ACBEL ELECTRICAL (DONG GUAN) CO.,LTD.
康舒電子(東莞)有限公司
No.17-28,(Hong Yeh Rd)Hong Yeh Industrial District Tang Xia Town ,Dong Guan City Province ,China ,Zipcode:523710.
Tel: 86-769-8791-5950
Fax: 86-769-8772-8464

Specification for EPS 550W

MODEL: FSD049-000G Series

MKT PN: EP2A5551A-B Series

Revision: A

Acbel Polytech Inc.

ACBEL ELECTRONIC (DONG GUAN) CO, Ltd.

DONG GUAN ACBEL TELECOM CO, Ltd.

No. 17-28, (Hong yed rd) Hong yeh industrial district, Tang Xia Town, Dong Guan City. Guang Dong Province, China Zip code: 523710

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Customer:	
Approved By :	
Approved Date :	

RoHS Compliance:
Never use Environment-related Substances to be controlled by customer.
Warranty of Compliance with AcBel Environmental Requirement AW-RD06.

Prepared By : Yangxj **Approved By :** Well_ZH **Prepared Date:** 2014-08-12

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Change. LIST

Revision	Change description	Date
A	Initial	2014-08-12

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1. GENERAL DESCRIPTION AND SCOPE

The specification below is intended to describe as detailed as possible the functions and performance of the subject power supply. Any comment or additional requirements to this specification from our customers will be highly appreciated and treated as a new target for us to approach.

2. REFERENCE DOCUMENTS

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

2.1. EMI REGULATORY

The power supply shall comply with CISPR22; Class B. Tests shall be conducted using a shielded DC output cable to a shielded load. The load shall be adjusted as follows condition: Test with system load; Tests will be performed at 220VAC/50Hz.

2.2. SAFETY CERTIFICATION

CCC; UL; CUL; CB; TUV; KCC; FCC; CE; BSMI

3. INPUT ELECTRICAL SPECIFICATIONS

3.1. AC INPUT

Parameter	Min.	Nom.	Max.	Unit
V_{in}	90	100~240	264	VAC. $_{rms}$
Frequency	47	--	63	VAC. $_{rms}$
I_{in}		10~5		A. rms

Nominal voltages for test purposes are considered to be within ±1.0V of nominal.

3.2. INRUSH CURRENT

Maximum inrush current from power-on (with power on at any point on the AC sine) and including, but not limited to, three line cycles, shall be limited to a level below the surge rating of the input line cord, AC switch if present, bridge rectifier, fuse, and EMI filter components. Repetitive ON/OFF cycling of the AC input voltage should not damage the power supply or cause the input fuse to blow.

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3.3. INPUT LINE CURRENT & POWER FACTOR (P.F.)

(At Full load)

AC input	Input line current	P.F.@ Full Load	P.F.@ Pin=75W
100V	< 10 Amps – rms	>0.95	>0.7
240V	< 5 Amps – rms	>0.95	

3.4. EFFICIENCY

Efficiency is not less than 82% at 20%, 50%, 80% output load condition.

3.4.1. Standby Power Consumptions (5Vsb)

Input Power < 1W @ 5Vsb/100mA& 230Vac input

PS_ON input signal @ High State

4. OUTPUT ELECTRICAL REQUIREMENTS

4.1. OUTPUT VOLTAGE AND CURRENT RATING

Output	MINIMUM LOAD	NORMAL LOAD	MAXIMUM LOAD	PEAK LOAD	LOAD REG	RIPPLE & NOISE
+3.3V	0.1A	3A	24A		±5%	50mV P-P
+5V	0.1A	5A	30A		±5%	50mV P-P
+12V	0.2A	7A	42A		±5%	120mV P-P
-12V	0A	0.1A	0.3A		±10%	120mV P-P
+5VSB	0.1A	1A	3A		±5%	50mV P-P

(1) +3.3V & +5V total output not exceed 170W.

(2) Total output continuous shall not exceed 550W.

(3) Maximum peak total DC output power should not exceed 700W.

