

電氣規格書



ESD-00000122

FSP300-50HMN



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SPECIFICATION

FSP300-50HMN

9PA300DM06

Main Feature:
Low Noise
Active PFC Circuit
Meet 2013 ErP
ATX2.3 Version

APR . 14, 2017
REV: 1.00



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MODEL: FSP300-50HMN

Revision History

<u>Rev</u>	<u>Description</u>	<u>Date</u>	<u>Author</u>
1.00		2017/04/14	

1. GENERAL DESCRIPTION AND SCOPE

This is the specification of Model FSP300-50HMN; AC-line powered switching power supply with active PFC (Power Factor Correction) circuit, meet EN61000-3-2. Also, +5Vsb power is less than $0.5W_{input}$ at power off mode (PS_ON input at high state) which is comply with ErP Lot 6 year 2013 requirement.

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

2.2. SAFETY

3. INPUT ELECTRICAL SPECIFICATIONS

3.1. AC INPUT

Parameter	Min.	Nom. ⁽¹⁾	Max.	Unit
V _{in} (230VAC)	207	230	265	VAC _{rms}
V _{in} Frequency	47	--	53	HZ

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

3.2. INRUSH CURRENT

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 & POWER FACTOR (P.F.)

AC input	Input line current	P.F.@ Full Load	P.F.@ Pin=75W
230V	< 2.0Amps – rms	> 0.9	> 0.65

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 ~ 50-60% (typical) loaded system, and a ~ 20-30% (light) loaded system.

Table 1. Loading Table for Efficiency Measurements

300W(loading shown in Amps)					
Loading	+12V	+5V	+3.3V	-12V	+5Vsb
Full	16.6	9.3	13	0.3	1.7
Typical	8.3	4.7	6.5	0.1	0.9
Light	3.3	1.9	2.6	0.1	0.3

Table 2. Minimum Efficiency Vs Load

Loading	Voltage	Full load	Typical load	Light load
Required Minimum Efficiency	230V	75%	75%	70%

3.4.2 Standby Power Consumption (+5Vsb):

Input Power < 0.5W @ 5Vsb/45mA & 230Vac input

PS_ON input signal @ High State

4. 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	0.1A	10.5A	21A		±5%	±1%	70mV P-P
+5V	0.2A	7.5A	15A		±5%	±1%	70mV P-P
+12V	0.6A	9.5A	19A	23A	±5%	±1%	140mV P-P
-12V	0A	0.15A	0.3A		±10%	±1%	140mV P-P
+5VSB	0A	1.25A	2.5A	3A	±5%	±1%	70mV P-P

(1.) +3.3V & +5V total output not exceed 103W.

(2.) Total output for this subject power supply is 300 watts

(3.) +12V Peak current is 23A (less than 10m Sec.) , minimum voltage during peak is >11.0Vdc.

(4.) 5Vsb peak current is 3.0A(less than 500m Sec.), minimum voltage during peak is > 4.5Vdc.

(5.) Voltages and ripple are measured at the load side of mating connectors with a 0.1 uF monolithic ceramic capacitor paralleled by a 10 uF electrolytic capacitor across the measuring terminals.

4.2. LOAD CAPACITY SPECIFICATIONS

The cross regulation defined as follows, the voltage regulation limits DC include DC Output ripple & noise.

LOAD	+3.3V	+5V	+12V	-12V	+5VSB
Condition_1	X	X	X	X	2.5
Condition_2	0.1	1.5	0.6	0	0
Condition_3	1.4	0.2	1	0.3	0
Condition_4	0.1	3.1	8	0	0
Condition_5	8.1	8	19	0	1
Condition_6	21	6.7	5.8	0	0
Condition_7	8.5	15	5.8	0	2.5
Condition_8	8.5	15	15	0.3	2.5
Condition_9	21	5.2	16	0	2.5

4.3. HOLD-UP TIME(@80% Full Load of Table 1.)

230V / 50Hz : 10 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.

4.4. OUTPUT RISE TIME

(10% TO 90% OF FINAL OUTPUT VALUE, @FULL LOAD of Table 1.)

