

MODEL : SE-600-5

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 150 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 40 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 4.75 V~ 5.5V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	4.62 V~ 5.75 V/ 230 VAC 4.62 V~ 5.75 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2%~ -2% (Max)	I/P: 200 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.8 %~ 0.8 %	P
4	LINE REGULATION	V1: 0.5 %~ -0.5 % (Max)	I/P: 200VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.12 %~ -0.12 %	P
5	LOAD REGULATION	V1: 2 %~ -2 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.8 %~ -0.8 %	P
6	SET UP TIME	230VAC: 1000 ms (Max) 115 VAC: 1000 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 127 ms 115VAC/ 133 ms	P
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	230VAC/ 23 ms 115VAC/ 25 ms	P
8	HOLD UP TIME	230VAC: 20 ms (TYP) 115VAC: 16 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 23 ms 115VAC/ 18 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <5 %	P
10	DYNAMIC LOAD	V1: 1000 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	753 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	176VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	100V~264V	P
			I/P: LOW-LINE-3V= 173 V HIGH-LINE+15%=300 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 OSC	I/P:176VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	78 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	78.2%	P
4	INPUT CURRENT	230V/ 7.5 A(TYP) 115V/ 12 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 5.6 A/ 230 VAC I = 9.5 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 50 A(TYP) 115V/ 25 A(TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 45 A/ 230 VAC I = 23 A/ 115 VAC	P
6	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 1.4 mA N-FG: 1.4 mA	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 125 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	115%/ 230 VAC 115%/ 115 VAC Shunt down Re-power ON	P
2	OVER VOLTAGE PROTECTION	CH1: 5.75 V~ 6.3 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	6.1V/ 230 VAC 6.1V/ 115 VAC Shunt down Re- power ON	P
3	OVER TEMPERATURE PROTECTION	SPEC: 85 ± 5°C O.T.P. NO DAMAGE	I/P: 230 VAC O/P:FULL LOAD	O.T.P. Active Shut down o/p voltage , recovers automatically after temperature goes down	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE Shunt down Re-power ON	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																																
1	TEMPERATURE RISE TEST	MODEL : SE-600-24V 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 33.6 °C 2. HIGH AMBIENT BURN-IN : 4 HRS I/P: 230VAC O/P: FULL LOAD Ta= 49.1 °C <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 33.6°C</th><th>HIGH AMBIENT Ta= 49.1°C</th></tr><tr><td>1</td><td>LF1</td><td>TR-348</td><td>40.7°C</td><td>58.1°C</td></tr><tr><td>2</td><td>BD1</td><td>D25XB60 25A/600V</td><td>46.1°C</td><td>65.1°C</td></tr><tr><td>3</td><td>Q3</td><td>IRFP460 20A/500V</td><td>77.1°C</td><td>97.5°C</td></tr><tr><td>4</td><td>R58</td><td>22Ω/2W R/MO</td><td>72.4°C</td><td>82.2°C</td></tr><tr><td>5</td><td>C5</td><td>1000u/200V</td><td>37.9°C</td><td>54.8°C</td></tr><tr><td>6</td><td>TSW1</td><td>ST-85°C CAPXON 85°C NEG</td><td>50.1°C</td><td>68.9°C</td></tr><tr><td>7</td><td>T1 coil</td><td>TF-874</td><td>58.6°C</td><td>74.9°C</td></tr><tr><td>8</td><td>C13</td><td>220U/25V CAPX 105°C KM</td><td>36.0°C</td><td>53.3°C</td></tr><tr><td>9</td><td>U2</td><td>SG3525A</td><td>51.6°C</td><td>69.1°C</td></tr><tr><td>10</td><td>U4</td><td>DH0165</td><td>39.7°C</td><td>57.3°C</td></tr><tr><td>11</td><td>L4</td><td>TR-321</td><td>75.6°C</td><td>92.7°C</td></tr><tr><td>12</td><td>R61</td><td>680Ω/2W R/MO</td><td>98.2°C</td><td>114.0°C</td></tr><tr><td>13</td><td>C19</td><td>10u/400V CAPXON 105°C KM</td><td>35.4°C</td><td>52.7°C</td></tr><tr><td>14</td><td>D16</td><td>ESAD92-02 20A/200V</td><td>60.3°C</td><td>77.9°C</td></tr><tr><td>15</td><td>C25</td><td>1500u/35V CAPXON 105°C GL</td><td>50.9°C</td><td>68.5°C</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 33.6°C	HIGH AMBIENT Ta= 49.1°C	1	LF1	TR-348	40.7°C	58.1°C	2	BD1	D25XB60 25A/600V	46.1°C	65.1°C	3	Q3	IRFP460 20A/500V	77.1°C	97.5°C	4	R58	22Ω/2W R/MO	72.4°C	82.2°C	5	C5	1000u/200V	37.9°C	54.8°C	6	TSW1	ST-85°C CAPXON 85°C NEG	50.1°C	68.9°C	7	T1 coil	TF-874	58.6°C	74.9°C	8	C13	220U/25V CAPX 105°C KM	36.0°C	53.3°C	9	U2	SG3525A	51.6°C	69.1°C	10	U4	DH0165	39.7°C	57.3°C	11	L4	TR-321	75.6°C	92.7°C	12	R61	680Ω/2W R/MO	98.2°C	114.0°C	13	C19	10u/400V CAPXON 105°C KM	35.4°C	52.7°C	14	D16	ESAD92-02 20A/200V	60.3°C	77.9°C	15	C25	1500u/35V CAPXON 105°C GL	50.9°C	68.5°C	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 120 % LOAD Ta:25°C	TEST : OK	P																																																																																
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100 % LOAD Ta= -20 °C	TEST : OK	P																																																																																
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK	P																																																																																
5	TEMPERATURE COEFFICIENT	± 0.05 %(0~50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.02 %(0~50°C)	P																																																																																
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10~500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C		TEST : OK	P																																																																																

