規格書
SPECIFICATION

品名 SWITCHING POWER SUPPLY
STYLE NAME :

型號 V1E-5300V
MODEL NO. :

料號
PART NO. :

版次 A4
REVISION :

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Revision

Rev.	Page	Item	Date	Description
A2	ALL		JAN-30-2007	Update model V1E-5300P→V1E-5300V
A3	10	11.0	JUN-04-2007	Add a -12V Io derating curve
A4	10	11.0	N0V-05-2008	Update –12V Io derating curve

MODEL NO. V1E-5300V

1.0 Scope

This specification defines the performance characteristics of a grounded, AC input,300 watts ，5 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) : 100～240 VAC full range (With ±10% tolerance).

2.2 Frequency

The input frequency range will be 47hz～63hz.

2.3 Steady-state current

6A/3A at any low/high range input voltage.

2.4 Inrush current

15/30Amps @ 115/230 VAC (at 25 degrees ambient cold start)

2.5 Power factor correction

The power supply shall incorporate universal power input with active power factor correction, which shall reduce line harmonics in accordance with the IEC61000-3-2 standards.

PFC can reach the target of 95% @115/230VAC,Full load.

3.0 Output requirements

3.1 DC load requirements

Normal	Load current(A)		Regulation tolerance	
Output voltage	Min.	Max.	Max.	Min.
+5V	0.5A	20A	+5%	-5%
+12V	0.5A	20A	+5%	-5%
-12V	0.1A	1A	+10%	-10%
+3.3V	0.5A	20A	+5%	-5%
+5Vsb	0.1A	2A	+5%	-5%

* +5V and +3.3V total output max : 130W ***
** +5V,+3.3V and +12v total max:290W ***
*** Total power:300W

When doing the cross regulation of –12 V test(one output channel at high load and the other output channels at low load), it is requested to set the higher output channel at 80% max. of its spec., and the lower output channels at 20% max. of theirs.

3.2 Regulation

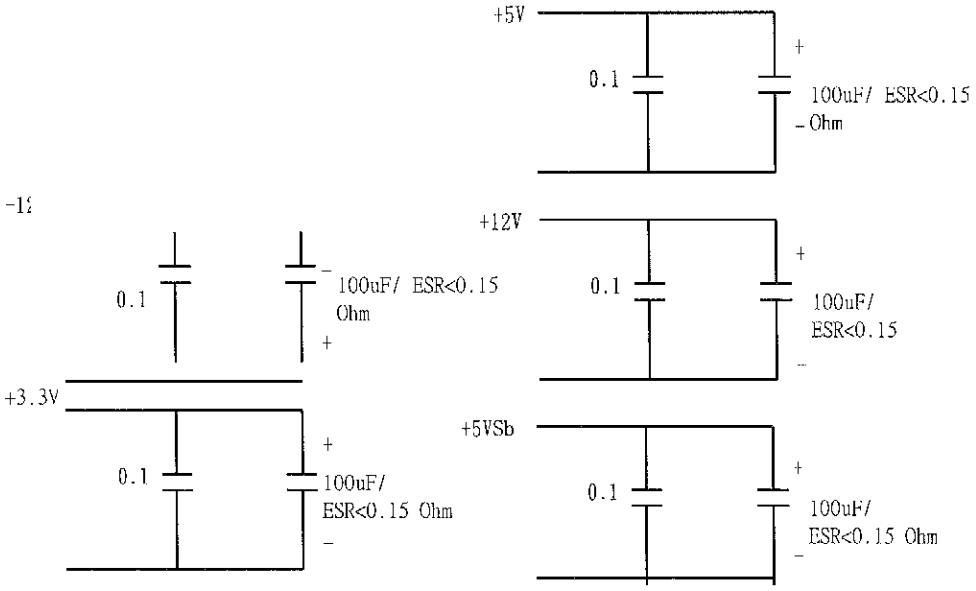
Output DC voltage	Line regulation
+5V	±50mV
+12V	±120mV
-12V	±120mV
+3.3V	±50mV
+5Vsb	±50mV

3.3 Ripple and noise

3.3.1 Specification

+5V	50mV (P-P)
+12V	120mV (P-P)
-12V	120mV (P-P)
+3.3V	50mV (P-P)
+5Vsb	50mV (P-P)

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 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 81-84% at 110V FULL LOAD