115V-rms or 230V-rms + 3.3Vdc : 20ms Maximum
 + 5Vdc : 20ms Maximum
 + 12Vdc : 20ms Maximum
 + 5Vsb : 20ms Maximum
 - 12Vdc : 20ms Maximum

4.5. OVER VOLTAGE PROTECTION

Voltage Source	Protection Point
+3.3V	3.76V-4.8V
+5V	5.6V-7.0V
+12V	13.0V-16.5V

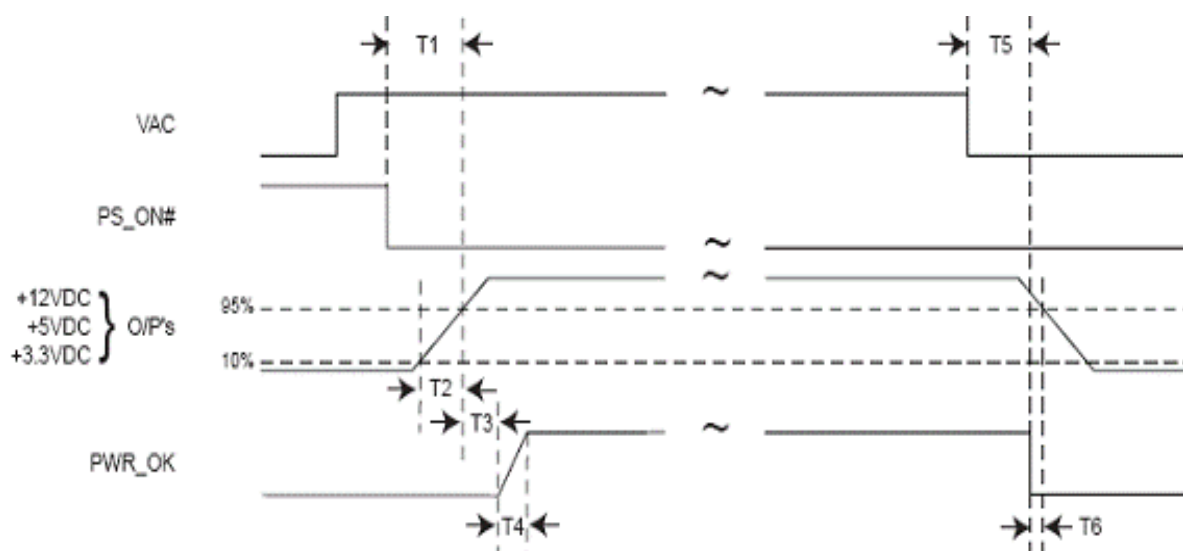
4.6. SHORT CIRCUIT PROTECTION

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,-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.

4.7. POWER SIGNAL

POWER GOOD @230V, FULL LOAD	100 –500m Sec.
POWER FAIL @230V, FULL LOAD	1m Sec. minimum



T1: Power-on time shall be less than 500 ms ($T1 < 500$ ms).

T2: Rise time : 0.1 ms to 20 ms ($0.1 \text{ ms} \leq T2 \leq 20$ ms).

T3: Power-ok delay time: $100 \text{ ms} < T3 < 500$ ms

T4: Power-ok rise time: $T4 \leq 1$ ms

T5 + T6: AC loss to PWR_OK hold-up time : $T5 + T6 \geq 10$ ms

4.8. The main power supply shall be off when the PS_ON pin is floating (open collector). The ON/STBY pin of P1 must remain off state for 5 Sec (maximum) prior to switching to the ON state.

5. FAN NOISE REQUIREMENTS

5.1. The subject power supply is cooled by a self-contained, 120mm, 12VDC fan.

5.2. FAN NOISE

AC INPUT	FULL (Table 1.)	TYPICAL (Table 1.)	LIGHT (Table 1.)
230V	NOISE \leq 35dB	NOISE \leq 30dB	NOISE \leq 25dB

6. ENVIRONMENTAL REQUIREMENTS

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

6.1. TEMPERATURE RANGE

Operating	+10 to +40 deg. C
Storage	-20 to +80 deg. C

The maximum continuous power rating of supply is 300W at 25°C.

De-rate 2W/°C from 25°C to 40°C.

The maximum continuous power rating of supply is 270W at 40°C.

6.2. HUMIDITY

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

6.3. 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.

6.4. GROUND LEAKAGE CURRENT

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

6.5. RELIABILITY

The power supply reliability, when calculated by MIL-HDBK-217; latest revision, are exceed 100,000 hours with all output at typical load and an ambient temperature of 25°C.

6.6. DIELECTRIC STRENGTH

Primary to Frame Ground : 1800 Vac for 1 sec.

Primary to Secondary : 1800 Vac for 1 sec

6.7. INSULATION RESISTANCE

Primary to Frame Ground : 20 Meg. ohms Minimum

Primary to Secondary : 20 Meg. ohms Minimum

7. LABELLING

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

7.1. 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.

8. 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.