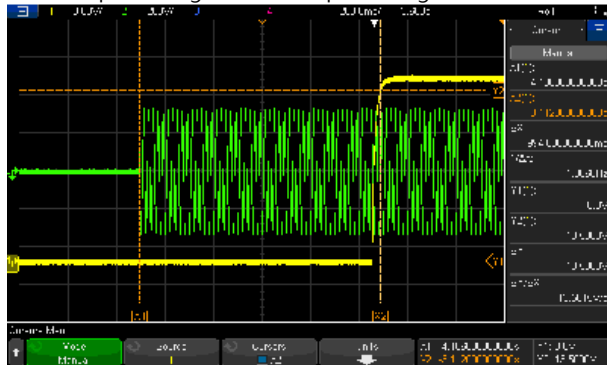


low frequency :

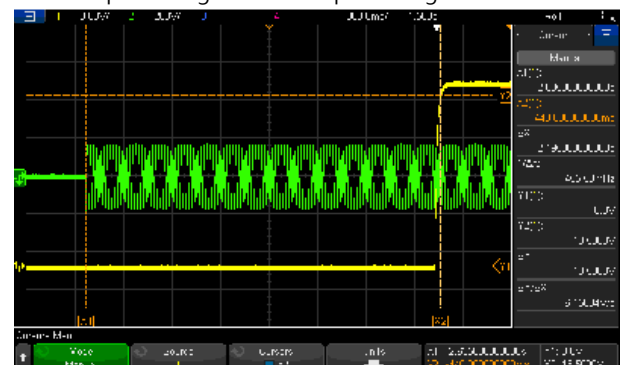


6	SET UP TIME(Max)	230VAC/1500ms 115VAC/3000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 994 ms 115VAC/ 2195ms
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INPUT=230VAC/50HZ @ FULL LOAD  
CH1: Output Voltage CH2: AC Input Voltage



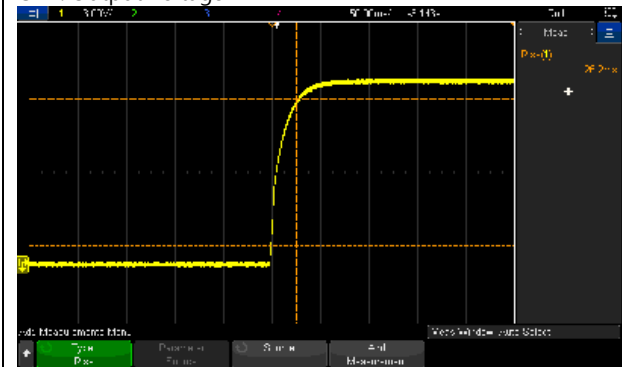

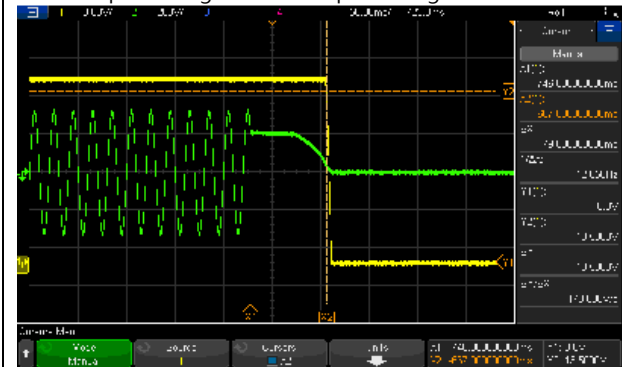
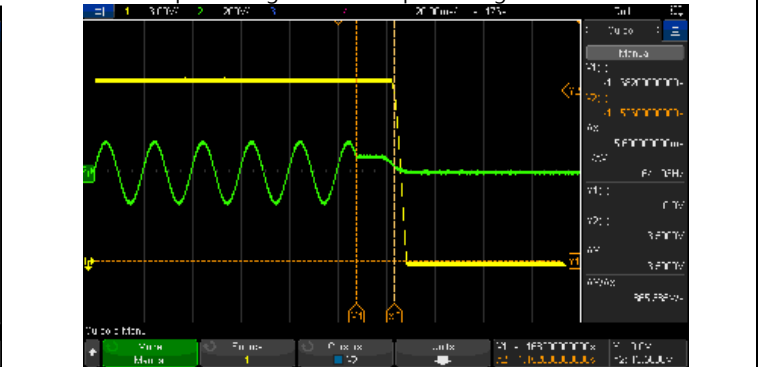


