



Features

- Industry standard full-brick package and footprint
- 4.60"×2.40"×0.50"
- High power density: 90W/in³
- High efficiency: 86% typical
- Low output noise & ripple
- Remote sense
- Output Over-current Protection
- Output Short-circuit Protection
- Over-temperature protection
- Output Voltage Trim: ± 10%
- Baseplate operating temperature: -25°C to 100°C
- UL60950-1/ EN60950-1 Certified
- RoHS (2002/95/EC) compliant

Options:

- Remote on/off
- RoHS compliant

Numbering Convention

FSR – L 300 1 S C G

①
②
③
④
⑤
⑥
⑦

No	Features	Descriptions
①	Product Series	Full-brick -Baseplate Series
②	Remote on/off Logic	L – Negative Logic
		H or Default – Positive Logic
③	Typical Output Power	300 – Output Power:300W
④	Typical Output Voltage	1 – Output Voltage: 5V
⑤	Number of Outputs	S – Single Output
⑥	Typical Input Voltage	C– Input Voltage: 48V
⑦	RoHS feature	G – lead-free products, RoHS6

1. Description

The FSR-L3001SCG series products are full brick DC-DC converters in flat-type transformer assembly, and can provide up to $5V_{DC}$ output voltage. The converters have an aluminum baseplate, feature a wide input voltage range, high efficiency and excellent thermal performance, and are well suited for telecommunication, industrial automation and test equipments, etc.

2. Technical Specifications (Unless otherwise indicated, all specifications are typical at nominal input voltage, full load at 25°C.)

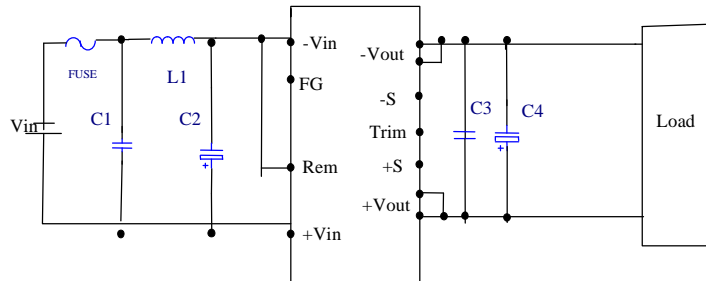
Parameter	Test Condition	Min	Typ	Max	Unit	
2.1 Absolute Maximum Ratings						
Input Voltage (V_i)	continuous	36	—	72	Vdc	
Input transient Voltage (V_{it})	100ms	—	—	100	Vdc	
Max Output Power (P_{omax})	allowable operating conditions	—	—	300	W	
2.2 Input Specifications						
Typical Input Voltage(V_{inom})	—	—	48	—	Vdc	
Input Voltage Range	—	36	—	72	Vdc	
Maximum Input Current (I_{imax})	$V_{imin}, I_{onom}, \eta_{min}$	—	—	11	A	
No-load Input Current (I_{io})	$V_{inom}, I_o=0$	—	—	330	mA	
Input Over-voltage Threshold (V_{ishl})	I_{onom}	—	—	—	Vdc	
Input Under-voltage Threshold (V_{ishl})	I_{onom}	30	—	36	Vdc	
Remote	On	Low level (0~1.5Vdc) or connected to $-V_{in}$				
	Off	High level (2.5~60Vdc) or open circuit				
2.3 Output Specifications						
Output Voltage Set-point (V_{onom})	V_{inom}, I_{onom}	4.95	5.0	5.05	Vdc	
Typical Load (I_{onom})	—	0	—	60	A	
Output Voltage Trim Range (V_{oadj})	V_{inom}	4.5	—	5.5	V	
Line Regulation (V_{ov})	$V_{imin}-V_{imax}, I_{onom}$	—	—	± 0.2	%Vo	
Load Regulation (V_{ol})	10%-100% I_{onom}, V_{inom}	—	—	± 0.5	%Vo	
Output Over-current Protection	Protection Mode	—			Threshold power	
	Threshold	V_{inom}	66	—	84	A
Output Short-circuit Protection	Protection Mode	—			Continuous, recoverable	
	Input current	V_{inom}	—	—	0.28	A
Dynamic Load Response	Peak Deviation	25%-50%-25% I_{onom}			250	mV
	Settling Time	50%-75%-50% I_{onom}			200	μs

