# CASING MACRON TECHNOLOGY CO., LTD

SPECIFICATIONS FOR 150W FLEX ATX SWITCHING POWERSUPPLIES

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MODEL: MPT-F150 DATE: 2009/03/06

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## GENERAL REQUIRMENTS

This specification describes the requirements of 150 watts switching power supply. With 5V stand-by remote ON/OFF control for Flex ATX V1.01 form factor system.

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## 1. INPUT

| | | |
|---|---|---|
| 1-1 | AC INPUT VOLTAGE | 100V TO 132V OR 200 TO 240 VAC |
| 1-2 | AC INPUT FREQUENCY | 60/50 HZ |
| 1-3 | AC INPUT CURRENT | 4A RMS MAX. FOR 115 VAC<br>2A RMS MAX. FOR 230 VAC |
| 1-4 | MAXIMUM INRUSH CURRENT | 80A FOR 230 VAC COLD START<br>40A FOR 115 VAC COLD START |

## 2. OUTPUT

| | | OUTPUT 1 | OUTPUT 2 | OUTPUT 3 | OUTPUT 4 | OUTPUT 5 |
|---|---|---|---|---|---|---|
| 2-1 | VOLTAGE | +5V DC | +12V DC | -12V DC | +3.3V DC | +5V SB |
| 2-2 | RIPPLE & NOISE | 50mV | 120mV | 120mV | 50mV | 50mV |
| 2-3 | LINE REGULATION | ±1% | ±1% | ±1% | ±1% | ±1% |
| 2-4 | TOLERANCE | ±5% | ±5% | ±10% | ±5% | ±5% |
| 2-5 | OUTPUT VOLTAGE | 4.75~5.25 | 11.4~12.6 | -10.8~-13.2 | 3.14~3.46 | 4.75~5.25 |
| 2-6 | MAXIMUM CURRENT | 10A | 9A | 0.3A | 10A | 2A |
| 2-7 | MINIMUM CURRENT | 0.2A | 0.6A | 0A | 0.1A | 0A |
| 2-8 | Total combined output of 3.3V and 5V is <= 60W<br>+12V is <= 108W , Max all outputs <=150W | | | | | |

2-9 OUTPUT RIPPLE DEFINITION

The ripple voltage of the output shall be measured at the pins of the output connector when terminated in load impedance specified in Sec 2.

Ripple and noise are measured at the connectors with a 0.1uF ceramic capacitor and a 10 uF electrolytic capacitor to simulate system loading.

## 3. PROTECTION

3-1 SHORT CIRCUIT PROTECTION

The power supply shall shutdown and latch off for shorting

+5V, +12V,+3.3V,-12V rails.

The main output short circuit of any impedance shall less than 0.05 ohms.

3-2 OVER POWER PROTECTION

The power supply will be shutdown and latch off when total power over 110%~150% of rated DC output.

Notes:5VSB will be auto-recovery when the fault removed.

3-3 OVER VOLTAGE PROTECTION

The power supply shall provide latch-mode over voltage protection as define in below

+12V=13.4V~15.6V, +5V=5.7V~7.0V, +3.3V=3.7V~4.3V

3-4 OVER LOAD PROTECTION

There shall be protection from an output over current event. The supply may shutdown form such an event and require power on restart. Testing consists of application of the listed over current value with maximum load on all other outputs.

Over current test values:

+5V : 40A maximum

+12V : 30A maximum

+3.3V : 40A maximum

3-5 NO LOAD OPERATION

No damage or hazardous will occur with any output disconnected from load.

## 4. OVERALL PERFORMANCE

4-1 TOTAL OUTPUT POWER

150W continue maximum at full load.

4-2 EFFICIENCY

72% minimum at normal AC input voltage and full load.

4-3 HOLD UP TIME

17mS at maximum load and normal AC input voltage.

4-4 STABILITY

+-0.5% after 24 hours warm up.

4-5 POWER GOOD

TTL compatible signal out with 100 mS to 500 mS delay after power setup, Power good signal turn to low at least 1 mS before +5V drop below 4.75V.

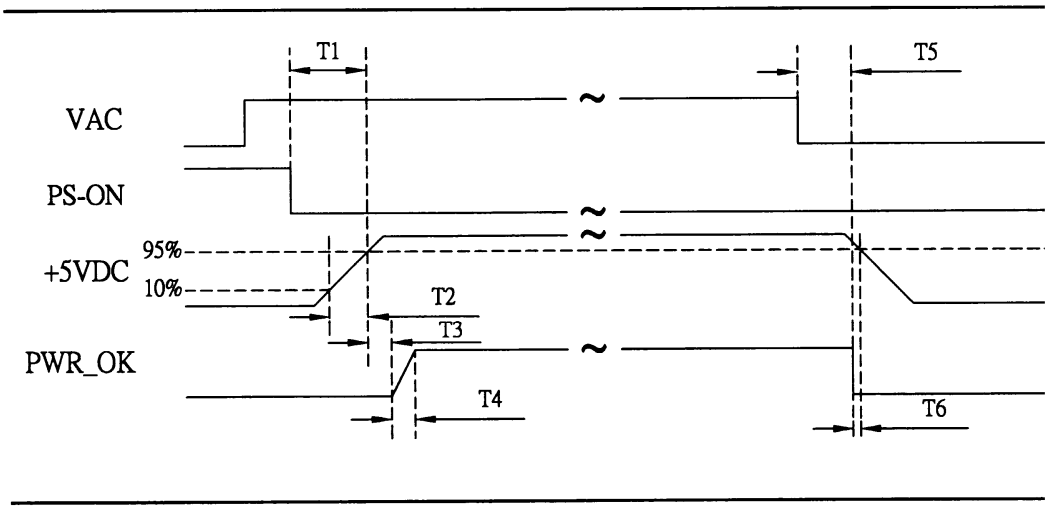
4-6 REMOTE ON/OFF CONTROL

When the logic level “PS-ON” is low, the DC outputs are to be enabled. When the logic level “PS-ON” is high or open collector, the DC outputs are to be disabled.