INPUT=115VAC/60HZ @ FULL LOAD  
CH1: Output Voltage CH2: AC Input Voltage





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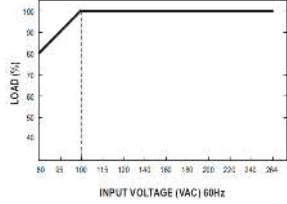
NGE65 series

7	RISE TIME (Max)	230VAC/50ms 115VAC/50ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 26.2ms 115VAC/ 26.1ms
INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage		INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage		
				
8	HOLD UP TIME (Typ.)	230VAC/30ms 115VAC/10ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 79 ms 115VAC/ 15.6 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: 1500mVp-p	I/P: 230VAC O/P: (1) FULL/0% LOAD 50%DUTY / 120HZ (2) FULL/0% LOAD 50%DUTY / 1KHZ Ta:25°C	810mVp-p 760mVp-p
FULL /0% LOAD 50%DUTY / 120HZ		FULL /0% LOAD 50%DUTY / 1KHZ		
				

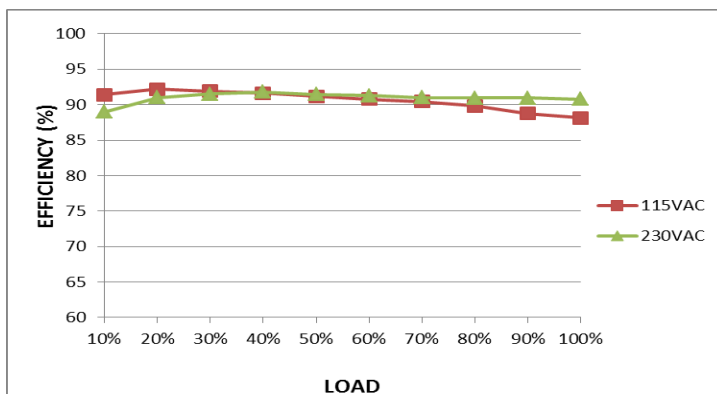


10	TRANSIENT RECOVERY TIME	V1: 1500mVp-p < 500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	322mVp-p 0us
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### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	80VAC~264VAC 113VDC~ 370VDC 	(1) I/P: TESTING O/P: FULL LOAD/ 80% LOAD (2) I/P: DC TESTING (L: + N:-) O/P: FULL LOAD/ 80% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL LOAD/ 80% LOAD Ta:25°C  I/P: HIGH-LINE+15%=300V O/P:FULL LOAD /MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN ( POWER ON/OFF NO DAMAGE )	(1) 73.50V~264V/ FULL LOAD 73.43V~264V/ 80% LOAD (2) 103.25Vdc~370Vdc/FULL LOAD 103.22Vdc~370Vdc/80% LOAD (3) 103.25Vdc~370Vdc/FULL LOAD 103.22Vdc~370Vdc/80% LOAD  TEST: OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:80 VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 0.8A 115V/ 1.5A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =0.76A/ 230VAC I =1.14A/ 115VAC
4	LEAKAGE CURRENT	Touch current 100uA/ 264V for 60601	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	71.7uA
5	NO LOAD CONSUMPTION	< 0.075W	I/P : 240VAC O/P : NO LOAD Ta : 25°C	0.062W
6	EFFICIENCY(Typ.)	89%	I/P:230VAC O/P:FULL LOAD Ta:25°C	90.84%/230VAC