SAFETY TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min I/P-FG: 1.5 KVAC/min O/P-FG: 0.5 KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 1.8 KVAC/min O/P-FG: 0.6 KVAC/min Ta:25°C	I/P-O/P: 8.74 mA I/P-FG: 9.15 mA O/P-FG: 4.62 mA NO DAMAGE	P
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: 1.5 GΩ I/P-FG: 0.46 GΩ O/P-FG: 0.49 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	48 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO :			N/A

E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
2	E.S.D	EN61000-4-2 INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
3	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
4	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
Test by certified Lab & Test Report Prepare					

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SE-600-24 :SUPPOSE C 25 I/P: 230VAC O/P:FULL LOAD I/P: 230VAC O/P:FULL LOAD	IS THE MOST CRITICAL COMPONENT Ta= 25 °C LIFE TIME= 360247 HRS Ta= 40 °C LIFE TIME= 143309 HRS		P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 197K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q 3 Rated 12N60A4D: 600V 20 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 434 V (2) 434 V (3) 462 V	P
2	Diode Peak Voltage	D 14 Rated S60SC4M: 40V 60 A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 37.2 V (2) 36.4 V (3) 36 V	P
3	Clamp Diode Peak Voltage	D5 Rated BYV26E : 1000V 1A	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 466 V (2) 468 V	P
4	Control IC Voltage Test	U2 Rated 3525A : 40 V	I/P:High-Line +3V = 267 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) 14.64 V (2) 14.65 V (3) 14.65 V	P
5	Power Transistor (D to S) or (C to E) Peak Voltage	U4 Rated TOP242P : 700V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 614 V (2) 514 V (3) 520 V	P
6	Control IC Voltage Test	U4 Rated TOP242P : 9V	I/P:High-Line +3V = 267 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) 5.88 V (2) 5.89 V (3) 5.89 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2003/3/4	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2006/4/26	PRODUCT SAMPLE CA5B000204	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023