



**GT-300**  
**300W**  
**Switching Power Supply**  
  
**design specifications**

**Version : 1.0**

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## 1. Input Requirements

### 1-1. Input Voltage

The Power supply must operate at 180-240V input voltage , defined in the following table.

Input Range	180-240VAC
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### 1-2. Frequency

The input frequency range is from 47~63Hz.

### 1-3. Inrush Current

#### 1-3-1. Cold Start

Conditions	Limits
180-240VAC, full load. 25°C ambient.	No component over stress or damage should occur to the power supply. Input fuse shall not blow.

#### 1-3-2. Warm Start

Conditions	Limits
Turn off at 180-260VAC full load for 1 sec then turn on at the peak of the input voltage cycle at 25°C ambient.	No component over stress or damage should occur to the power supply. Input fuse shall not blow.

### 1-4. AC Input Current

AC Input	MAX	Units
230V	6	AMPS

### 1-5. Power Factor for Energy Star ---recommended

INPUT	Output Load Conditions (A)						Power Factor
	+12V1	+12V2	+5V	+3.3V	-12V	+5VSB	
AC230V/50Hz	<i>Typical Load (50%)</i>						≥0.9
INPUT	Output Load Conditions (A)						Power Factor
	+12V1	+12V2	+5V	+3.3V	-12V	+5VSB	
AC230V/50Hz	<i>Full Load (100%)</i>						≥0.9



## 2. Output Requirements

### 2-1. Output Regulations

Output Voltage	MIN	Nominal	MAX	Units
+5V	+4.75	+5.00	+5.25	Volts
+12V	+11.40	+12.00	+12.60	Volts
-12V	-10.80	-12.00	-13.20	Volts
+3.3V	+3.14	+3.30	+3.47	Volts
+5Vsb	+4.75	+5.00	+5.25	Volts

Note : 1). The above voltage range should also include ripple and noise.

2). The output voltage should be measured at the terminals of output connector.

### 2-2. DC Load Requirements

DC Output	+3.3V	+5V	+12V	-12V	+5VSB
Min Load (A)	0.2A	0.2A	0.2A	0.0A	0.0A
Max Load (A)	14.0A	14.0A	20A	0.3A	2.0A
Output Power	46W	70W	240W	3.6W	10W
Total Output Power	300W				

### 2-3. Cross Regulation Load Table : (A)

	+3.3V	+5V	+12V	-12V	+5VSB
Min Load	0.1	0.2	0.2	0	0
+3.3V Load	14.0	2.0	1.0	0	2.0
+12V Load	0.5	0.5	20	0.5	2.0
+5V Load	1.0	14.0	1.0	0	0.1
Typical Load	5.0	5.0	8.5	0.2	1.0
Full Load	10.0	10.0	17.0	0.3	2.0

### 2-4. +5V standby voltage

The +5Vsb is on whenever the AC power is present.



**2-5. DC Output Voltage Ripple and Noise**

Output Voltage	Ripple Max	Noise Max.	Units
+5V	50	150	mV
+12V	80	200	mV
-12V	120	300	mV
+3.3V	100	200	mV
+5Vsb	50	150	mV

Note : The measurements should be made by crossing a 10uF/ tantalum and a 0.1uF/Ceramic capacitors at each output with measuring bandwidth from DC to 20 MHz. If ambient temperature is under 20°C or over 30°C, the AC input should be nominal input.

**2-6. Efficiency for ErP Requirement---recommended**

Test Condition:

- Test the power supply with nominal line voltage and the following loads.
- Measured with the main outputs off (PS\_ON# high state)

Pass Criteria:

- The power supply shall be a minimum percentage efficiency & consumption under specified loading--- ERP LOT6 2014 criteria

Standby power consumption [5Vsb@0.0A&PS/OFF](#),  $P_{in} \leq 0.25W$

**2-7. Efficiency for Energy Star ---recommended**

Test Condition:

- Test the power supply with nominal line voltage and the following loads.
- The full, typical, light load are calculated base the method on document: Generalized Internal Power Supply Efficiency Test Protocol R6.4.2

Pass Criteria:

- The power supply shall be minimum percentage efficiency under specified loading.

RESULT:

INPUT	Output Load Conditions (A)						Efficiency (%)
	+12V1	+12V2	+5V	+3.3V	-12V	+5VSB	
AC230V/50Hz	<i>Typical Load (50%)</i>						<b>≥85</b>
INPUT	Output Load Conditions (A)						Efficiency (%)
	+12V1	+12V2	+5V	+3.3V	-12V	+5VSB	
AC230V/50Hz	<i>Full Load (100%)</i>						<b>≥82</b>

## 2-8. Remote ON/OFF Control

The power supply outputs shall be enabled with an active-low TTL signal.

