

MODEL : SE-350-36

## OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 240 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 48 mVp-p (Max)	PASS
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 32V ~ 40V	I/P: 230 VAC I/P:115 VAC O/P:MIN LOAD Ta:25°C	30.861V~41.006V/230VAC 30.860V~41.002V//115VAC	PASS
3	OUTPUT VOLTAGE TOLERANCE	V1: -1.0 %~ +1.0 % (Max)	I/P: 180VAC / 264 VAC O/P:FULL/ 0% LOAD Ta:25°C	V1: -0.29%~ +0.60 %	PASS
4	LINE REGULATION	V1: -0.5 %~ +0.5 % (Max)	I/P: 180 VAC ~ 264VAC O/P:FULL LOAD Ta:25°C	V1: -0.02 %~ 0.01 %	PASS
5	LOAD REGULATION	V1: -0.5 %~ +0.5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.14 %~ 0.14 %	PASS
6	SET UP TIME	230VAC/ 1000 ms (Max) 115VAC/ 1000 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/ 138.149 ms 115 VAC/ 103.937 ms	PASS
7	RISE TIME	230VAC/ 50 ms (Max) 115VAC/ 50 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/20.890ms 115 VAC/20.383ms	PASS
8	HOLD TIME	230VAC/ 20 ms (Typ) 115VAC/ 16 ms (Typ)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230 VAC/29.957ms 115 VAC/24.822ms	PASS
9	OVER/UNDERSHOOT TEST	< ±5 %	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: +1.648% -2.198%	PASS
10	DYNAMIC LOAD	V1: 3600 mVp-p	I/P: 230 VAC O/P: (1)FULL /Min LOAD 90%DUTY/1KHZ (2)FULL /Min LOAD 50%DUTY/120HZ Ta:25°C	(1) 466 mVp-p (2) 716 mVp-p	PASS

## INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180 VAC ~ 264 VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	180 V ~ 264 V	PASS
			(1) I/P: LOW-LINE-3V= 177 V HIGH-LINE+15%= 300 V O/P: FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (2) I/P: 230VAC ON: 0.5 Sec . OFF: 0.5 Sec 20MIN (AC POWER ON/OFF NO DAMAGE )	TEST: (1) OK (2) OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P: 180 VAC ~264 VAC O/P: FULL-MIN LOAD Ta: 25°C	TEST: OK	PASS
3	EFFICIENCY	87.5 % (Typ)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	88.61 %	PASS
4	INPUT CURRENT	230 V/ 4 A (Typ) 115 V/ 7 A (Typ)	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 3.418A/ 230VAC I = 5.862A/ 115VAC	PASS
5	INRUSH CURRENT	230 V/ 60 A 115 V/ 40 A COLD START	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 45.500 A/ 230VAC I = 36.406 A/ 115VAC	PASS

## PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105%~ 135 % RATED OUTPUT POWER	I/P: 264 VAC I/P: 230 VAC I/P: 180 VAC O/P: TESTING Ta: 25°C	118.4 %/264VAC 118.4 %/ 230VAC 118.5 %/ 180 VAC  Constant Current Limiting	PASS
2	OVER VOLTAGE PROTECTION	CH1: 41.4 V~ 46.8 V	I/P: 264 VAC I/P: 230 VAC I/P: 180 VAC O/P: MIN LOAD Ta: 25°C	42.72 V/264VAC 42.72 V/ 230VAC 42.71 V/ 180VAC  Shut off o/p voltage, Re- power ON to recover	PASS
3	OVER TEMPERATURE PROTECTION	SPEC: TSW1= 75 °C ±5 °C O.T.P. NO DAMAGE	I/P: 230 VAC O/P: FULL LOAD	79.1 °C/ 230 VAC O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down	PASS
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Constant Current Limiting	PASS

## CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	FAN ON/OFF CONTROL	$\geq 55\text{ }^{\circ}\text{C}$ FAN ON $\leq 50\text{ }^{\circ}\text{C}$ FAN OFF	I/P: 230 VAC O/P:FULL LOAD Ta:25 $^{\circ}\text{C}$	58.1 $^{\circ}\text{C}$ FAN ON 49.0 $^{\circ}\text{C}$ FAN OFF	PASS

## ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT																																																																																
1	TEMPERATURE RISE TEST	MODEL : SE-350-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 27.0 $^{\circ}\text{C}$ 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: 100% LOAD Ta= 52.5 $^{\circ}\text{C}$			PASS																																																																																
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 27.0 <math>^{\circ}\text{C}</math></th> <th>HIGH AMBIENT Ta= 52.5 <math>^{\circ}\text{C}</math></th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>LF-203</td><td>32.7<math>^{\circ}\text{C}</math></td><td>57.4<math>^{\circ}\text{C}</math></td></tr> <tr><td>2</td><td>BD1</td><td>KBJ1008G</td><td>45.8<math>^{\circ}\text{C}</math></td><td>69.7<math>^{\circ}\text{C}</math></td></tr> <tr><td>3</td><td>C6</td><td>680u/200V LP</td><td>40.0<math>^{\circ}\text{C}</math></td><td>61.1<math>^{\circ}\text{C}</math></td></tr> <tr><td>4</td><td>Q1</td><td>SIHP18N50C</td><td>64.2<math>^{\circ}\text{C}</math></td><td>92.7<math>^{\circ}\text{C}</math></td></tr> <tr><td>5</td><td>T1</td><td>TF6312</td><td>63.5<math>^{\circ}\text{C}</math></td><td>88.4<math>^{\circ}\text{C}</math></td></tr> <tr><td>6</td><td>U1</td><td>TL3845P</td><td>46.8<math>^{\circ}\text{C}</math></td><td>71.3<math>^{\circ}\text{C}</math></td></tr> <tr><td>7</td><td>L100</td><td>TR6066</td><td>63.4<math>^{\circ}\text{C}</math></td><td>87.5<math>^{\circ}\text{C}</math></td></tr> <tr><td>8</td><td>D100</td><td>ESAD92-02A</td><td>61.1<math>^{\circ}\text{C}</math></td><td>84.1<math>^{\circ}\text{C}</math></td></tr> <tr><td>9</td><td>RG1</td><td>L7812CV</td><td>53.4<math>^{\circ}\text{C}</math></td><td>79.7<math>^{\circ}\text{C}</math></td></tr> <tr><td>10</td><td>C150</td><td>150u/35V KY</td><td>38.4<math>^{\circ}\text{C}</math></td><td>64.2<math>^{\circ}\text{C}</math></td></tr> <tr><td>11</td><td>C106</td><td>1000u/35V YXG</td><td>36.9<math>^{\circ}\text{C}</math></td><td>60.5<math>^{\circ}\text{C}</math></td></tr> <tr><td>12</td><td>Q2</td><td>SIHP18N50C</td><td>71.2<math>^{\circ}\text{C}</math></td><td>99.8<math>^{\circ}\text{C}</math></td></tr> <tr><td>13</td><td>U100</td><td>OP HA17358B</td><td>43.6<math>^{\circ}\text{C}</math></td><td>72.8<math>^{\circ}\text{C}</math></td></tr> <tr><td>14</td><td>D15</td><td>BYV26EGP</td><td>57.0<math>^{\circ}\text{C}</math></td><td>80.2<math>^{\circ}\text{C}</math></td></tr> <tr><td>15</td><td>RTH2</td><td>NTC 5KQ</td><td>55.4<math>^{\circ}\text{C}</math></td><td>86.2<math>^{\circ}\text{C}</math></td></tr> </tbody> </table>	NO	Position		P/N	ROOM AMBIENT Ta= 27.0 $^{\circ}\text{C}$	HIGH AMBIENT Ta= 52.5 $^{\circ}\text{C}$	1	LF1	LF-203	32.7 $^{\circ}\text{C}$	57.4 $^{\circ}\text{C}$	2	BD1	KBJ1008G	45.8 $^{\circ}\text{C}$	69.7 $^{\circ}\text{C}$	3	C6	680u/200V LP	40.0 $^{\circ}\text{C}$	61.1 $^{\circ}\text{C}$	4	Q1	SIHP18N50C	64.2 $^{\circ}\text{C}$	92.7 $^{\circ}\text{C}$	5	T1	TF6312	63.5 $^{\circ}\text{C}$	88.4 $^{\circ}\text{C}$	6	U1	TL3845P	46.8 $^{\circ}\text{C}$	71.3 $^{\circ}\text{C}$	7	L100	TR6066	63.4 $^{\circ}\text{C}$	87.5 $^{\circ}\text{C}$	8	D100	ESAD92-02A	61.1 $^{\circ}\text{C}$	84.1 $^{\circ}\text{C}$	9	RG1	L7812CV	53.4 $^{\circ}\text{C}$	79.7 $^{\circ}\text{C}$	10	C150	150u/35V KY	38.4 $^{\circ}\text{C}$	64.2 $^{\circ}\text{C}$	11	C106	1000u/35V YXG	36.9 $^{\circ}\text{C}$	60.5 $^{\circ}\text{C}$	12	Q2	SIHP18N50C	71.2 $^{\circ}\text{C}$	99.8 $^{\circ}\text{C}$	13	U100	OP HA17358B	43.6 $^{\circ}\text{C}$	72.8 $^{\circ}\text{C}$	14	D15	BYV26EGP	57.0 $^{\circ}\text{C}$	80.2 $^{\circ}\text{C}$	15	RTH2	NTC 5KQ	55.4 $^{\circ}\text{C}$	86.2 $^{\circ}\text{C}$		
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 130% LOAD Ta:25 $^{\circ}\text{C}$	TEST : OK	PASS																																																																																
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 264 VAC/180 VAC O/P: 100% LOAD Ta= -20 $^{\circ}\text{C}$	TEST : OK	PASS																																																																																
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 $^{\circ}\text{C}$ NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 50 $^{\circ}\text{C}$ HUMIDITY= 95 %R.H	TEST : OK	PASS																																																																																
5	TEMPERATURE COEFFICIENT	$\pm 0.03\%$ (0~50 $^{\circ}\text{C}$ )	I/P: 230 VAC O/P:FULL LOAD	$\pm 0.007\%$ (0~50 $^{\circ}\text{C}$ )	PASS																																																																																
6	STORAGE TEMPERATURE TEST	1. Thermal shock Temperature : -40 $^{\circ}\text{C}$ ~ +90 $^{\circ}\text{C}$ 2. Temperature change rate : 25 $^{\circ}\text{C}$ / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 5 CYCLE 5. Input/Output condition : STATIC		TEST : OK	PASS																																																																																