EFFICIENCY vs LOAD



7	INRUSH CURRENT(Typ.)	230V/100A 115V/50A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =79.8A/ 230VAC I =47.6A/ 115VAC T50=406.04 us/230V
INPUT=230VAC/50HZ @ FULL LOAD CH1: AC Input Voltage CH4: Input current		INPUT=115VAC/ 60HZ @ FULL LOAD CH1: AC Input Voltage CH4: Input current		

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	110%~150% rated output power 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	139.5%/ 264VAC 138.2%/ 230VAC 122.8%/100VAC PROTECTION TYPE : Hiccup mode, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	110%~140% rated output voltage Protection type: Clamp by zener diode	I/P: AC OFF O/P:MIN LOAD Ta:25°C	17.6V PROTECTION TYPE : Clamp by zener diode
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Protection type: Hiccup mode, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 80VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE OK PROTECTION TYPE : Hiccup mode, recovers automatically after fault condition is removed

### COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor ( D to S) or (C to E) Peak Voltage	Q1 Rated: 10.6A/ 650V	AC ON/OFF I/P: High-Line +3V =267V VDS: O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/	Q1 VDS: (1) 534V (2) 534V (3) 546V (4) 542V



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			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	(5) 546V (6) 550V (7) 530V
2	Diode Peak Voltage	Q100 Rated: 73A/100V	AC ON/OFF I/P: High-Line +3V =267 V 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	Q100: VDS: (1) 73.0V (2) 73.0V (3) 73.0V (4) 73.0V (5) 73.0V (6) 73.0V (7) 72.4V (8) 72.4V
3	Input Capacitor Voltage	C5 Rated: 120μ /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) 381V (2) 381V (3) 377V (4) 377V
4	Control IC Voltage Test	PWM IC U3 Rated: 8V~ 26.5V  O/P IC U101 Rated: 4V~ 13V	AC ON/OFF I/P: High-Line +3V =267 V O/P:(1) FULL LOAD (2) Output Short (3) O.L.P (4) NO LOAD VRmin (LOW LINE) Ta:25°C	U3                      U101 (1) 16.3V              (1) 9.74V (2) 16.3V              (2) 9.74V (3) 16.3V              (3) 9.74V (4) 8.7V                (4) 8.32V
5	Clamp Diode Peak Voltage	D5 Rated : 600V/1A	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) 590V (2) 486V



## ■ SAFETY& E.M.C. TEST

### SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4KVAC/min	I/P-O/P: 4.4 KVAC/min Ta:25°C	I/P-O/P:1.625mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 600 VDC Ta:25°C	I/P-O/P:50GΩ NO DAMAGE

