



MODEL : NSD15-12D5

## OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 100 mVp-p (Max) V2: 100 mVp-p (Max)	I/P: 12VDC O/P:FULL LOAD Ta:25°C	V1: 10 mVp-p (Max) V2: 10 mVp-p (Max)	P
2	OUTPUT VOLTAGE TOLERANCE	V1: 3 %- -3 % (Max) V2: 3 %- -3 % (Max)	I/P: 9.4VDC / 36VDC O/P:FULL/ 10% LOAD Ta:25°C	V1: 1.5 %- -1.5 % V2: 1.5 %- -1.5 %	P
3	LINE REGULATION	V1: 1%- -1 % (Max) V2: 1%- -1% (Max)	I/P: 9.4VDC ~ 36VDC O/P:FULL LOAD Ta:25°C	V1: 0 %- 0 % V2: 0.12 %- -0.12 %	P
4	LOAD REGULATION	V1: 2 %- -2 % (Max) V2: 2 %- -2 % (Max)	I/P: 12VDC O/P:FULL ~10% LOAD Ta:25°C	V1: 0.12 %- -0.12 % V2: 0.12 %- -0.12 %	P
5	CROSS REGULATION	V1: 2 %- -2 % (Max) V2: 2 %- -2 % (Max)	I/P: 12V VDC O/P: Testing O/P 60%LOAD Other O/P 40%LOAD Change Ta:25°C	V1: 1.2 %- -1.2 % V2: 1.2 %- -1.2 %	P
6	OVER/UNDERSHOOT TEST	< ±5%	I/P: 12 VDC O/P:FULL LOAD Ta:25°C	TEST: < 5%	P
7	DYNAMIC LOAD	V1: 1000 mVp-p	I/P: 12VDC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25°C	202 mVp-p	P

## INPUT FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	9.4VDC~ 36 VDC	I/P:TESTING O/P:FULL LOAD Ta:25°C	7.1 V~36 V	P
			I/P: LOW-LINE-0.2V= 9.2 V HIGH-LINE+5%= 37.8 V O/P:FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN ( AC POWER ON/OFF NO DAMAGE )	TEST: OK	
2	EFFICIENCY	76 % (TYP)	I/P: 12 VDC O/P:FULL LOAD Ta:25°C	77.4 %	P
3	INPUT CURRENT	12 VDC/ 1.8A(TYP)	I/P: 12 VDC O/P:FULL LOAD Ta:25°C	I = 1.6 A	P
4	SHUTDOWN IDLE CURRENT	20 mA / 12VDC	I/P: 12 VDC O/P:FULL LOAD Ta:25°C	17.3 mA / 12VDC	P

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	Above 105%	I/P: 12VDC O/P: TESTING Ta: 25°C	160% / 12V Over power Limiting, recovers automatically after fault condition is removed	P
2	OVER VOLTAGE PROTECTION	CH1: 7.25 V~ 9V CH2: -7.25 V~ -9V	I/P: DC SOURCE O/P: MIN LOAD Ta: 25°C	7.7V / CH1 / 0.05A 7.7V / CH2 / 0.05A Recovers automatically after fault condition is removed	P
4	SHORT PROTECTION	SHORT EVERY OUTPUT 60 SECOND NO DAMAGE	I/P: 36 VDC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Constant Current Limiting	P

### CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	REMOTE CONTROL	Logic "1" OPEN : ON Logic "0" GON : OFF	I/P: 12VDC O/P: FULL LOAD Ta: 25°C	Logic "1" : POWER ON Logic "0" : POWER OFF	P

## ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																												
1	TEMPERATURE RISE TEST	MODEL : NSD15-12D5 1. ROOM AMBIENT BURN-IN : 1 HRS I/P: 12 VDC O/P: FULL LOAD Ta=28.2°C 2. HIGH AMBIENT BURN-IN : 1HRS I/P: 12 VDC O/P: FULL LOAD Ta= 59.1°C			P																																																												
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P: 12VDC O/P: 120 % LOAD Ta:25°C	TEST : OK	P																																																												
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 12 VDC 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 60 °C NO DAMAGE	I/P: 39 VDC O/P:FULL LOAD Ta= 60°C HUMIDITY= 95 %R.H	TEST : OK	P																																																												
5	TEMPERATURE COEFFICIENT	± 0.03 %(0~60°C)	I/P: 12 VDC O/P:FULL LOAD	± 0.001 %(0~60°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	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 1.5KVDC/min	I/P-O/P: 1.8KVDC/min Ta:25°C	I/P-O/P: 0.002 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25°C / 70% RH	I/P-O/P: 500MΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : UL: File NO : E183223			P



## E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RADIATION	EN55022 CLASS B	I/P: 12VDC O/P: FULL LOAD Ta: 25°C	PASS Test by certified Lab	P
2	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR: 8KV / Contact: 4KV	I/P: 12 VDC O/P: FULL LOAD Ta: 25°C	CRITERIA A	P
3	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 1KV	I/P: 12 VDC 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	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE: 1673.1K HRS			P

## COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) <b>Peak Voltage</b>	Q2 Rated CUE1012 : 120 V 10 A	I/P: High-Line +3V = 39 V O/P: (1) Full Load Turn on (2) Output Short Ta: 25°C	(1) 78 V (2) 90 V	P
2	Diode <b>Peak Voltage</b>	D100 Rated MBRD660CT 6A/60V  D200 Rated MBRD660CT 6A/60V	I/P: High-Line +3V = 39 V O/P: (1) Full Load Turn on (2) Output Short Ta: 25°C	(1) 33 V (2) 41 V  (1) V (2) V	P
3	<b>Input Capacitor Voltage</b>	C5 Rated : 105 / 50V	I/P: High-Line +3V = 39 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) 39 V (2) 39 V (3) 39 V	P
4	<b>Control IC Voltage Test</b>	U1 Rated TL3843D : 20 V	I/P: High-Line +3V = 39 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) 12.1 V (2) 10.6 V (3) 12.1 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2007/2/16	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/5/7	PRODUCT SAMPLE W0703C68	PASS	VINCENT TSENG	MAX LIN
2007/6/4	PRODUCT SAMPLE W0705D13	PASS	VINCENT TSENG	MAX LIN

2003/12/12 A50-F023