7.	THERMAL SHOCK TEST	1. Thermal shock Temperature : -25 °C~+55 °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 : 230VAC/Full Load 58SEC ON/2SEC OFF	TEST : OK	PASS
8	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10~500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:3G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C	TEST : OK	PASS
9	CAPACITOR LIFE CYCLE	SUPPOSE C106 IS THE MOST CRITICAL COMPONENT (1) I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 976986 HRS (2) I/P: 230 VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 197004 HRS (3) I/P: 230 VAC O/P:75% LOAD Ta= 50 °C LIFE TIME= 215575 HRS (4) I/P: 230 VAC O/P:50% LOAD Ta= 50 °C LIFE TIME= 239224 HRS		PASS
10	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 234.3K HRS		PASS
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure(Expected Life) : 20,000 hours @ Ta 50°C		PASS

## SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-FG: 1.5 KVAC/min I/P-O/P: 3.0 KVAC/min O/P-FG: 0.5 KVAC/min EN 60950	I/P-FG: 1.8 KVA@C/min I/P-O/P: 3.6 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-FG: 3.764 mA I/P-O/P: 3.885 mA O/P-FG: 4.91 mA NO DAMAGE	PASS
2	ISOLATION RESISTANCE	I/P-FG: 500VDC>100MΩ I/P-O/P:500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-FG: 500 VDC I/P-O/P: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-FG: >9999 MΩ I/P-O/P: >9999 MΩ O/P-FG: >9999 MΩ NO DAMAGE	PASS
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ EN 60950	40 A / 2 min Ta:25°C	3 mΩ	PASS
4	LEAKAGE CURRENT	< 3.5 mA / 240VAC EN 60950	I/P: 264 VAC O/P:NO LOAD Ta:25°C	L-FG: 0.8689 mA N-FG: 0.8183 mA	PASS

## E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	PASS
2	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	PASS
3	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	PASS

## COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 1 Rated FMH07N90E : 900 V 7 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 860 V (2) 832 V (3) 788 V (4) 796 V	PASS
2	Diode Peak Voltage	D 100 Rated S20LC30 : 300 V 20 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2)Output Short (3)Dynamic Load 50% Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz Ta:25°C	(1) 296 V (2) 295 V (3) 256 V (4) 272 V	PASS
3	Control IC Voltage Test	U 1 Rated TL3845P : 30 V	I/P:High-Line +3V =267 V O/P: (1) Output Short (2)O.L.P (3)O.V.P (4)NO LOAD VR 下限 LOW LINE Ta:25°C	(1) 16.3 V (2) 16.3 V (3) 14.1 V (4) 14.3 V	PASS

2007/3/20 A50-S014

SAMPLE	TESTER	APPROVAL
PRODUCT SAMPLE	FRANK	WANGDE