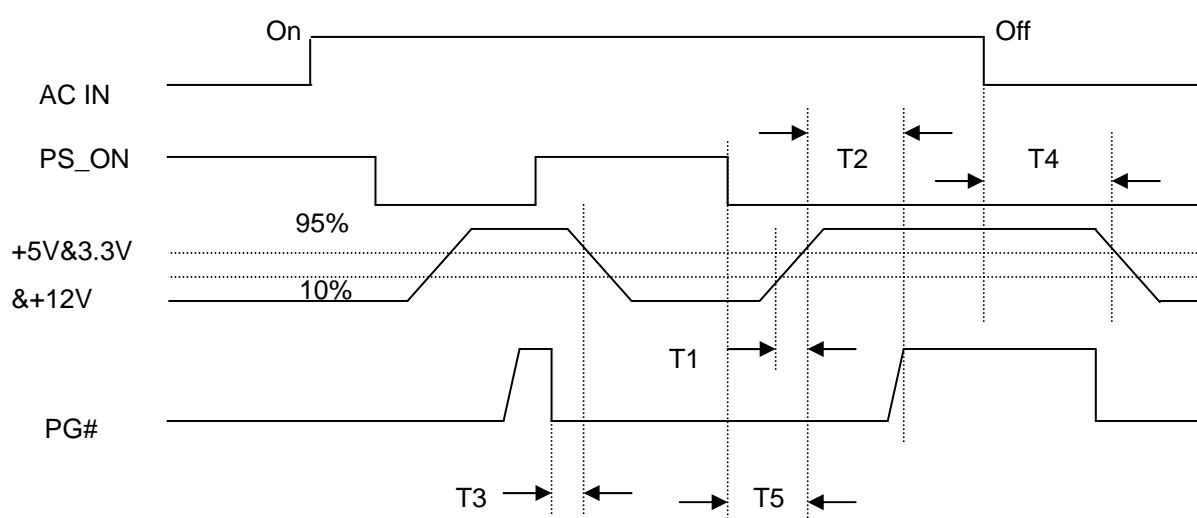
When TTL signal is low, the DC outputs are to be enabled.

When TTL signal is high or open circuited, the DC outputs are to be disabled.

Electronic means or a mechanical switch may activate the TTL signal.

AFTER THE TTL SIGNAL IS ACTIVE HIGH, MUST WAIT FOR 3 SECONDS BEFORE ACTIVE LOW AGAIN..

### 2-8-1. Power Sequence



### 2-9. Rise Time (T1)

MAX.	Units
20	ms

### 2-10. Power Good Signal (T2)

MIN.	MAX.	Units
100	500	ms

The test environment is 25°C condition @ nominal input.



### 2-11. Power Fail Signal (T3)

Power good signal shall go to a down level 1ms before +5V output voltage falls below the regulation limits during PS-ON signal pull high.

MIN.	Units
0.5	ms

### 2-12. Hold Up Time (T4)

MIN.	Units
10	ms

The test environment is 25°C & full load condition @ nominal input.

### 2-13. Turn On Delay Time (T5)

MIN.	MAX	Units
100	1000	ms

## 3. Protections

### 3-1. Short Circuit Protection

A short circuit placed on any output shall cause no damage or the power supply shall shutdown. (The contact resistance is 0.05 ohm when the outputs short circuit.)

### 3-2. Protection Reset

When the power supply latches into shutdown condition due to a fault on an output (OPP, OVP, LVP), the protection shall reset after the fault has been removed, use remote on/off control or recycle the AC power again for a typical of 15 seconds.

### 3-3. Over Shoot

Any output overshoot at turn on shall be less than 15% of the nominal output value (with resistive load).

### 3-4. Over Power Protection

At 100~240Vac input the power supply will shut down all DC output within 120% to 160% of full load.

#### 4. Environment

##### 4-1. Operation/Storage Temperature Range

Operation : 0°C to 40°C

Storage: -40°C to 80°C

Note :25°C full load at 40°C full load 80%

##### 4-2. Humidity (non condensing)

Operation : 20% to 80% RH

Storage : 10% to 95% RH

#### 5. Insulation properties

##### 5.1 Earth Continuity Test

Under DC12V/25A test condition, its resistance number  $\leq 100\text{m}\Omega$ .