Parameter	Test Condition	Min	Typ	Max	Unit	
Output Ripple & Noise (V _{rp})	20MHz ①	—	—	100	mV(p k-pk)	
External Output Capacitance (C _o)	V _{imin} -V _{imax}	0	—	10000	μF	
Turn-on/off Peak Deviation	V _{inom}	—	—	±10	%V _o	
2.4 Safety Specifications						
Isolation voltage	Input to output	Leak Current≤5mA, 1min	1000	—	—	V _{dc}
	Input to FG	Leak Current≤5mA, 1min	500	—	—	V _{dc}
	Output to FG	Leak Current≤5mA, 1min	500	—	—	V _{dc}
Isolation Resistance (RISO)	—	50	—	—	MΩ	
Safety Certificate	EN 60950-1					
2.5 Reliability						
Vibration Test(sine)	Frequency: 10~55Hz Amplitude: 0.35mm Acceleration: 50m/s ² Cycle: X,Y,Z 30min each axis	After being tested, no damage to the converter and its components, the appearance, output voltage and output ripple and noise (p-p) meet the data sheet requirements.				
Impact Test (half-sine)	Peak Acceleration: 300m/s ² Duration: 6ms 6 times for three perpendicular directions	After being tested, no damage to the converter and its components, the appearance, output voltage and output ripple and noise (p-p) meet the data sheet requirements.				
MTBF	Bellcore TR-332,40℃,50%	2×10 ⁶ h				
2.6 Environmental Specifications						
Relative Humidity	(40±2)℃, No dew	—	—	90	%RH	
Cooling	—	Natural cooling				
Case Temperature (T _c)	See the Derating Curve	-25	—	100	℃	
Storage Temperature (T _{st})	Non-Operating	-40	—	125	℃	
Altitude	—	—	—	2000	m	
2.7 General Specifications						
Switching Frequency	—	—	330	—	k Hz	
Temperature Coefficient (T _{coeff})	—	—	—	±0.02	%/℃	
Efficiency (η)	V _{inom} , I _{onom}	84	—	—	%	
RoHS	RoHS(2002/95/EC)					

Note: ① Output ripple & noise: 20 MHz, externally add a 1μF/63V ceramic capacitor and a 22μF/16V electrolytic capacitor to the output.

3. Basic Application Circuit and Considerations

3.1 Typical Application



Fuse: 20A

C1: 0.22μF/100V (ceramic capacitors)

C3: 1μF /16V(ceramic capacitors)

L1: 1μH

C2: 100μF /100V (electrolytic capacitors)

C4: 22μF /16V (electrolytic capacitors)

3.2 Output will be on when the Rem is at low level (0~1.5Vdc) or connected to -Vin; output will be off when the Rem is at high level (2.5~60Vdc) or keeps open circuit.

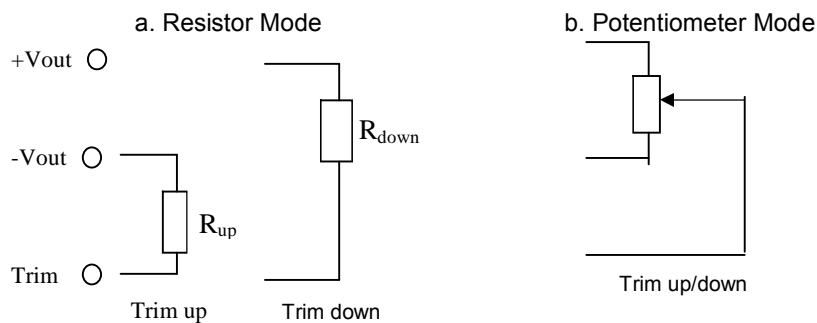
3.3 Reverse input polarity would cause the module damaged.

3.4 The output short-circuits protection is continuous and recoverable, but it is not recommended to make the model work in this state for long time.

3.5 Output Voltage Trim: for trim up, it must not exceed the maximum output power; for trim down, it must not exceed the maximum output current; or it may cause the module operate abnormally. See “4. Output Voltage Adjustment (trim)” for details.

4 Output Voltage Adjustments (Trim)

4.1 Output Voltage Trim Circuit



4.2 Output Trim Equations

To increase the output voltage, the value of the external resistor should be:

$$R_{up} = \frac{5}{\Delta V_{out}} - 6.8(K\Omega)$$

To decrease the output voltage, the value of the external resistor should be:

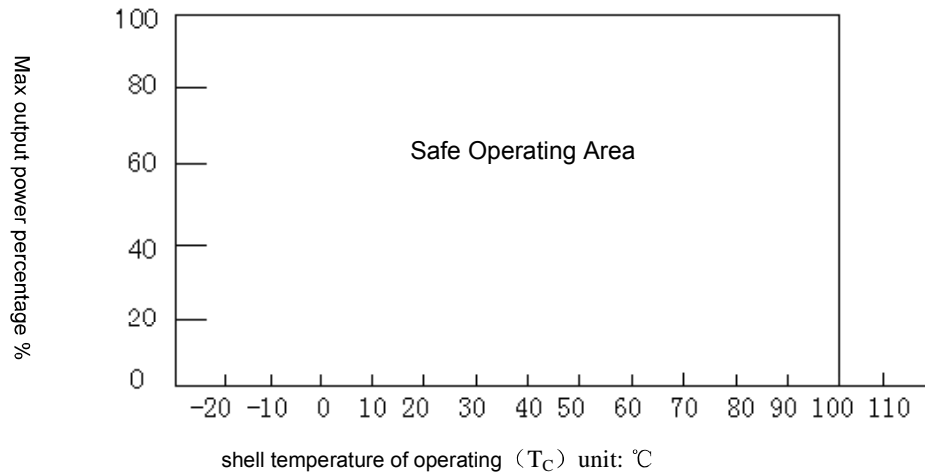
$$R_{down} = \frac{2 \times (V_a - 2.5)}{\Delta V_{out}} - 6.8(K\Omega)$$

