ELECTRICAL REQUIREMENTS

1. General

This specification defines the performance characteristics of Model GF-1201500FU with rated output powers of 12 VDC 1500mA. This power supply designed to following descriptions.

Input voltage: Full Range: 100-240Vac 50-60Hz.

Case type: Plug-in with UL plug

2. Input Characteristics

a. AC Input Voltage

The adapter will operate over the entire input voltage range:

Minimum	Maximum	Nominal/Rated
90 VAC	264 VAC	100-240 VAC

b. Frequency

The input frequency rated will be 50/60Hz**.**

The input frequency range will be 47Hz to 63Hz.

c. Input Current

The input current will not exceed 0.5 Amp for 90 VAC.

d. Efficiency & No load consumption

Comply with California Energy Law: CEC-400-2005-012 Level Ⅳ

d-1. Min. Efficiency at input 120Vac 60Hz with Rated load.

[0.09 x Ln (12V x 1.5A) + 0.49]* 100% ＝ 76 %

d-2. Max. no load consumption shall be 0.5W or less

Comply with general requirement

d-3. The power efficiency (watts output/watts input) will not be less than 76% typically at full load condition.

e. Hold Up Time

The output hold up time (When AC power shut down, the duration of output voltage dropping down to 90% of normal rated output voltage) will be guaranteed 8m sec at test condition which is full load, 120 VAC /60Hz, 25℃ Ambient temperature.

f. Inrush Current

The adapter inrush current is less than 30Amp. at the time of cold start at 120 VAC input for a cold start at 25℃

The adapter inrush current is less than 60Amp. at the time of cold start at 240 VAC input for a cold start at 25℃

3. Output Characteristics

a. DC Load Characteristics

Output Voltage	Minimum Current	Regulation Tolerance	Maximum Current	Rated Power
12V	0A	±5%	1.5 A	18W

b. Ripple & Noise

The power noise will be less than 120mVp-p

Note: A0.1 μF Ceramic and 10 μF Electrolyze capacitors should be put across output terminals during ripple & noise test. The oscilloscope bandwidth is set at 20MHz and co-axial probe will be used to measure it.

c. Overshoot

The power use in overshoot at turn on or turn off AC input will be less than 10% of the nominal value and will decay itself within the regulation band in less than 50m sec.

d. Line Regulation

The output voltage is specified at Vout ± 2 %.

e. Load Regulation

The output voltage is specified at Vout ± 5 %.

4. Protection:

a. Primary (Input) Protection

The input power line will be fused with a fuse 2.0A, 250 VAC.

b. Secondary (Output) protection

b.1. Over Current Protection (OCP)

When an internal fault occurs, or an external fault is applied to the power, such that an overload or short circuit is applied to the output, the power will be shutdown. Power latch is not allowed.

b.2. Short Circuit Protection
The power will protect itself, and shut down, if a short circuit is placed between DC return and the output. This condition will cause no damage to the power. Power latch is not allowed.
b.3 Over voltage protection
No safety hazard
5. Turn On Delay Time (Power On Time)
When input 100 to 240Vac, the output will reach its regulation limits within 2.0 second.
6. E.M.I.
a. Conduction & Radiation
The adapter complies with FCC Part15 Class B
7. Safety Characteristics
a. The adapter obtained and designed to following agency safety and international standards.

Agency safety	Applicable Standard	Certified
UL	UL60950-1	
cUL	CSA 22.2 No.60950-1	

b. Energy Efficiency Standards
California Energy Efficiency Standards Compliant
c. L.P.S
Limited power sources compliant
d. Withstand Voltage
Primary to secondary: 4242 VDC 10mA for 3 second.
e. Insulation Resistance
Primary to secondary: 50M OHM Minimum at 500 VDC
8. Environment
a. Operating
The power operating temperature is 0℃ to 40℃.
The power operating relative humidity is 20% to 85%.
b. Storage
The power storage temperature is 0℃ to 70℃.
The power storage relative humidity is 10% to 95%.
9. Life
a. MTBF
Power supply operates with any of the limits of this specification, the MTBF shall be at least 20,000 hours. (Calculated by MIL-STD-217F) at 25℃
b. BURN-IN
4 Hours at 40℃, normally input voltage, 80% of minimum load.
10. NET WEIGHT (APPROX.): 130 g.