規格書
SPECIFICATION

品名 STYLE NAME：	SWITCHING POWER SUPPLY
型號 MODEL NO.：	P1Q-4130P
料號 PART NO.：	
版次 REVISION：	A3

APPROVE 核准	黃永欣	正式資料用章	
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Revisions

Rev.	Page	Item	Date	Description
A2	7 8	7.1 9.2	MAR-05-2003	Revise temperature Add MTBF
A3	4	3.1	MAR-20-2003	Update Regulation tolerance

MODEL NO. P1Q-4130P

1.0 Scope

This specification defines the performance characteristics of a grounded，single-phase，130watts，6 output level power supply. This specification also defines world wide safety requirements and manufactures process test requirements.

2.0 Input requirements

2.1 Voltage (sinusoidal)

Full range 100 240 VAC (With ± 10% tolerance)

2.2 Frequency

The input frequency range will be 60hz 50hz.

2.3 Steady-state current

4 ~ 2 amps maximum at any low/high range input voltage.

2.4 Inrush current

60/80 amps @110/220 VAC (at 25 degrees ambient cold start)

2.5 Power factor correction

PFC can reach the target of 95% @ 115V,full load, following the standard of IEC 1000-3-2.

3.0 Output requirements

3.1 DC load requirements

Normal	Load current		Regulation tolerance	
Output voltage	Max.	Min	Max.	Min.
+5V	6	1.0	+5%	-5%
+12V	7	1.0	+5%	-6%
+3.3V	5	1.0	+5%	-5%
+5VSB	0.25	0.1	+5%	-5%

+5V and +3.3V total output max：46.5W

+5V， +3.3V and +12V total output max：130.5W

Cross regulation shall include 80% max. Load & 20% max. Load any associate at any output

3.2 Regulation and protection

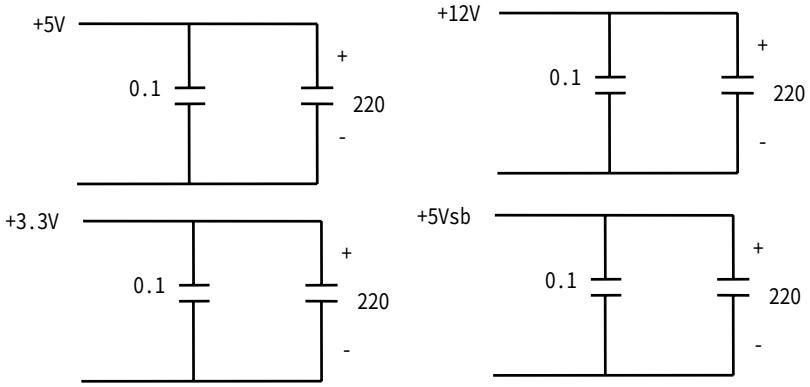
Output DC voltage	Line regulation	Load regulation	Cross regulation
+5V	±50mV	±250mV	±250mV
+12V	±100mV	±600mV	±600mV
+3.3V	±50mV	±165mV	±165mV
+5VSB	±50mV	±250mV	±250mV

3.3 Ripple and noise

3.3.1 Specification

+5V	50mV (P-P) / N=70mV
+12V	120mV (P-P)/ N=120mV
+3.3V	60mV (P-P) / N=70mV
+5VSB	60mV (P-P) / N=70mV

3.3.2 Ripple voltage test circuit



0.1uf is ceramic, the other is tantalum.
Noise bandwidth is from DC to 20Mhz

3.4 Overshoot

Any overshoot at turn on or turn off shall be less than 10% of the nominal voltage value，all output shall be within the regulation limit of section 3.2 before issuing the power good signal of section 6.0.

3.5 Efficiency

Power supply efficiency typical 65% at 115V，full load.

3.6 Remote on/off control

The power supply DC outputs (with the exception of +5VSB) shall be enabled with an active-low，TTL-compatible signal(“PS-ON”)
When PS-ON is pulled to TTL low，the DC outputs are to be enabled.
When PS-ON is pulled to TTL high or open circuited，the DC outputs are to be disabled.
The DC output enable circuit shall be SELV compliant.

4.0 Protection

4.1 Input (primary)
The input power line must have an over power protection device in accordance with safety requirement of section 8.0

4.2 Output (secondary)

4.2.1 Over power protection
Over power protection at 110% 160% of rated output power .The power supply latches all DC output into a shutdown state. Over power of this type shall cause no damage to power supply，after over power is removed and a power on/off cycle is initiated，the power supply will restart.

4.2.2 Over voltage protection
If an over voltage fault occurs (internal of the power supply)，the power supply will latch all DC output into a shutdown state before
+5V ：5.6V 6.6V
+3.3V ：3.6V 4.2V
+12V ：13.2V 14.6V

4.2.3 Short circuit
A: A short circuit placed on any DC output to DC return shall cause no damage.
B: The power supply shall be latched in case any short circuit is taken place at +5V, +3.3V, +12V output.
C: The power supply shall be auto-recovered in case any short circuit is taken place at +5Vsb

5.0 Power supply sequencing

5.1 Power on (see fig.1)
5.2 Hold up time
When power shutdown DC output 5V must be maintain 16msec in regulation limit at normal input voltage.
5.3 Power off sequence (see fig. 1)

6.0 Signal requirements
6.1 Under voltage (UV) sense levels

Output	Minimum sense voltage
+5V	+4.50V
+3.3V	+2.50V

7.0 Environment

7.1 Temperature

Operating temperature	0 to 45 degrees centigrade

7.3 Insulation resistance

Primary to secondary	: 50 meg. ohm min. 500 VDC
Primary to FG	: 50 meg. ohm min. 500 VDC

7.4 Dielectric withstanding voltage

Condition for approval :

Primary to secondary	:3K VAC for 1min.
Primary to FG	:1800 VAC for 1 min.