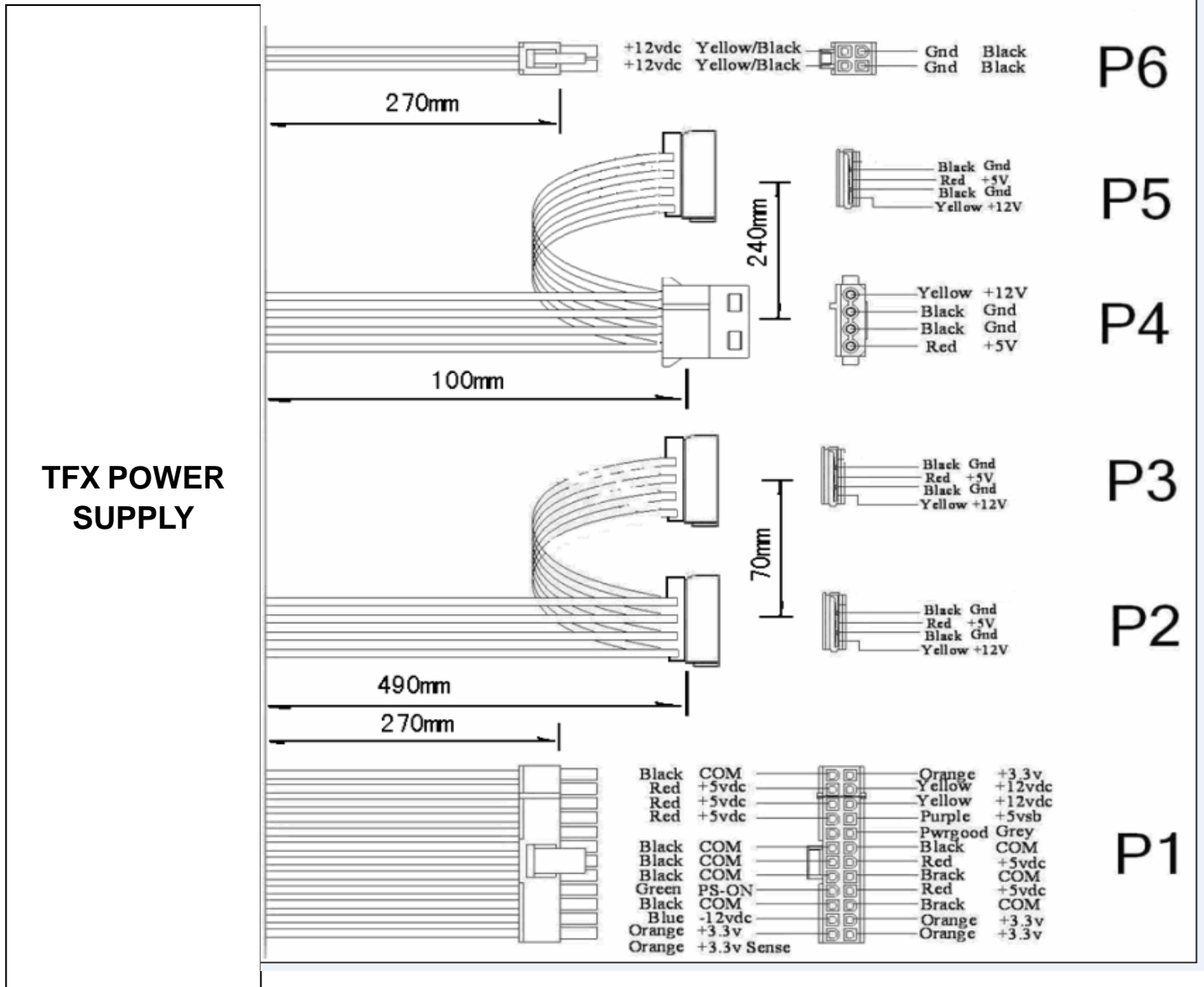
##### 5.2 HI-POT TEST

Input To Output	1500Vac 50Hz 1minute $\leq 10\text{mA}$
Input To FG	1500Vac 50Hz 1minute $\leq 10\text{mA}$
Output To FG	Non Isolated



