

**Features**

- Dimensions: 50.8×25.4×11.0(mm)
- High efficiency :82% typical
- Low output noise and ripple
- Output Over-current Protection
- Baseplate operating temperature: -25℃ to +85℃
- RoHS (2002/95/EC) complaint

Numbering Convention

SFL - 48 S 5 - 10W G
 ① ② ③ ④ ⑤ ⑥

No.	Features	Descriptions
①	Product Series	SFL Series
②	Typical Input Voltage	C – Input Voltage: 48V
③	Number of Outputs	S – Single Output
④	Typical Output Voltage	5 – Output Voltage: 5V
⑤	Typical Output Power	10 – Output Power: 10W
⑥	RoHS feature	G – lead-free, RoHS6

1. Description

The SFL48S5-10WG series power modules are DC-DC converters in an industry standard footprint, and can provide up to 5V output voltage. The converters feature wide input voltage range, high efficiency and high input-output isolation voltage, and are well suited for telecommunications, industrial automation and test equipments that require low-voltage power supply.

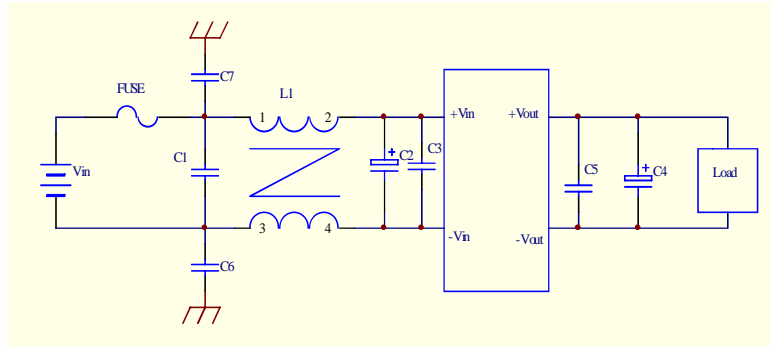
2. Technical Specifications (Unless otherwise stated, all specification are typical at nominal input voltage, full load and 25°C.)

Parameter	Test Condition	Min	Typ	Max	Unit	
2.1 Absolute Maximum Ratings						
Input Voltage (Vin)	Non-operating, Continuous	0	—	80	Vdc	
Input Transient Voltage (Vit)	100ms	—	—	100	Vdc	
Max Output Power (Pomax)	Allowable operating conditions	—	—	10	W	
2.2 Input Specifications						
Nominal Input Voltage(Vinom)	—	—	48	—	Vdc	
Input Voltage Range	—	36	—	72	Vdc	
Maximum Input Current (Iimax)	Vimin, Ionom	—	—	0.356	A	
Unload Input Current (Iio)	Vinom, Io=0A	—	—	20	mA	
2.3 Output Specifications						
Output Voltage Set-point (Vonom)	Vinom,Ionom	4.95	5.0	5.05	Vdc	
Typical Output Current (Ionom)	—	—	—	2	A	
Output Current Range (Io)	—	0	—	2	A	
Line Regulation (Vov)	Vimin-Vimax,Ionom	—	—	±0.2	%Vo	
Load Regulation (Vol)	10%-100%Ionom,Vinom	—	—	±0.5	%Vo	
Output Over-current Protection	Protection Mode	—	Threshold power			—
	Threshold	Vinom	2.2	—	3.5	A
Output Short-circuit Protection	Protection Mode	—	Continuous, Auto-recovery			—
	Input Current	Vinom	—	—	100	mA
Dynamic Load Response	Peak Deviation	25%-50%-25%Ionom 50%-75%-50%Ionom	—	—	0.25	V
	Settling Time	Cycle:1mS,slope:0.1A/μS	—	—	200	μs
Output Ripple and Noise Pk-to-Pk (Vrp)	20MHz	—	—	50	mV	
External Output Capacitance(Co)		0	—	4700	μF	
Turn-on/off Peak Overshoot Amplitude	Vinom,Ionom	—	—	±10	%Vo	

