

**MODEL : NES-150-24**

**OUTPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 120 mVp-p (Max)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	V1: 28 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 22.8 V- 27.6 V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25°C	29.54V- 22.12 V/ 230VAC 29.55V- 22.12 V/ 115VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: -1 %- 1 % (Max)	I/P: 200 VAC / 264 VAC O/P:FULL/ 0 % LOAD Ta:25°C	V1:-0.03 %- 0.07 %	P
4	LINE REGULATION	V1:-0.5 %- 0.5 % (Max)	I/P: 200 VAC ~ 264 VAC O/P:FULL LOAD Ta:25°C	V1: 0 %- 0 %	P
5	LOAD REGULATION	V1: -0.5 %- 0.5 % (Max)	I/P:230 VAC O/P:FULL -MIN LOAD Ta:25°C	V1: -0.02 %- 0.02 %	P
6	SET UP TIME	230 VAC/800 ms (Max) 115 VAC/1200 ms (Max)	I/P:230 VAC I/P:115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 343.051 ms 115VAC/ 350.218 ms	P
7	RISE TIME	230 VAC/20 ms (Max) 115 VAC/30 ms (Max)	I/P:230 VAC I/P:115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 4.948 ms 115VAC/ 4.949 ms	P
8	HOLD UP TIME	230 VAC/ 24 ms(TYP) 115 VAC/ 20 ms(TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	230VAC/ 25.194 ms 115VAC/ 21.956 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: 0.42 %	P
10	DYNAMIC LOAD	V1: 2400 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	672 mVp-p	P

**INPUT FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDCT
1	INPUT VOLTAGE RANGE	180VAC~ 264 VAC	I/P:TESTING O/P:FULL LOAD Ta:25°C	150.062 V~ 264 V	P
			I/P: LOW-LINE-3V= 177 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	47 HZ ~ 63 HZ NO DAMAGE OSC	I/P: 200 VAC ~ 264 VAC O/P:FULL-MIN LOAD Ta:25°C	TEST: OK	P
3	EFFICIENCY	86 % (TYP)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	86.07 %	P
4	INPUT CURRENT	230 V/ 2 A (TYP) 115 V/ 3 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25°C	I = 1.5097 A/ 230 VAC I = 2.423A/ 115 VAC	P
5	INRUSH CURRENT	230 V/ 45 A(TYP) COLD START	I/P:230 VAC O/P:FULL LOAD Ta:25°C	I = 39.617 A/ 230 VAC	P
6	LEAKAGE CURRENT	< 2 mA/ 240 VAC	I/P:264 VAC O/P:Min LOAD Ta:25°C	L-FG: 1.35 mA N-FG: 1.05 mA	P

**PROTECTION FUNCTION TEST**

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	110 %~ 150 %	I/P:230 VAC O/P:TESTING Ta:25°C	129.27%/230VAC Hiccup Mode	P
2	OVER VOLTAGE PROTECTION	CH1: 27.6V~ 32.4 V	I/P: 230 VAC O/P:MIN LOAD Ta:25°C	29.7 V/ 230 VAC Hiccup Model	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	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	TEMPERATURE RISE TEST	MODEL : NES-150-24 1. ROOM AMBIENT BURN-IN : 1.5 HRS I/P: 230 VAC O/P: FULL LOAD Ta= 33.5 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P: 230 VAC O/P: FULL LOAD Ta= 43.8°C			P
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 230 VAC O/P: 117%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= -25 °C	TEST : OK	P
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45 °C NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 45 °C HUMIDITY= 95 %R.H	TEST : OK	P
5	TEMPERATURE COEFFICIENT	± 0.03 % (0-50°C)	I/P: 230 VAC O/P:FULL LOAD	± 0.01 % (0-50°C)	P
6	VIBRATION TEST	1 Set (1) Waveform: Sine Wave (2) Frequency:10-500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:5G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25°C		TEST : OK	P

**SAFETY TEST**

NO	TEST ITEM	SPECIFICATION	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: 7.58 mA I/P-FG: 6.48 mA O/P-FG: 7.35 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: 11.1 G Ω I/P-FG: 4.75G Ω O/P-FG: 4.91G Ω NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta:25°C	8 mΩ	P
4	APPROVAL	TUV: Certificate NO : UL: File NO :			

**E.M.C TEST**

NO	TEST ITEM	SPECIFICATION	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 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 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25°C	CRITERIA A	P
6	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
7	Test by certified Lab & Test Report Prepare				



## M.T.B.F &amp; LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	SUPPOSE C66 IS THE MOST CRITICAL COMPONENT I/P: 230 VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 199209 HRS I/P: 230 VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 48076 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 244K 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>	Q1 Rated 2SK2082 : 900V/ 9 A	I/P:High-Line +3V =267 V O/P: (1)Full Load Input on/off (2)Output Short Ta:25°C	(1) 720 V (2) 788 V	P
2	Diode Peak <b>Voltage</b>	D60 Rated S20LC20U : 200V/ 20 A	I/P:High-Line +3V =267 V O/P: (1)Full Load Input on/off (2)Output Short Ta:25°C	(1) 116 V (2) 116 V	P
3	Clamp Diode Peak <b>Voltage</b>	D1 Rated byv26e:1K V/ 1 A	I/P:High-Line +3V =267 V O/P: (1) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 700 V	P
4	<b>Input Capacitor Voltage</b>	C5 Rated CAPXON: 330u /200 V 105°C /HP Series	I/P:High-Line +3V =267 V O/P: (1)Full Load input on /Off (2) Min load input on /Off (3)Burn-IN 1 Hour Ta:25°C	(1) 186 V (2) 187 V (3) 184 V	P
5	<b>Control IC Voltage Test</b>	U1 Rated NCP1216A : 16 V	I/P:High-Line +3V =267 V O/P: (1) Output Short (2) O.L.P (3)ON LOAD VR 下限.LOW LINE Ta:25°C	(1) 12.7 V (2) 13.2 V (3) 12.7 V (4) 11.2 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/4/19	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023