(4) Voltages and ripple are measured at the load side of mating connectors with a 0.1 uF monolithic ceramic capacitor paralleled by a 10 uF electrolytic capacitor across the measuring terminals.

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4.2. LOAD CAPACITY SPECIFICATIONS

The cross regulation defined as follows, the voltage regulation limits DC include DC output ripple & noise.

LOAD	+3.3V	+5V	+12V	-12V	+5VSB	NOTE
condition_1	0.1A	0.1A	0.2A	0A	0.1A	Min load
condition_2	2.0A	4.0A	8.0A	0.1A	1.0A	
condition_3	10.0A	20.0A	33.6A	0.3A	2.0A	Full load
condition_4	24.0A	18.0A	30.0A	0.3A	3.0A	+3.3V Max.
condition_5	5.6A	6.0A	42.0A	0.1A	0.1A	+12V Max.
condition_6	6.1A	30.0A	31.2A	0.3A	0.3A	+5V Max

4.3. Dynamic load

Voltage	Current(A)	Rate(A/uS)	Capacitor load (uF)
+3.3V	30% Max. load	0.5	2200
+5V	30% Max. load	0.5	2200
+12V	60% Max. load	0.5	3300
+5VSB	30% Max. load	0.5	350

4.4. HOLD-UP TIME (80% of full load.)

230V / 50Hz : 10 m sec. minimum.

The output voltage will remain within specification, in the event that the input power is removed or interrupted, for the duration of one cycle of the input frequency. The interruption may occur at any point in the AC voltage cycle. The power good signal shall remain high during this test.

4.5 . OUTPUT RISE TIME

(10% TO 95% OF FINAL OUTPUT VALUE, @FULL LOAD)

115V-rms OR 230V-rms +3.3Vdc: 20ms Maximum
+5Vdc: 20ms Maximum
+12Vdc: 20ms Maximum
+5Vsb: 20ms Maximum

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4.6. POWER SIGNAL

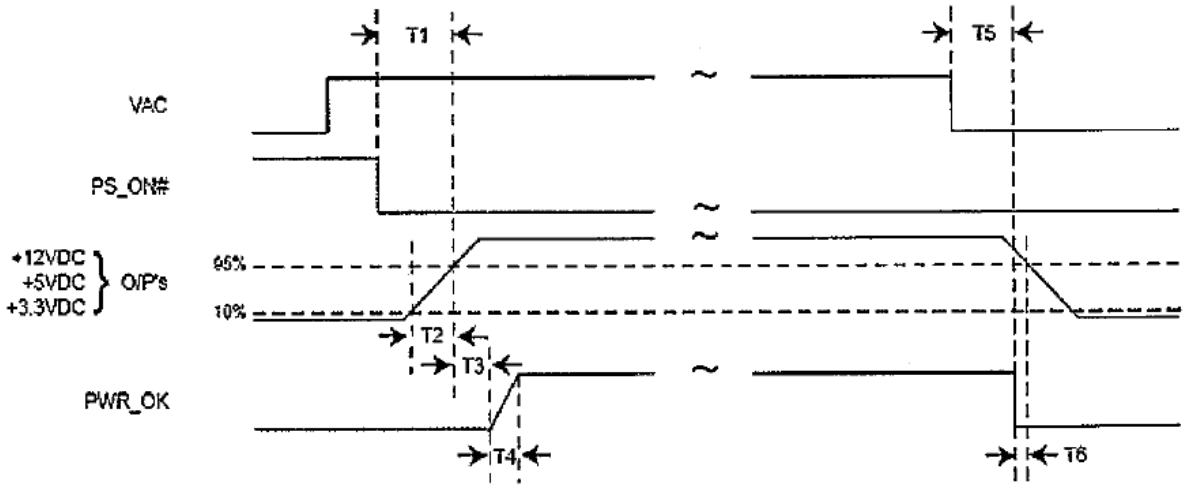

Figure:

T1: Power-on time shall be less than 500 ms (T1 < 500 ms).

T2: Rise time: 0.1 ms to 20 ms (0.1 ms≤ T2 ≤ 20 ms).