Parameter	Test Condition	Min	Typ	Max	Unit	
2.4 Safety Specifications						
Insulation Strength	Input to output	Leak Current≤1mA, 1min	1500	—	—	Vdc
	Input to Case	Leak Current≤1mA, 1min	1050	—	—	Vdc
	Output to Case	Leak Current≤1mA, 1min	500	—	—	Vdc
Insulation Resistance (R _{iso})	—	50	—	—	MΩ	
Safety Certificate	EN60950-1 Recognized					
2.5 Reliability						
Vibration Test(sine)	Frequency: 10~55Hz Amplitude: 0.35mm Acceleration: 50m/s ² Cycle: 30min for X,Y,Z 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	MIL-HDBK-217	1×10 ⁶ h				
2.6 Environmental Specifications						
Relative Humidity	(40±2) °C, Non-condensing	—	—	90	%RH	
Cooling	—	Natural Convection				
Operating Ambient Temperature	See the derating curve	-25	—	85	°C	
Storage Temperature (T _{st})	Non-operating,	-40	—	105	°C	
2.7 General Specifications						
Switching Frequency	—	—	300	—	k Hz	
Typical Weight	—	—	25	—	g	
Temperature Coefficient (T _{coeff})	—	—	—	±0.02	%/°C	
Efficiency (η)	V _{in} o _m , I _o n _o m	80	82	—	%	
RoHS	RoHS (2002/95/EC) Directive					

3. Basic Application Circuit and Considerations

3.1 Typical Application



Recommended:

Fuse: 1.0A

L1: 2.6mH, 1 and 3 are the same polarities

C1, C3: 1 μ F/100V (ceramic capacitor)

C2: 47 μ F/100V(electrolytic capacitor)

C5: 1 μ F/10V(ceramic capacitor)

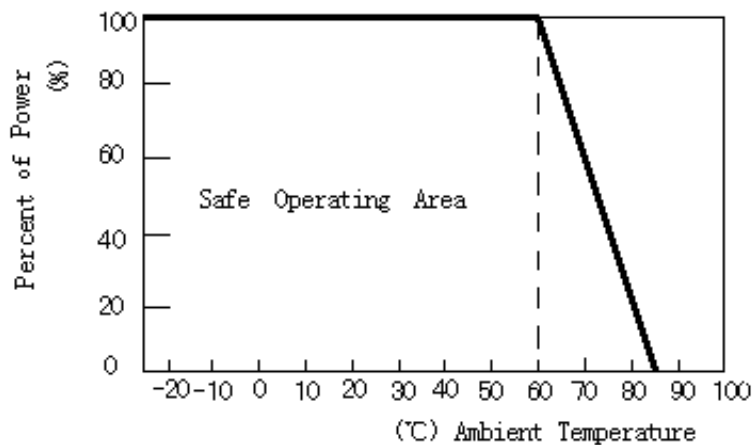
C4: 1000 μ F/10V(electrolytic Capacitors)

C6, C7: 1000pF/2kV

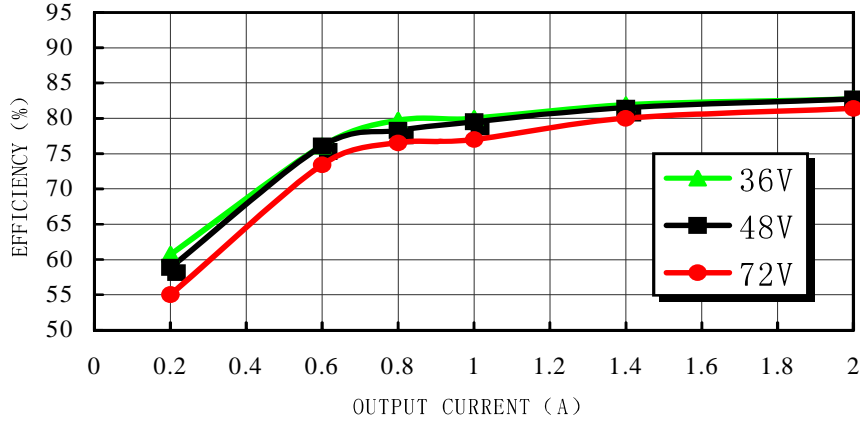
3.2 Input Voltage up to 80Vdc for long time or reverse input polarity would cause the module damaged.

3.3 Output short-circuit protection mode is continuous, automatic recovery. But it is not recommended to make the module operate under this condition for long time.