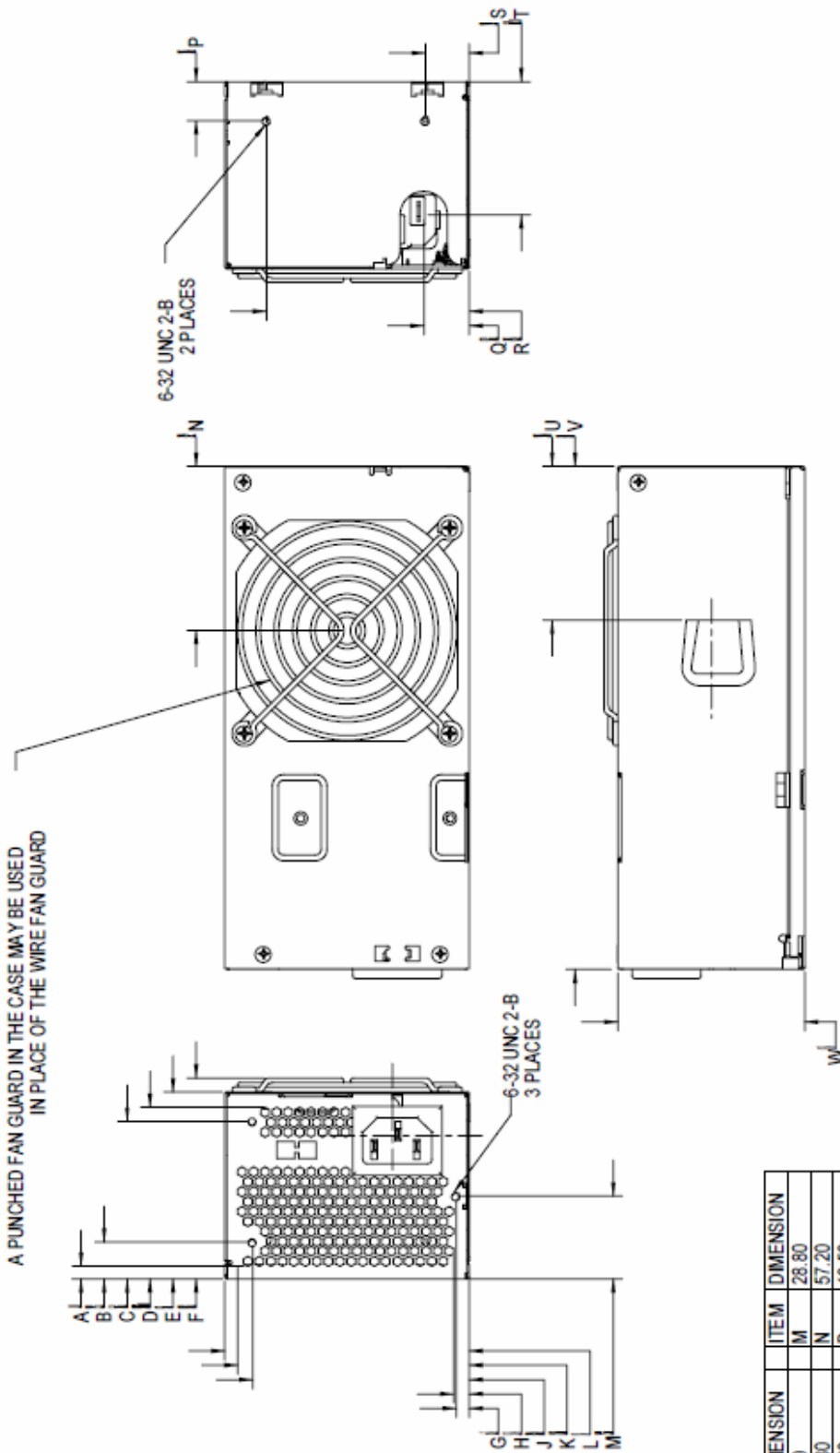
## 6. Physical dimension and connector

### 6-1. Option for wire and connector



**6-2. Physical Dimensions : L175\* W85\*H65 mm**

The shell color for optional SECC and black



ITEM	DIMENSION	ITEM	DIMENSION
A	4.40	M	28.80
B	12.80	N	57.20
C	52.20	P	13.50
D	59.70	Q	15.80
E	65.00	R	70.50
F	70.00	S	14.50
G	5.20	T	46.30
H	5.50	U	53.50
J	75.00	V	175.00
K	80.50	W	65.00
L	85.00		

		200MISSION COLLEGE BLVD. P.O. BOX 58110 SANTA CLARA, CA 95052-8110	
DESIGNED BY	DATE	DEPARTMENT	FILE
DRAWN BY	DATE		
CHECKED BY	DATE		
APPROVED BY	DATE		
MATERIAL	FINISH	FILE DEPARTMENT	REV
SEE NOTES	SEE NOTES	A1	TFX CASE
		SCALE	DO NOT SCALE DRAWING
			SHEET 1 of 2

**TFX**

UNLESS OTHERWISE SPECIFIED  
 ALL DIMENSIONS ARE IN MILLIMETERS  
 DIMENSIONS IN PARENTHESES  
 INDICATE FRACTIONS  
 UNLESS OTHERWISE SPECIFIED  
 THROAT ANGLE PROJECTION