### E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	BS EN/EN61000-3-2 ■ CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	BS EN/EN55032(CISPR32)/EN55011, FCC Part15 , CNS15936, GB/T 9254.1-2021 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS
3	RADIATION	BS EN/EN55032(CISPR32)/EN55011, FCC Part15 , CNS15936, GB/T 9254.1-2021 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS
4	E.S.D	BS EN/EN61000-4-2 Level 3, 15KV air; Level 2, 8KV contact	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	BS EN/EN 61000-4-4 INPUT : 1KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	BS EN/EN 61000-4-5 Level 3, 1KV/L-N	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 : NGE65U15-P1J 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 28.3 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=40.2 °C																																																																																																																		
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=28.3°C</th> <th>HIGH AMBIENT Ta=40.2°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>R42</td><td>70.3°C</td><td>70.3°C</td></tr> <tr><td>2</td><td>U3</td><td>69.9°C</td><td>69.9°C</td></tr> <tr><td>3</td><td>Q1</td><td>72.4°C</td><td>72.4°C</td></tr> <tr><td>4</td><td>D42</td><td>70.1°C</td><td>70.1°C</td></tr> <tr><td>5</td><td>U2</td><td>68.1°C</td><td>68.1°C</td></tr> <tr><td>6</td><td>U1</td><td>60.0°C</td><td>60.0°C</td></tr> <tr><td>7</td><td>Q101</td><td>79.5°C</td><td>79.5°C</td></tr> <tr><td>8</td><td>C101</td><td>84.4°C</td><td>84.4°C</td></tr> <tr><td>9</td><td>R101</td><td>86.0°C</td><td>86.0°C</td></tr> <tr><td>10</td><td>U101</td><td>85.3°C</td><td>85.3°C</td></tr> <tr><td>11</td><td>C105</td><td>66.6°C</td><td>66.6°C</td></tr> <tr><td>12</td><td>C40</td><td>61.9°C</td><td>61.9°C</td></tr> <tr><td>13</td><td>C106</td><td>69.5°C</td><td>69.5°C</td></tr> <tr><td>14</td><td>C5</td><td>68.1°C</td><td>68.1°C</td></tr> <tr><td>15</td><td>BD1</td><td>65.8°C</td><td>65.8°C</td></tr> <tr><td>16</td><td>RTH2</td><td>72.9°C</td><td>72.9°C</td></tr> <tr><td>17</td><td>LF2</td><td>61.6°C</td><td>61.6°C</td></tr> <tr><td>18</td><td>C1</td><td>57.0°C</td><td>57.0°C</td></tr> <tr><td>19</td><td>ZNR1</td><td>58.2°C</td><td>58.2°C</td></tr> <tr><td>20</td><td>LF1</td><td>57.0°C</td><td>57.0°C</td></tr> <tr><td>21</td><td>C8</td><td>74.3°C</td><td>74.3°C</td></tr> <tr><td>22</td><td>R6</td><td>73.2°C</td><td>73.2°C</td></tr> <tr><td>23</td><td>D5</td><td>82.8°C</td><td>82.8°C</td></tr> <tr><td>24</td><td>R40</td><td>70.4°C</td><td>70.4°C</td></tr> <tr><td>25</td><td>T1coil</td><td>78.3°C</td><td>78.3°C</td></tr> <tr><td>26</td><td>T1core</td><td>73.7°C</td><td>73.7°C</td></tr> <tr><td>27</td><td>C5</td><td>68.0°C</td><td>68.0°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=28.3°C	HIGH AMBIENT Ta=40.2°C	1	R42	70.3°C	70.3°C	2	U3	69.9°C	69.9°C	3	Q1	72.4°C	72.4°C	4	D42	70.1°C	70.1°C	5	U2	68.1°C	68.1°C	6	U1	60.0°C	60.0°C	7	Q101	79.5°C	79.5°C	8	C101	84.4°C	84.4°C	9	R101	86.0°C	86.0°C	10	U101	85.3°C	85.3°C	11	C105	66.6°C	66.6°C	12	C40	61.9°C	61.9°C	13	C106	69.5°C	69.5°C	14	C5	68.1°C	68.1°C	15	BD1	65.8°C	65.8°C	16	RTH2	72.9°C	72.9°C	17	LF2	61.6°C	61.6°C	18	C1	57.0°C	57.0°C	19	ZNR1	58.2°C	58.2°C	20	LF1	57.0°C	57.0°C	21	C8	74.3°C	74.3°C	22	R6	73.2°C	73.2°C	23	D5	82.8°C	82.8°C	24	R40	70.4°C	70.4°C	25	T1coil	78.3°C	78.3°C	26	T1core	73.7°C	73.7°C	27	C5	68.0°C	68.0°C
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P : 230 VAC O/P : 125%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																																																																																																																



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4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 40°C/95 %R.H NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 40°C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	±0.03%/°C(0~40°C)	I/P : 230 VAC O/P : FULL LOAD	±0.0087%/°C(0~40°C)
6	STORAGE TEMPERATURE TEST	-20~85°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	-30~40°C	1. Thermal shock Temperature : -35°C~ +45°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, 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 : 10min/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= 40°C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 40°C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 40°C LIFE TIME	(1) 48449.3HRS (2) 19006.3HRS (3) 71234HRS (4) 197711.7HRS	
10	MTBF	Conducted by Parts Stress Analysis Prediction 682.2 Khrs min. MIL-HDBK-217F (25°C) 5852.4 Khrs min.Telcordia TR/SR-332(Bellcore) (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	Yuwei	Liutt	Wangdz

2020.10.1 TAG-QA-009