

MODEL : NES-50-48

## OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 240 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25°C	V1: 10 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 43.2V - 52.8 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	42.62 V- 56.51 V/ 230 VAC 42.62 V- 56.51 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 1 % - -1 % (Max)	I/P: 115 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25°C	V1: 0.1 %- -0.1 %	P
4	LINE REGULATION	V1: 0.5 %- -0.5 % (Max)	I/P: 115 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0.03 %- -0.03 %	P
5	LOAD REGULATION	V1: 0.5 %- -0.5 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.06 %- -0.06 %	P
6	SET UP TIME	230VAC: 500 ms (Max) 115 VAC: 1200 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 202 ms 115VAC/ 579 ms	P
7	RISE TIME	230VAC: 30 ms (Max) 115VAC: 30 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 17 ms 115VAC/ 17 ms	P
8	HOLD UP TIME	230VAC: 50 ms (TYP) 115VAC: 10 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 92 ms 115VAC/ 21 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: 4800 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	115 mVp-p	P

## INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	85VAC~264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	58 V~264V	P
			I/P: LOW-LINE-3V= 82V 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: 85VAC ~ 264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	87 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	87.6 %	P
4	INPUT CURRENT	230V/ 0.65 A (TYP) 115V/ 1.1 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 0.59 A/ 230 VAC I = 0.91 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 45 A (TYP)  COLD START	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 42 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 2 mA / 240 VAC	I/P: 254 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.4 mA N-FG: 0.4 mA	P

## PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 %~ 150 %	I/P: 230 VAC I/P: 115 VAC O/P:TESTING Ta:25°C	140 %/ 230 VAC 140 %/ 115 VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 55.2 V~ 64.8 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	62.3 V/ 230 VAC 62.3 V/ 115 VAC Shunt down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P:FULL LOAD Ta:25°C	NO DAMAGE Hiccup Mode	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT																																																																																
1	TEMPERATURE RISE TEST	MODEL : NES-50-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 29.4 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230VAC O/P: FULL LOAD Ta= 57.9 °C																																																																																			
		<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>P/N</th> <th>ROOM AMBIENT Ta= 29.4 °C</th> <th>HIGH AMBIENT Ta= 57.9 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>LF-133</td><td>50.8°C</td><td>73.2°C</td></tr> <tr><td>2</td><td>BD1</td><td>D3SB60 4A/600V SHI</td><td>62.2°C</td><td>83.4°C</td></tr> <tr><td>3</td><td>C5</td><td>100U/400V CAPX 85°C</td><td>56.8°C</td><td>78.0°C</td></tr> <tr><td>4</td><td>D1</td><td>STTA406 4A/600V ST</td><td>68.2°C</td><td>90.2°C</td></tr> <tr><td>5</td><td>R4</td><td>P6KE150A</td><td>69.1°C</td><td>90.2°C</td></tr> <tr><td>6</td><td>Q1</td><td>K2628 6A/600V</td><td>62.0°C</td><td>86.4°C</td></tr> <tr><td>7</td><td>U1</td><td>1203P</td><td>58.6°C</td><td>81.8°C</td></tr> <tr><td>8</td><td>T1 COIL</td><td>TF-1013</td><td>71.5°C</td><td>93.0°C</td></tr> <tr><td>9</td><td>C36</td><td>100U/35V RUB 105°C YXF</td><td>52.6°C</td><td>76.7°C</td></tr> <tr><td>10</td><td>D100</td><td>BYQ28X-200 10A/200V PH</td><td>53.0°C</td><td>76.8°C</td></tr> <tr><td>11</td><td>C105</td><td>330U/35V CAPX 105°C GL</td><td>52.7°C</td><td>76.1°C</td></tr> <tr><td>12</td><td>R105</td><td>1.2KΩ/2W R/MO</td><td>58.2°C</td><td>83.6°C</td></tr> <tr><td>13</td><td></td><td></td><td>°C</td><td>°C</td></tr> <tr><td>14</td><td></td><td></td><td>°C</td><td>°C</td></tr> <tr><td>15</td><td></td><td></td><td>°C</td><td>°C</td></tr> </tbody> </table>	NO	Position	P/N	ROOM AMBIENT Ta= 29.4 °C	HIGH AMBIENT Ta= 57.9 °C	1	LF1	LF-133	50.8°C	73.2°C	2	BD1	D3SB60 4A/600V SHI	62.2°C	83.4°C	3	C5	100U/400V CAPX 85°C	56.8°C	78.0°C	4	D1	STTA406 4A/600V ST	68.2°C	90.2°C	5	R4	P6KE150A	69.1°C	90.2°C	6	Q1	K2628 6A/600V	62.0°C	86.4°C	7	U1	1203P	58.6°C	81.8°C	8	T1 COIL	TF-1013	71.5°C	93.0°C	9	C36	100U/35V RUB 105°C YXF	52.6°C	76.7°C	10	D100	BYQ28X-200 10A/200V PH	53.0°C	76.8°C	11	C105	330U/35V CAPX 105°C GL	52.7°C	76.1°C	12	R105	1.2KΩ/2W R/MO	58.2°C	83.6°C	13			°C	°C	14			°C	°C	15			°C	°C			P
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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	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	± 0.03 %(0-45°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 %(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: 4.06 mA I/P-FG: 3.24 mA O/P-FG: 2.51 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: 12 GΩ I/P-FG: 10 GΩ O/P-FG: 14 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	5 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO : E183223			P

### E.M.C TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25°C	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25°C	PASS Test by certified Lab	P
4	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	P
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
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	P
7	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	SUPPOSE C105 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 276695 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 69676 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 374.2 HRS			P

### COMPONENT STRESS TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor ( D to S) or (C to E) <b>Peak Voltage</b>	Q 1 Rated K2545 : 600V 6 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) 520 V (2) 526 V (3) 544 V	P
2	Diode Peak <b>Voltage</b>	D100 Rated FCF10A40 : 400V 10A	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 149 V (2) 164 V (3) 143 V	P
3	Clamp Diode Peak <b>Voltage</b>	D1 Rated STTA406 : 600 V 4A	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 504 V (2) 504 V	P
4	<b>Input Capacitor Voltage</b>	C5 Rated : 100u /400V/ 85°C	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 (4)Burn in 1hour Ta:25°C	(1) 380 V (2) 380 V (3) 380 V (4) 376 V	P
5	<b>Control IC Voltage Test</b>	U1 Rated 1203 : 18V	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) 13.3 V (2) 13.3 V (3) 12.2 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2005/3/21	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2005/7/8	PRODUCT SAMPLE	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023