4. Thermal Derating Curve

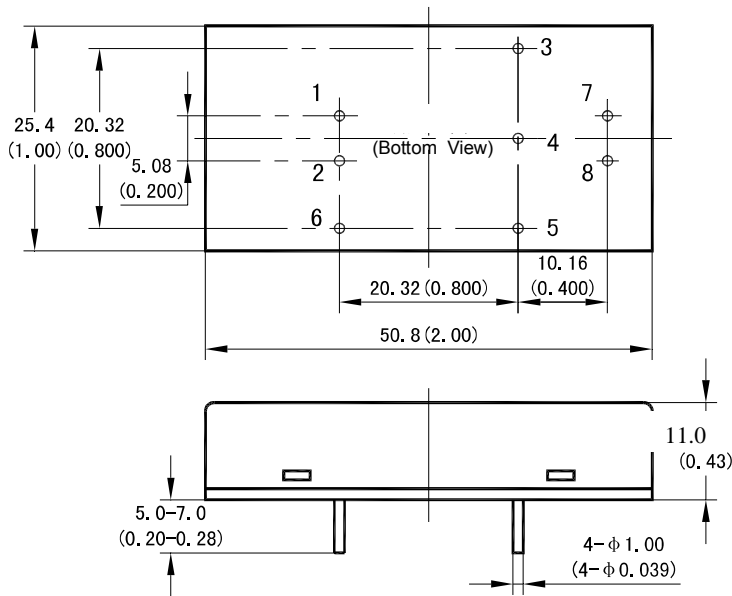


5. Efficiency Curve



6. Dimensions and Pin definition

6.1. Dimensions



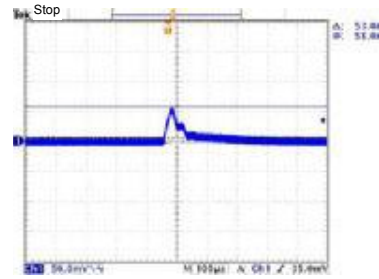
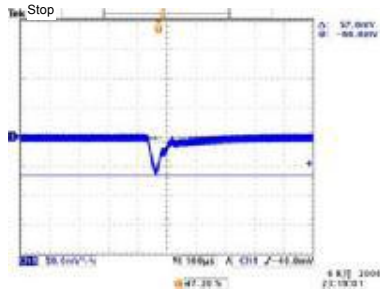
Unit: mm (inch) Tolerance: .X±0.5 ; .XX±0.13(.X X±0.02; .X X X ±0.005)

6.2. Pin definition

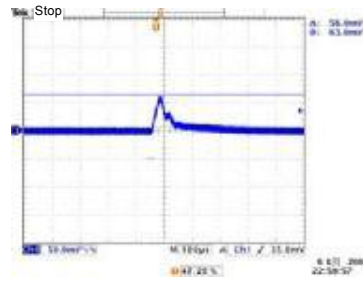
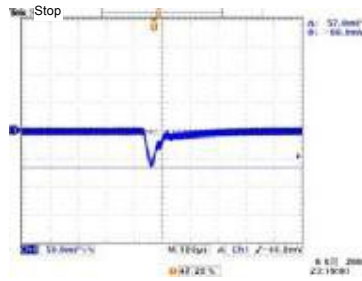
No.	1	2	3	4	5	6	7	8
Symbol	+Vin	-Vin	+Vout	NP	-Vout	NP	NP	NP
Definition	Positive Input	Negative Input	Positive Output	Non-pin	Negative Output	Non-pin	Non-pin	Non-pin

7. Typical Characteristic Curves

7.1 Load Transient Response (Vinom, 2.55A/μs)

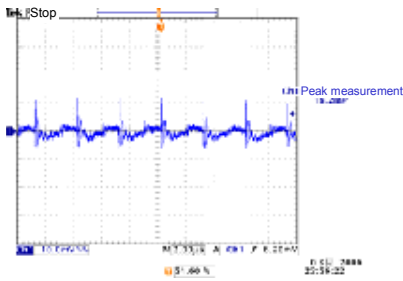


25%~50%~25%Io

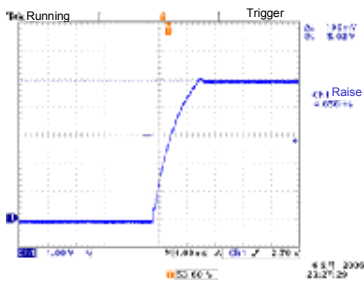


50%~75%~50%Io

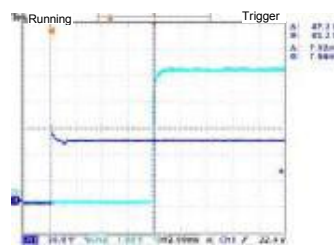
7.2 Output Ripple & Noise Pk-to-Pk (Vinom, Ionom; 20MHz)

