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SPECIFICATION

FSP150-50TNF

JAN 21,2008
REV:01

MODEL: FSP150-50TNF

Revision History

Rev	Description	Date	Author
1.0		2008/01/21	

1. GENERAL DESCRIPTION AND SCOPE

This is the specification of Model FSP150-50TNF; AC-line powered switching power supply with active PFC (Power Factor Correction) circuit, meet EN61000-3-2 and with Full Range Input features.

The specification below is intended to describe as detailedly as possible the functions and performance of the subject power supply. Any comment or additional requirements to this specification from our customers will be highly appreciated and treated as a new target for us to approach.

2. REFERENCE DOCUMENTS

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

2.1 EMI REGULATORY

- FCC Part 15 Subpart J, Class 'B' 115 Vac operation.
- CISPR 22 Class 'B' 230 Vac operation.

2.2 SAFETY

- NEMKO EN 60950
- TUV EN60950 OR VDE EN60950
  - CSA-C22.2 NO. 60950
  - IEC 60950
- UL 60950
  - CE :

EN 55022:1998+A1: 2000, Class B
EN 61000-3-2: 2000
EN 61000-3-3: 1995+A1: 2001

CISPR22: 1997+A1: 2000, Class B
AS/NZS CISPR 22: 2002, Class B

3. INPUT ELECTRICAL SPECIFICATIONS

3.1. AC INPUT

Parameter Min.		Nom.(1) Max.		Unit
V_{in} (1 15VAC)	90 1	15	132	VAC_{rms}
V_{in} (230V AC)	180 230 264			VAC_{rms}
V_{in} Frequency	47 -- 63			HZ

◆ Nominal voltages for test purposes are considered to be within ±1.0V of nominal.

3.2. INRUSH CURRENT

(Cold start – 25 deg. C)

115V	No damage
230V	No damage

Maximum inrush current from power-on (with power on at any point on the AC sine) and including, but not limited to, three line cycles, shall be limited to a level below the surge rating of the input line cord, AC switch if present, bridge rectifier, fuse, and EMI filter components. Repetitive ON/OFF cycling of the AC input voltage should not damage the power supply or cause the input fuse to blow.

3.3. INPUT LINE CURRENT

115V	2.5Amps – rms maximum
230V	1.5Amps – rms maximum

3.4. EFFICIENCY

3.4.1 **General**

Under the load conditions defined in Table 1 and Table 2. The loading condition for testing efficiency shown in Table 1 represents a fully loaded system. a ~ 50% (typical) loaded system. and a ~ 20% (light) loaded system. When test the light load efficiency, the power supply need to be burned 10 minutes and also need to wait the fan to stop.

Table. 1 Loading Table for Efficiency Measurements

150W(loading shown in Amps)					
Loading	+12V	+5V	+3.3V	-12V	+5Vsb
Full 8		5.3	5.5 0.3		1.0
Typical 4		2.4	2.4	0.2	1.0
Light 1.7		0.6	0.6	0.1	1.0

Table 2. Minimum Efficiency Vs Load

Loading	Voltage	Full load	Typical load	Light load
Required Minimum Efficiency 1	15V	80%	80%	72%
Required Minimum Efficiency 2	30V	81%	81%	73%

3.5 MECHANICAL SPECIFICATIONS

The mechanical drawing of the subject power supply, which indicate the form factor, location of the mounting holes, location, the length of the connectors, and other physical specifications of the subject power supply. Please refer to the attachment drawing.

4.0. OUTPUT ELECTRICAL REQUIREMENTS

4.1 OUTPUT VOLTAGE AND CURRENT RATING

Output	MINIMUM LOAD	NORMAL LOAD	MAXIMUM LOAD	PEAK LOAD	LOAD REG	LINE REG.	RIPPLE&NOISE
+3.3V 0.	5A	3A	6.0A		±5%	±1%	60mV P-P
+5V 0.	3A	3A	6.0A		±5%	±1%	60mV P-P
+12V 0.	5A	4A	8A		±5%	±1%	130mV P-P
-12V 0.	0A	0.1A	0.3A		±10%	±1%	130mV P-P
+5VSB 0.	0A	1.0A	1.5A 2A		±5%	±1%	60mV P-P

(1) total output for this subject power supply is 150 watts

+3.3V & +5V Total output not exceed 48w

+3.3V & +5V & +12V Total output not exceed 140w

4.2. HOLD-UP TIME (@FULL LOAD)

115V / 60Hz : 17 mSec. Minimum.
230V / 50Hz : 17 mSec. Minimum.

The output voltage will remain within specification, in the event that the input power is removed or interrupted, for the duration of one cycle of the input frequency. The interruption may occur at any point in the AC voltage cycle. The power good signal shall remain high during this test.

