

# CASING MACRON TECHNOLOGY CO., LTD

## SPECIFICATIONS FOR 250W TFX12V SWITCHING POWERSUPPLIES

---

MODEL: MPT-255AP+

DATE: 2008/11/05

REV: A

CHECK BY: Rocky Lo

### GENERAL REQUIRMENTS

This specification describes the requirements of 250 watts switching power supply.  
With 5V stand-by remote ON/OFF control for TFX12V V2.3 form factor system.  
With Active Power Factor Correction circuit.

TABLE OF CONTENTS	PAGE
1. INPUT REQUIREMENTS	3
1-1 AC INPUT VOLTAGE	
1-2 AC INPUT FREQUENCY	
1-3 AC INPUT CURRENT	
1-4 MAXIMUM INRUSH CURRENT	
2. OUTPUT REQUIREMENTS	3
2-1 VOLTAGE	
2-2 RIPPLE & NOISE	
2-3 LINE REGULATION	
2-4 TOLERANCE	
2-5 OUTPUT VOLTAGE	
2-6 MAXIMUM CURRENT	
2-7 MINIMUM CURRENT	
2-8 +3.3V & +5V,+12V1 & +12V2, MAX WATTS	
2-9 OUTPUT RIPPLE DEFINITION	
3. PROTECTION	3
3-1 SHORT CIRCUIT PROTECTION	
3-2 OVER POWER PROTECTION	
3-3 OVER VOLTAGE PROTECTION	
3-4 OVER LOAD PROTECTION	
3-5 NO LOAD OPERATION	
4. OVERALL PERFORMANCE	4
4-1 TOTAL OUTPUT POWER	

4-2	EFFICIENCY	
4-3	HOLD UP TIME	
4-4	STABILITY	
4-5	POWER GOOD	
4-6	REMOTE ON/OFF CONTROL	
4-7	OVERSHOOT	
5.	TIMING/CONTROL	5
6.	ENVIRONMENTAL CONDITIONS	6
6-1	OPERATING TEMPERATURE	
6-2	COOLING	
6-3	STORAGE TEMPERATURE	
6-4	STORAGE HUMIDITY	
6-5	VIBRATION	
7.	SAFETY STANDARD	6
7-1		
7-2		
7-3		
7-4		
8.	ELECTROMAGNETIC COMPATIBILITY (EMC)	6
9.	DIELECTRIC WITHSTAND VOLTAGE	7
10.	INSULATION RESISTANCE	
11.	GROUND LEAKAGE CURRENT	7
12.	RELIABILITY	7
12-1	MTBF	
13.	DC OUTPUT WIRE CONFIGURATION	8
13-1	MAIN POWER CONNECTOR 20+4PIN	
13-2	SATA CONNECTOR 5PIN	
13-3	+12V POWER CONNECTOR (CPU) 4PIN	
13-4	HDD/CD ROM CONNECTOR 4PIN	
13-5	FLOPPY CONNECTOR 4PIN	
14.	CHASSIS MECHANICAL DIMENSION AND WIRE LENGTH	9

## 1. INPUT

1-1	AC INPUT VOLTAGE	AC 100V~240V
1-2	AC INPUT FREQUENCY	60/50 HZ
1-3	AC INPUT CURRENT	6A RMS MAX, FOR 115 VAC 3A RMS MAX, FOR 230 VAC
1-4	MAXIMUM INRUSH CURRENT	100A FOR 230 VAC COLD START 50A FOR 115 VAC COLD START

## 2. OUTPUT

		OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4	OUTPUT 5	OUTPUT 6
2-1	VOLTAGE	+5V DC	+12V1 DC	+12V2 DC	-12V DC	+3.3V DC	+5V SB
2-2	RIPPLE & NOISE	50mV	120mV	120mV	120mV	50mV	50mV
2-3	LINE REGULATION	±1%	±1%	±1%	±1%	±1%	±1%
2-4	TOLERANCE	±5%	±5%	±5%	±10%	±5%	±5%
2-5	OUTPUT VOLTAGE	4.75~5.25	11.4~12.6	11.4~12.6	-10.8~-13.2	3.14~3.46	4.75~5.25
2-6	MAXIMUM CURRENT	12A	16A	16A	0.3A	16A	2A
2-7	MINIMUM CURRENT	0.2A	0.1A	0.5A	0A	0.1A	0A
2-8	Total combined output of 3.3V and 5V is <= 110W Total combined of +12V1 and +12V2 is <= 216W , Max all outputs <=250W						

### 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 : 48A maximum

+12V1,+12V2 : 20A maximum

+3.3V : 50A 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

250W continue maximum at full load.

### 4-2 EFFICIENCY

80% 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.

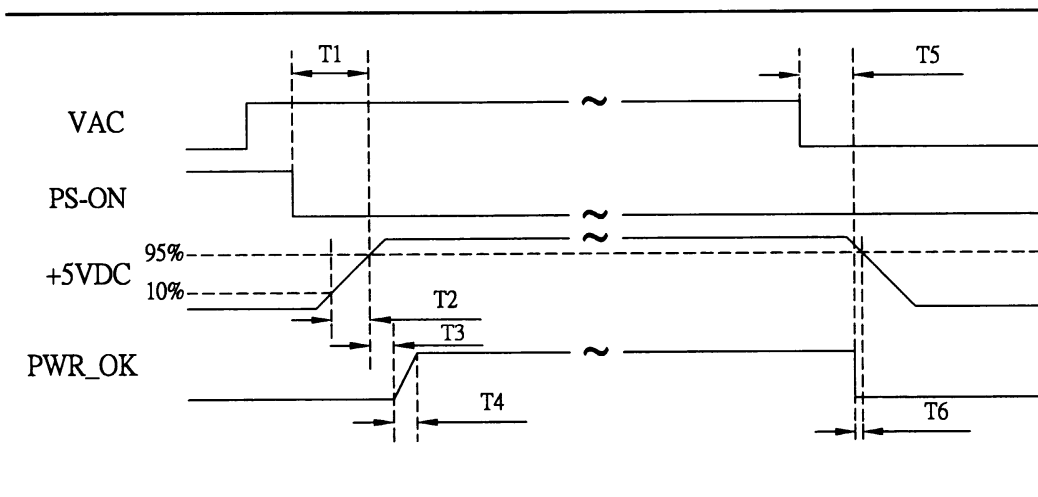
#### 4-6 REMOTE ON/OFF CONTROL

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 ( $0.1MS \leq T2 \leq 20MS$ )
- T3 : PWR\_OK DELAY ( $100MS < T3 < 500MS$ )
- T4 : PWR\_OK RISE TIME ( $T4 \leq 10MS$ )
- T5 : HOLD UP TIME ( $T5 \geq 17MS$ )
- T6 : POWER DOWN WARNING ( $T6 \geq 1MS$ )

## 6. ENVIRONMENTAL CONDITIONS

6-1	OPERATING TEMPERATURE	0 TO 40 DEGREE C
6-2	COOLING	THERMAL CONTROLLED
6-3	STORAGE TEMPERATURE	-40°C TO+ 70°C
6-4	STORAGE HUMIDITY	OPERATING 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 .

7-3

7-4

7-5

## 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 M $\Omega$ MINIMUM
10-2	INPUT TO OUTPUT	>50 M $\Omega$ 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 100000 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