For production purpose:100% test

Primary to FG	:1800 VAC for 2 sec OR 2650 VDC for 2 sec.

7.5 Leakage current

3.5 mA. max. at nominal voltage 250 VAC

8.0 Safety

8.1 Meet to U.S. and Canadian requirements under the component recognition program of Underwriters Laboratories Inc.
The power supply shall be designed to meet UL1950.

8.2 TUV Standards
The power supply shall be designed to meet TUV EN-60950.

8.3 Power Line Transient
The power supply shall be designed to meet the following standards
a). EN 61000-4-2(ESD) Criterion B, ±4KV by contact, ±8KV by air.
b). EN 61000-4-4(EFT) Criterion B, ±1KV.
c). EN 61000-4-5(SURGE) Criterion B, Line-Line ±1KV,
Line-Earth ±2KV.

8.4 RFI / EMI Standards
The power supply shall comply with the following radiated and conducted Emissions standards,
a). FCC part 15.
b). CISPR 22 (EN 55022).

9.0 Reliability

9.1 Burn in

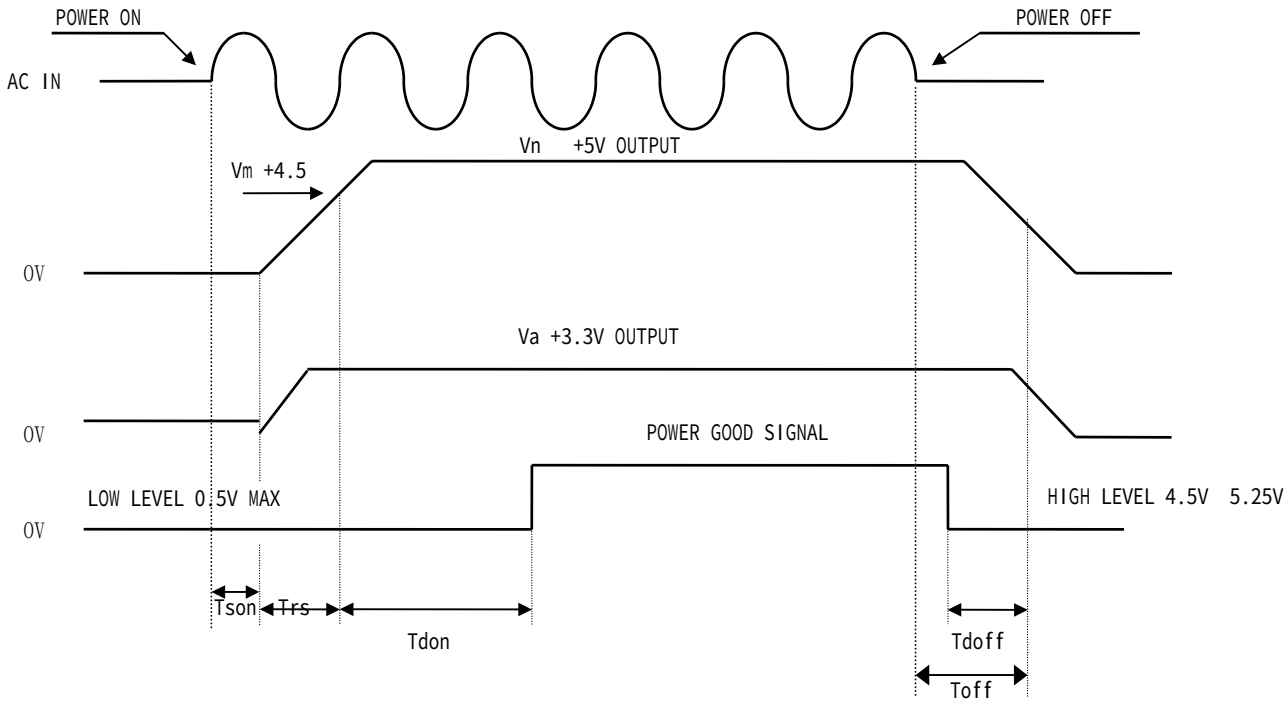
All products shipped to customer must be processed by burn-in. The burn- in shall be performed for 1 hour at full load.

9.2 Mean Time Between Failures (MTBF)

MTBF =114,400 Hours at 45° C 115/230 VAC input and Full load.

10.0 Mechanical requirements

10.1 Physical dimension : 40.5 mm * 100 mm * 190 mm (H*W*D)



Vn	Nominal voltages +5V
Vm	Minimum voltages +4.5V
Va	Nominal voltages +3.3V
Tson	Switch on time(500ms. Max)
Trs	+5V rise time (100ms. max.)
Tdon	Delay turn-on (100ms. < Tdon < 500ms.)
Tdoff	Delay turn-off (1 ms. min.)
Toff	Hold up time (16ms. min.)

《Figure 1》