4.3.OUTPUT RISE TIME

(10% TO 95% OF FINAL OUTPUT VALUE, @FULL LOAD)

1 15V-rms or 230V-rms + 3.3Vdc : 20ms Maximum
+ 5Vdc : 20ms Maximum
+ 12Vdc : 20ms Maximum
+ 5Vsb : 25ms Maximum
- 12Vdc : 20ms Maximum

4.4.OVER VOLTAGE PROTECTION

Voltage Source	Protection Point
+3.3V	3.7V-4.5V
+5V	5.5V-7.0V
+12V	13.0V-16.0V

4.5.SHORT CIRCUIT PROTECTION

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.

In the event of an output short circuit condition on +3.3V, +5V , +12V and -12V output, the power supply will shutdown and latch off without damage to the power supply. The power supply shall return to normal operation after the short circuit has been removed and the power switch has been turned off for no more than 2 seconds.

In the event of an output short circuit condition on +5Vsb output, the power supply will not be damaged. The power supply shall return to normal operation as soon as the short circuit has been removed. and the power switch has been turned off for no more than 2 seconds.

4.7. POWER SIGNAL

POWER GOOD @ 115/230V,FULL LOAD	100 –500mSec.
POWER FAIL @115/230V, FULL LOAD	1 mSec. minimum

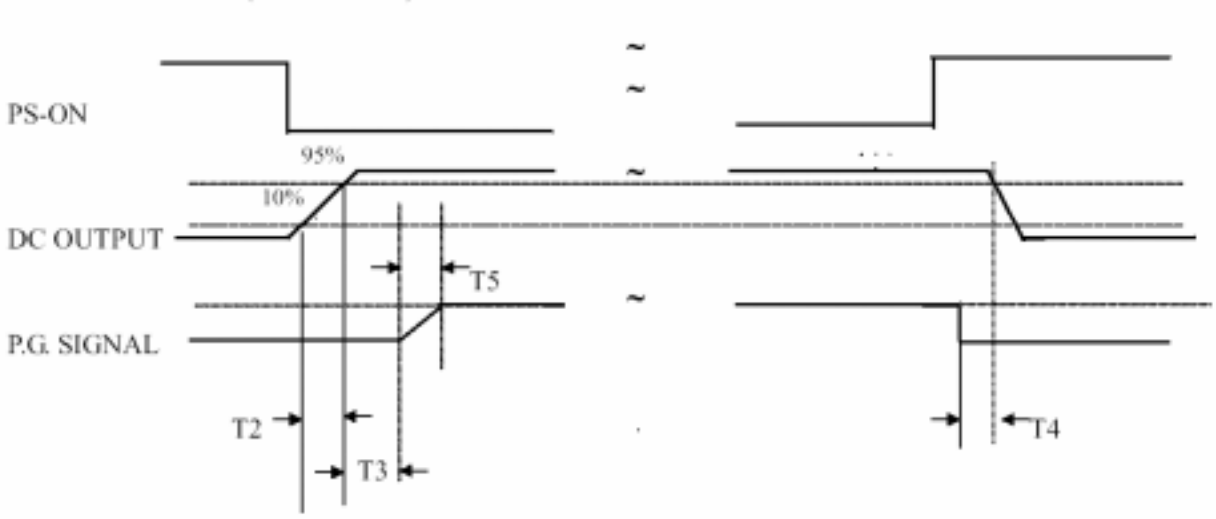

Figure 1

T2 : RISETIME < 20mS

T3 : POWER GOOD DELAY TIME 100mS-500mS

T4 : POWER FAIL DELAY TIME > 1mS

T5 : POWER GOOD RISETIME ≤ 10mS

5.0 ENVIRONMENTAL REQUIREMENTS

The power supply will be compliant with each item in this specification for the following Environmental conditions.

5.1. TEMPERATURE RANGE

Operating	0 to +50 deg. C
Storage	-20 to +80 deg. C

5.2. HUMIDITY

Operating	5 –95% RH, Non-condensing
Storage	5 –95% RH, Non-condensing

5.3. VIBRATION

The subject power supply will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.

Vibration Operating – Sine wave excited, 0.25 G maximum acceleration, 10-250 Hz swept at one octave / min. Fifteen minute dwell at all resonant points, where resonance is defined as those exciting frequencies at which the device under test experiences excursions two times large than non-resonant excursions.

Plane of vibration to be along three mutually perpendicular axes.

5.4 GROUND LEAKAGE CURRENT

The power supply groud leakage current shall be less than 3.5 mA.

5.5 RELIABILITY

The power supply reliability,when calculated by MIL-HDBK-217;latest revision, are exceed XX0,000 hours with all output at maximum load and an ambient temperature of 25℃.

5.6 DIELECTRIC STRENGTH

Primary to Frame Ground : 1800 Vac for 1 sec.
Primary to Secondary : 1800Vac for 1 sec

5.7 INSULATION RESISTANCE

Primary to Frame Ground : 20 Meg ohms Minimum
Primary to Secondary : 20 Meg ohms Minimum

6.0. LABELLING

Label marking will be permanent, legible and complied with all agency requirements.

6.1. MODEL NUMBER LABEL

Labels will be affixed to the sides of the power supply showing the following:

- Manufacturer’s name and logo.
- Model no., serial no., revision level, location of manufacturer.
- The total power output and the maximum load for each output.
- AC input rating.