4-7 OVERSHOOT

Any overshoot at turn on or turn off shall be less 10% of the normal voltage value on all DC outputs.

## 5. TIMING/CONTROL




T1 : POWER ON TIME (T1<500MS)

T2 : RISE TIME(0.1MS<=T2<=20MS)

T3 : PWR_OK DELAY(100MS<T3<500MS)

T4 : PWR_OK RISETIME(T4<=10MS)

T5 : HOLD UP TIME(T5>=17MS)

T6 : POWER DOWN WARNING(T6>=1MS)

## 6. ENVIRONMENTAL CONDITIONS

| | | |
|---|---|---|
| 6-1 | OPERATING TEMPERATURE | 0 TO 40 DEGREE C |
| 6-2 | COOLING | 40mm FAN |
| 6-3 | STORAGE TEMPERATURE | -40℃ TO+ 70℃ |
| 6-4 | STORAGE HUMIDITY | OPERTING TO 85% RELATIVE HUMIDITY NON-OPERATING TO 95% RELATIVE HUMIDITY |
| 6-5 | VIBRATION | 1.0GRMS,IRIENTATION:X,Y,Z(3 AXES) 30 MIN. IN EACH AXIS FREQUENCY:5~500Hz |

## 7. SAFETY STANDARD

7-1 .

7-2

7-3

7-4

## 8. ELECTROMAGNETIC COMPATIBILITY (EMC)

## 9. DIELECTRIC WITHSTAND VOLTAGE

| | | |
|---|---|---|
| 9-1 | INPUT TO GROUND | 1800 VAC 1 min 10 mA |
| 9-2 | INPUT TO OUTPUT | 1800 VAC 1 min 10 mA |

## 10. INSULATION RESISTANCE

| | | |
|---|---|---|
| 10-1 | INPUT TO GROUND | >50 MΩ MINIMUM |
| 10-2 | INPUT TO OUTPUT | >50 MΩ MINIMUM |

## 11. GROUND LEAKAGE CURRENT

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

## 12. RELIABILITY

12-1 MEAN TIME BETWEEN FAILURE:

The demonstrated MTBF shall be 50000 hours of continuous operation at 25 Deg Celsius Ambient.

Full load, 80% confidence limit and normal line. The MTBF of the power supply shall be calculation in accordance with MIL-STD-217D/E. The DC FAN is not included.

# 13. DC OUTPUT WIRE CONFIGURATION

13-1 MAIN POWER CONNECTOR 20+4PIN

| PIN | OUTPUT | COLOR | COLOR | OUTPUT | PIN |
|---|---|---|---|---|---|
| 1 | +3.3VDC | ORANGE | ORANGE | +3.3V DC | 13 |
| 2 | +3.3VDC | ORANGE | BLUE | -12V DC | 14 |
| 3 | COM | BLACK | BLACK | COM | 15 |
| 4 | +5VDC | RED | GREEN | PS-ON | 16 |
| 5 | COM | BLACK | BLACK | COM | 17 |
| 6 | +5VDC | RED | BLACK | COM | 18 |
| 7 | COM | BLACK | BLACK | COM | 19 |
| 8 | POK | GRAY | N.C | --- | 20 |
| 9 | +5Vsb | PURPLE | RED | +5V DC | 21 |
| 10 | +12V1DC | YELLOW | RED | +5V DC | 22 |
| 11 | +12V1DC | YELLOW | RED | +5V DC | 23 |
| 12 | +3.3VDC | ORANGE | BLACK | COM | 24 |

13-2 SERIAL ATA POWER CONNECTOR 5WIRE

| WIRE | OUTPUT | COLOR |
|---|---|---|
| 5 | +3.3VDC | ORANGE |
| 4 | COM | BLACK |
| 3 | +5VDC | RED |
| 2 | COM | BLACK |
| 1 | +12V1DC | YELLOW |

13-3 +12V POWER CONNECTOR (CPU) 4PIN

| PIN | OUTPUT | COLOR | COLOR | OUTPUT | PIN |
|---|---|---|---|---|---|
| 1 | COM | BLACK | YEL/BLK | +12V2 | 3 |
| 2 | COM | BLACK | YEL/BLK | +12V2 | 4 |

13-4 HDD/CD ROM CONNECTOR 4PIN

| PIN | OUTPUT | COLOR |
|---|---|---|
| 1 | +12V1 | YELLOW |
| 2 | COM | BLACK |
| 3 | COM | BLACK |
| 4 | +5V | RED |

13-5 FLOPPY CONNECTOR 4PIN

| PIN | OUTPUT | COLOR |
|---|---|---|
| 1 | +12V1 | YELLOW |
| 2 | COM | BLACK |
| 3 | COM | BLACK |
| 4 | +5V | RED |

# 16. CHASSIS MECHANICAL DIMENSION AND WIRE LENGTH