3.6 Typical Distribution of Efficiency

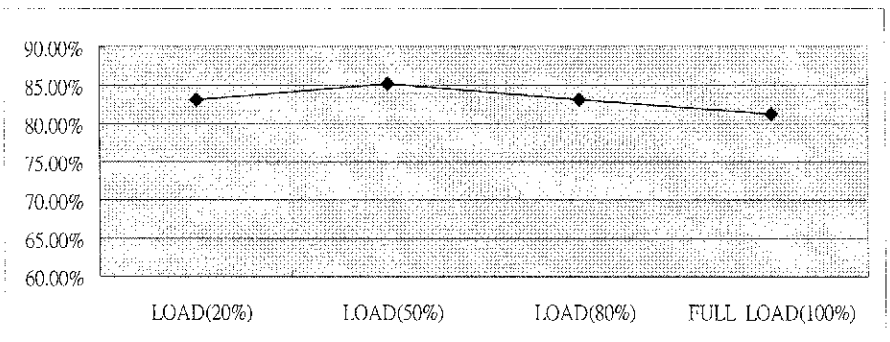
LOAD(20%)					
Output	+5V	+3.3V	+12V	-12V	5VSB
Load Current	2.8A	2.8A	2.8A	0.15A	0.3A
Voltage(Rms)	5.2V	3.345V	12.05V	-12.02V	5.06V
P in(AC in 110V)	75W				
EFF.	81.30%				

LOAD(50%)					
Output	+5V	+3.3V	+12V	-12V	5VSB
Load Current	7A	7A	7A	0.35A	0.7A
Voltage(Rms)	5.18V	3.322V	12.03V	-12.07V	5.05V
P in(AC in 110V)	178W				
EFF.	85.10%				

LOAD(80%)					
Output	+5V	+3.3V	+12V	-12V	5VSB
Load Current	11.2A	11.2A	11.2A	0.56A	1.1A
Voltage(Rms)	5.16V	3.297V	12.01V	-12.23V	5.04V
P in(AC in 110V)	288W				
EFF.	83.89%				

FULL LOAD(100%)					
Output	+5V	+3.3V	+12V	-12V	5VSB
Load Current	14A	14A	14A	0.7A	1.4A
Voltage(Rms)	5.15V	3.284V	12.00V	-12.31V	5.02V
P in(AC in 110V)	367W				
EFF.	82.20%				

P.S Any difference either on the DC output cable (i.e., length, wire gauge) or on the accurate of instruments will conclude different test result.



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

The power supply shall provide over power protection on 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 load is removed and a power on/off cycle is initiated , the power supply will restart.

Trip point total power min. 110% , max. 160%.

4.2.2 Over voltage protection

If an over voltage fault occurs , the power supply will latch all DC output into a shutdown state.

	Min	Typical	Max
+3.3V	3.6V	4.1V	4.3V
+5V	5.6V	6.1V	6.5V
+12V	13.2V	14.3V	15.0V

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 ,-12Voutput.

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 AC source shutdown DC output must be maintain 16msec in regulation limit at. normal input voltage (AC115V) and 24msec in regulation limit at. normal input voltage (AC230V/FULL LOAD)

5.3 Power off sequence (see fig. 1)

6.0 Signal requirements

6.1 Power good signal (see fig. 1)

The power supply shall provide a "power good" signal to reset system logic , indicate proper operation of the power supply.

At power on , the power good signal shall have a turn on delay of at least 100ms but not greater than 550ms after the output voltages have reached their respective minimum sense levels.

7.0 Environment

7.1 Temperature

Operating temperature: 0 to 50 degrees centigrade(90～264 VAC)

Non-Operating temperature: -20 to 80 degrees centigrade

7.2 Humidity

Operating humidity	20% to 80%
Non-operating humidity	10% to 90%

7.3 Insulation resistance

Primary to secondary	: 100 meg. Ohm min. 500 VDC
Primary to FG	: 100 meg. Ohm min. 500VDC

7.4 Dielectric withstanding voltage

Primary to secondary	: 3K VAC for 60 Second.
Primary to FG	: 1500 VAC for 60 Second.

7.5 Leakage current

3.5 mA max. at nominal voltage VAC

8.0 Safety

8.1 Underwriters laboratory (UL).

The power supply designed to meet UL 60950.

8.2 Canadian standards association (CUL)

The power supply designed to meet CSA 1402C & CSA 950.

8.3 TUV

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

8.4 CCC Standards

The power supply shall be designed to meet GB4943-1995,GB9254-1998, GB17625.1-1998.