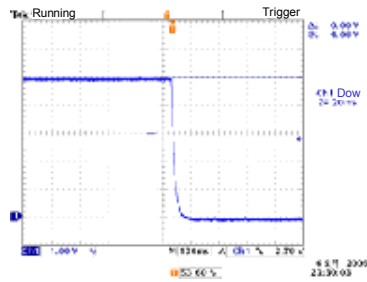


7.3 Turn-on/off Waves (Vinom, Ionom)



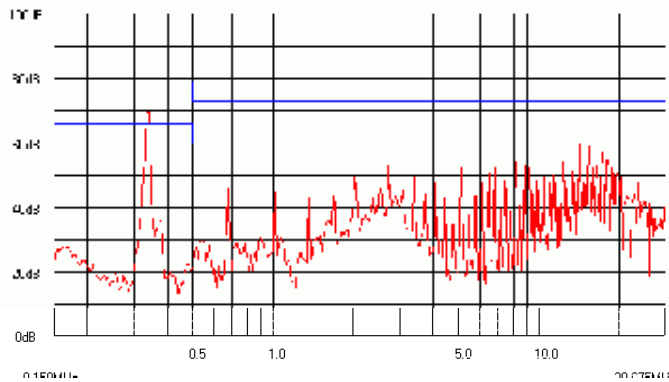
Turn-on Wave



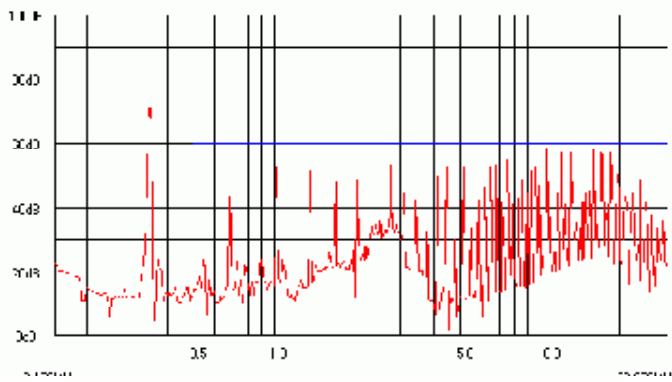


Turn-off Wave

7.4 Conduction Wave for EMI (Vinom, Ionom)



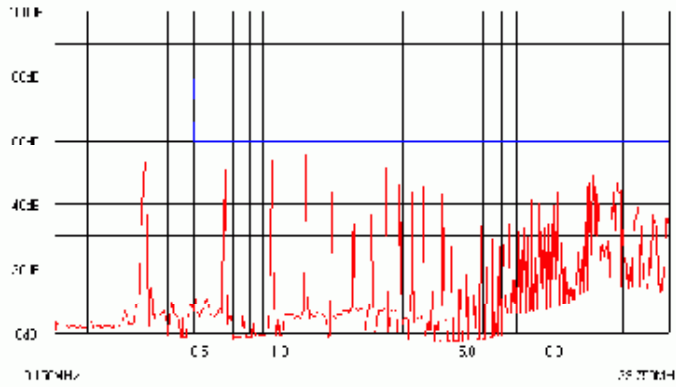
Peak Value



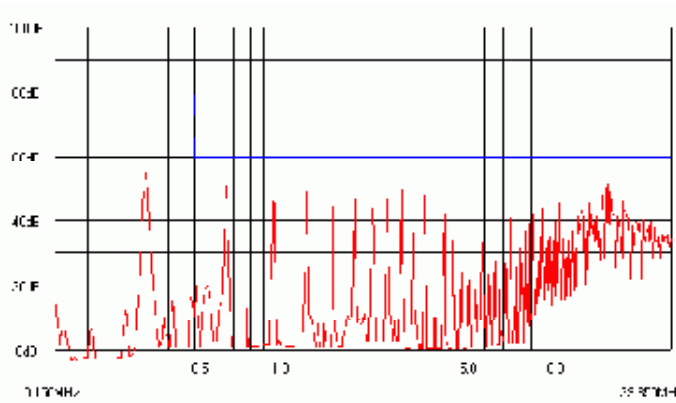
Average Value

Test Condition: add a 47 μ F electrolytic capacitor and a 2.2nF ceramic capacitor to both output and input

7.5 Conduction Wave for Typical Application



Average Value



Peak Value