

DC/DC Converter – SIFS/ SIFD-1W Series

FIXED INPUT ISOLATED& UNREGULATED
1W OUTPUT
SINGLE OUTPUT
MINIATURE SIP/DIP PACKAGE



FEATURES

- Efficiency up to 73%
- SIP/DIP Package
- Single Output
- 3KVDC Isolation
- Fixed Input Voltage
- Regulated Output Voltage
- Temperature Range: -40°C ~+85°C
- Industry Standard Pinout
- UL94-V0 Package
- No Heat sink Required
- No External Component Required
- PCB Mounting
- Fully Encapsulated
- RoHS Compliance

APPLICATIONS

The SIFS(D)-1W Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation $\leq \pm 10\%$);
- 2) Where isolation is necessary between input and output (isolation voltage =3000VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding.

These products don't apply to:

- 1) Where the input supply voltage varied (variation $\geq \pm 10\%$), otherwise our company's SWRA series is recommended;
- 2) Where the isolation voltage between input and output is required to be >3000VDC, otherwise our company's SHD Series products are recommended;

PRODUCT PROGRAM							
Part Number	Input		Output			Efficiency (% , Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nomin	Range		Max	Min		
SIF0505S/D-W75	5	4.75~5.25	5	150	15	69	SIP/DIP
SIF0509S/D-1W	5	4.75~5.25	9	111	12	70	SIP/DIP
SIF0512S/D-1W	5	4.75~5.25	12	83	9	71	SIP/DIP
SIF0515S/D-1W	5	4.75~5.25	15	67	7	72	SIP/DIP
SIF1205S/D-W75	12	11.4~12.6	5	150	15	69	SIP/DIP
SIF1209S/D-1W	12	11.4~12.6	9	111	12	71	SIP/DIP
SIF1212S/D-1W	12	11.4~12.6	12	83	9	72	SIP/DIP
SIF1215S/D-1W	12	11.4~12.6	15	67	7	72	SIP/DIP
SIF2405S/D-W75	24	22.8~25.2	5	150	15	70	SIP/DIP
SIF2409S/D-1W	24	22.8~25.2	9	111	12	72	SIP/DIP
SIF2412S/D-1W	24	22.8~25.2	12	83	9	73	SIP/DIP
SIF2415S/D-1W	24	22.8~25.2	15	67	7	73	SIP/DIP

Note: The SIF_S(D)-0.25W series also are available in our company.

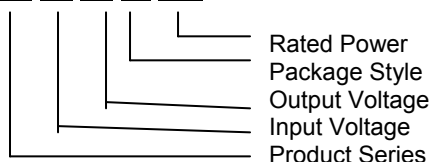
COMMON SPECIFICATIONS	
Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
No-load power consumption	10% nominal power (typical)
Operating temperature range	-40°C~+85°C
Storage temperature range	-55°C ~+125°C
Lead temperature	300°C (1.5mm from case for 10 seconds)
Storage humidity range	$\leq 95\%$
Case material	Plastic (UL94-V0)
MTBF	>3,500,000 hours

ISOLATION SPECIFICATIONS					
Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

OUTPUT SPECIFICATIONS					
Item	Test conditions	Min	Typ	Max	Units
Output power		0.1		1	W
Line regulation	For V_{in} change of 5%			0.25	%
Load regulation	10% to 100% full load			1	%
Output Voltage accuracy	100% full load			± 3	%
Temperature drift	100% full load			0.03	%/°C
Output ripple	20MHz Bandwidth		10	15	mVp-p
Switching frequency	Full load, nominal input		100		KHz

MODEL SELECTION

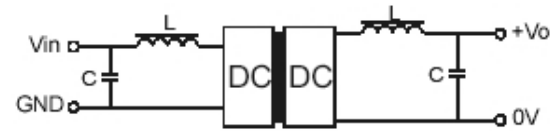
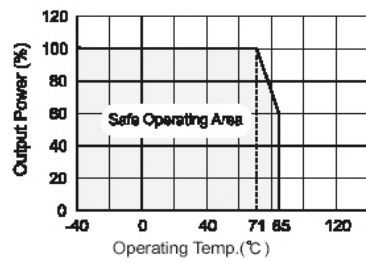
SIF 05 09 S- 1W



Note:

1.All specifications measured at $T_A=25^\circ\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.2.See below recommended circuits for more details.

TYPICAL CHARACTERISTICS



<Figure 1>

PIN CONNECTIONS

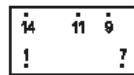
Pin	Function
1	Vin
2	GND
4	0V
6	+Vo

SIFXXXXS- Series



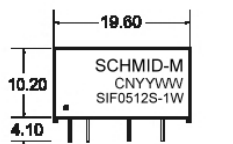
Pin	Function
1	GND
7	NC
9	+Vo
11	0V
14	Vin

SIFXXXXD- Series

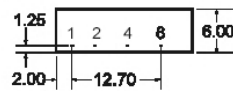
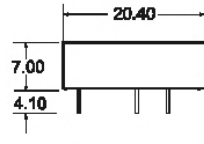


OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS

SIFXXXXS-1W Package



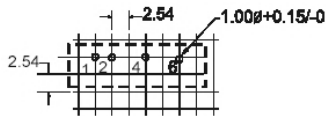
SIFXXXXD-1W Package



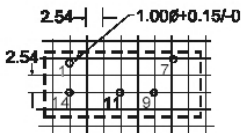
Bottom View



SIFXXXXS-1W Footprint



SIFXXXXD-1W Footprint



Note: All Pins on a 2.54mm pitch; all pin diameters are 0.50mm; all dimensions in mm.

APPLICATION NOTE

Filtering

In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees the external capacitor table. To get an extremely low ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect. It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference (see figure 1).

Requirement on output load

To ensure this module can operate efficiently and reliably, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (namely full load). During operation, make sure the specified range of input voltage is not exceeded, the minimum output load is not less than 10% of the full load, and that this product should never be operated under no load! If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load, or use our company's products with a lower rated output power (SIF_S(D)-0.25W series).

Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

When the environment temperature is higher than 70°C, the product output power should be less than 60% of the rated power.

External Capacitor Table

V _{in}	External capacitor	V _{out}	External capacitor
5VDC	4.7uF	5VDC	10uF
12VDC	2.2uF	9VDC	4.7uF
24VDC	1uF	12VDC	2.2uF
--	--	15VDC	1uF