9.0 Reliability

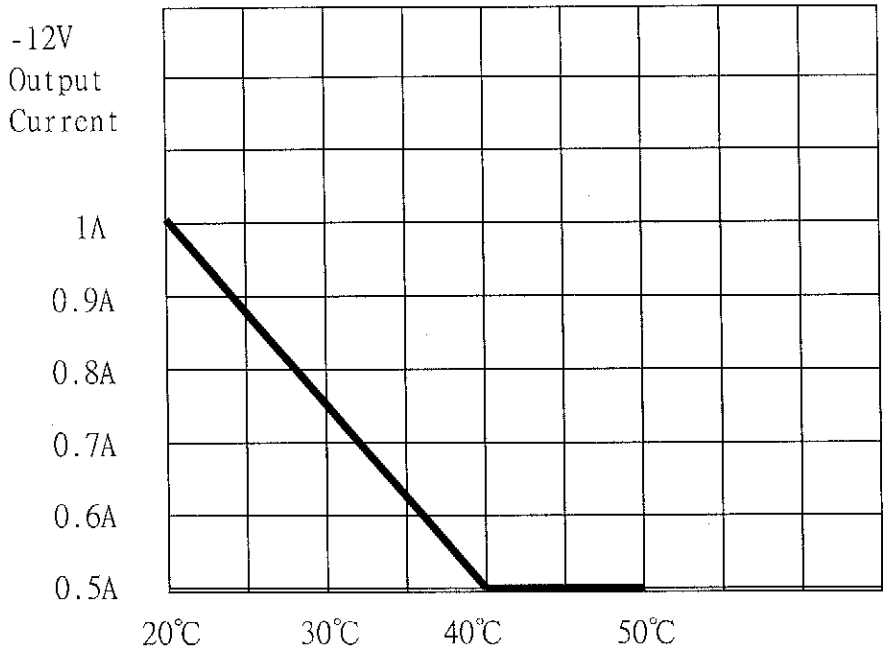
9.1 Burn in

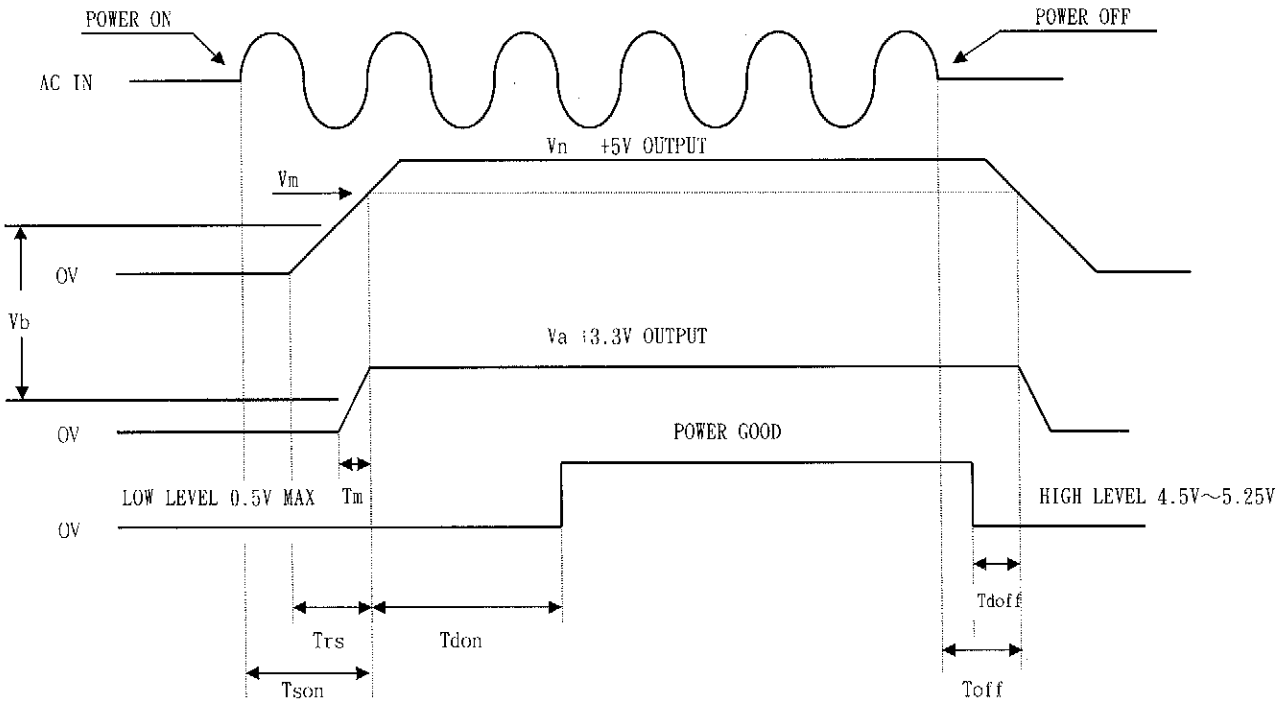
All products shipped to customer must be processed by burn-in. The burn- in shall be performed for 1 hour at full load.

10.0 Mechanical requirements

10.1 Physical dimension : 210mm(D) * 100mm(W) * 40.5 mm(H)

11.0 -12V Io derating curve





Vn	Nominal voltages +5V
Vm	Minimum voltages +4.5V
Va	Nominal voltages +3.3V
Vb	+2.0V max
Tson	Switch on time (1500 ms. max.)
Trs	+5V rise time (50ms. max.)
Tdon	Delay turn-on (100ms. < Tdon < 550ms.)
Tdoff	Delay turn-off (1 ms. min.) at 115V
Toff	Hold up time (16ms Min) at 115V 16ms minimym at 115V load < 300W & 24ms minimym at 230V full load

《Figure 1》