Where R_{up}, R_{down} : adjusting resistance, unit (kΩ);

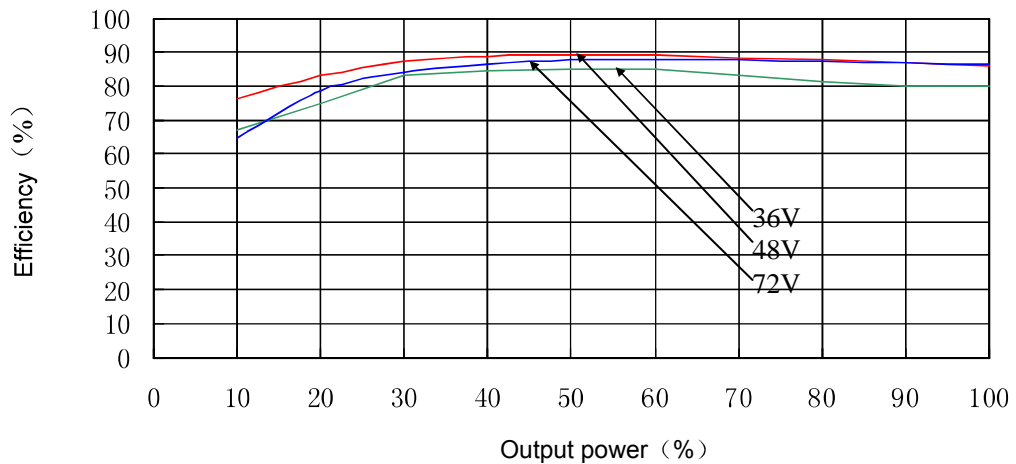
ΔV_{out} : ratio of output voltage changes to nominal output voltage, unit (V);

V_a : adjusted output voltage, unit (V).

5 Thermal Derating Curve

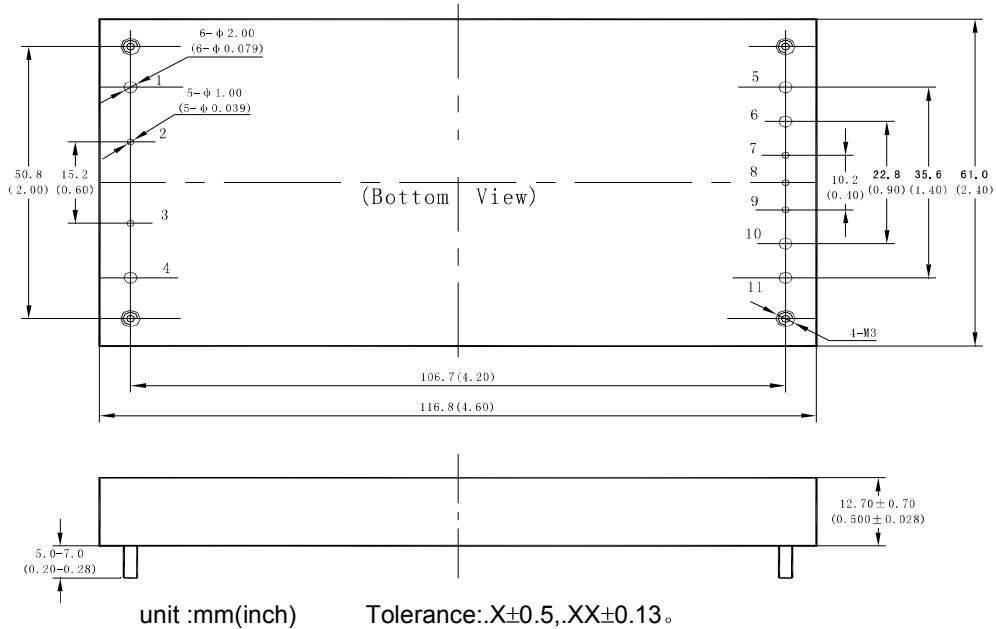


6 Efficiency Curve



7 Dimensions and Pin definition

7.1 Dimensions:



7.2 Pin definition:

No	1	2	3	4	5、6	7	8	9	10、11
Symbol	-Vin	FG	Rem	+Vin	-Vout	-S	TRIM	+S	+Vout
Definition	Negative input	FG	Remote	Positive input	Negative output	Negative Remote Sense	TRIM	Positive Remote Sense	Positive output