T3: Power-ok delay time: 100 ms< T3 < 500 ms

T4: Power-ok rise time: T4 ≦ 10 ms

T5 + T6: AC losses to output hold-up time: T5 + T6 ≥ 17 ms

4.7. The main power supply shall be off when the PS_ON pin is floating (open collector). The ON/STBY pin of P1 must remain off state for 5 Sec (maximum) prior to switching to the ON stare.

4.8. Over shoot

Output voltage	Overshoot Range
+3.3V	10%
+5V	10%
+12V	10%
+5VSB	10%

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4.9. OVP AND OCP

OVP

Output voltage	Protection point (MAX)
+3.3V	4.8V
+5V	7.0V
+12V	16.5V

OCP

Output voltage	Protection point (MAX)
+3.3V	48A
+5V	55A
+12V	59A

4.10. SHORT CIRCUIT PROTECTION

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.
In the event of an output short circuit condition on +3.3V, +5V or +12V output, the power supply will shut down and latch off without damage to the power supply. The power supply shall return to normal operation after the short circuit has been removed and the power switch has been turned off for no more than 2 seconds.

4.11 The main power supply shall be off when the PS_ON pin is floating (open collector). The ON/STBY pin of P1 must remain off state for 5 Sec (maximum) prior to switching to the ON stare.

5. FAN REQUIREMENTS

The subject power supply is cooled by a self-contained, 60*25mm, 12VDC fan.

6. ENVIRONMENTAL REQUIREMENTS

The power supply will be compliant with each item in this specification for the following Environmental conditions.

6.1. TEMPERATURE RANGE

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Operating	0°C to +50°C
Storage	-20°C to +80°C

The maximum continuous power rating of supply is 550W at 50°C.

6.2. HUMIDITY

Operating	5 – 95% RH, Non-condensing
Storage	5 – 95% RH, Non-condensing

6.3. VIBRATION

The subject power supply will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.
Vibration Operating – Sine ware excited, 0.25G maximum acceleration, 10-250 Hz swept at one octave / min. Fifteen minute dwell at all resonant points, where resonance is defined as those exciting frequencies at which the device under test experiences excursions two times large than non-resonant excursions.
Plane of vibration to be along three mutually perpendicular axes.

6.4. GROUND LEAKAGE CURRENT

The power supply ground leakage current shall be less than 3.5 mA at 240Vac input.

6.5. RELIABILITY

The power supply reliability, when calculated by BELLCORE SR-332; latest revision, are exceed 100,000 hours with all output at maximum load and an ambient temperature of 25°C.

6.6. DIELECTRIC STRENGTH

Primary to Frame Ground: 1800 Vac for 3 sec.

6.7. INSULATION RESISTANCE

Primary to Frame Ground: 20 Meg.ohms Minimum.
Primary to Secondary: 20 Meg.ohms Minimum.

6.8. Altitude

Operating To 16,404.2 ft (5,000m)
Non operating To 50,000 ft

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7.0. Lightning Surge Immunity

The purpose of lightning surge immunity test is to verify if the power supply can withstand lightning surge wave. This is to follow the norm of IEC61000-4-5 requirements.

Transient Type	Coupling mode	Test level	Phase	Repetition Rate	Acceptance Criteria
Surge immunity (Lightning)	Differential	± 1 KV	0° 90° 180° 270°	10 pulses 60 sec	Operating
	Common	± 2 KV			

8.0 LABELLING

Label marking will be permanent, legible and complied with all agency requirements.

8.1. MODEL NUMBER LABEL

Labels will be affixed to the sides of the power supply showing the following:

- Manufacturer's name and logo.
- Model no., serial no., revision level, location of manufacturer.
- The total power output and the maximum load for each output.
- AC input rating.

9.0 MECHANICAL SPECIFICATIONS

The mechanical drawing of the subject power supply, which indicate the form factor, location of the mounting holes, location, the length of the connectors, and other physical specifications of the subject power supply. Please refer to the attachment drawing.

Dimension: L240 x W100 x H70