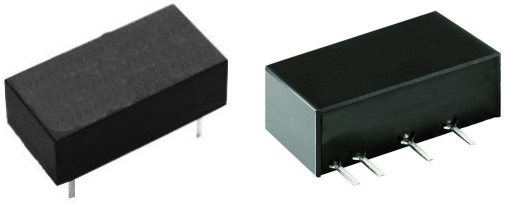
# SIF_S-1W & SIF_D-1W Series

***1W, FIXED INPUT, ISOLATED & REGULATED SINGLE OUTPUT DC-DC CONVERTER***



## FEATURES

- Small Footprint
- SIP/DIP Package
- 3KVDC Isolation
- Temperature Range: -40°C to +85°C
- No Heat sink Required
- Internal SMD Construction
- No External Component Required
- Industry Standard Pinout
- RoHS Compliance

## APPLICATIONS

The SIF_S-1W & SIF_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 ≤±5%);
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 demanded.

## MODEL SELECTION

SIF0505S-1W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

## PRODUCT PROGRAM

| Model | Input Voltage (VDC) | | Output Voltage (VDC) | Output Current (mA) | | Input Current (mA)(Typ.) | | Efficiency(%) @Max. Load | |
|---|---|---|---|---|---|---|---|---|---|
| | Nominal | Range | | Max. | Min. | @Max. Load | @No Load | Min. | Typ. |
| SIF0505S-1W | 5 | 4.75-5.25 | 5 | 200 | 20 | 303 | 30 | 62 | 66 |
| SIF0509S-1W | | | 9 | 111 | 12 | 286 | | 66 | 70 |
| SIF0512S-1W | | | 12 | 83 | 9 | 278 | | 68 | 72 |
| SIF0515S-1W | | | 15 | 67 | 7 | 274 | | 69 | 73 |
| SIF0505D-1W | | | 5 | 200 | 20 | 303 | | 62 | 66 |
| SIF0512D-1W | | | 12 | 83 | 9 | 278 | | 68 | 72 |
| SIF1205S-1W | 12 | 11.4-12.6 | 5 | 200 | 20 | 124 | 15 | 63 | 67 |
| SIF1212S-1W | | | 12 | 83 | 9 | 114 | | 69 | 73 |
| SIF1215S -1W | | | 15 | 67 | 7 | 113 | | 70 | 74 |
| SIF1205D-1W | | | 5 | 200 | 20 | 124 | | 63 | 67 |
| SIF2405S-1W | 24 | 22.8-25.2 | 5 | 200 | 20 | 62 | 8 | 63 | 67 |
| SIF2412S-1W | | | 12 | 83 | 9 | 57 | | 69 | 73 |
| SIF2415S-1W | | | 15 | 67 | 7 | 56 | | 70 | 74 |
| SIF2405D-1W | | | 5 | 200 | 20 | 62 | | 63 | 67 |

Note: The SIF_S(D)-W25 Series also available in our company.

## OUTPUT SPECIFICATIONS

| Item | Test condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Line regulation | For Vin change of ±5% | -- | -- | ±0.25 | % |
| Load regulation | 10% to 100% load | -- | ±1 | ±2 | |
| Output voltage accuracy | 100% load | -- | -- | ±3 | |
| Temperature drift | 100% load | -- | -- | 0.03 | %/℃ |
| Output ripple* | 20MHz Bandwidth | -- | 10 | 20 | mVp-p |
| Output Noise* | 20MHz Bandwidth | -- | 50 | 100 | |

*Test ripple and noise by "parallel cable" method. See detailed operation instructions at DC-DC Application Notes.

## COMMON SPECIFICATION

| Item | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Storage humidity range | Non condensing | -- | -- | 95 | % |

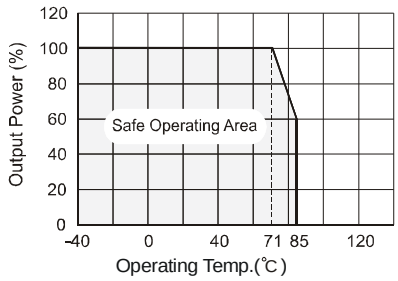
| | | | | | |
|---|---|---|---|---|---|
| Operating temperature | | -40 | -- | 85 | ℃ |
| Storage temperature | | -55 | -- | 125 | |
| Lead temperature | Ta=25°C | -- | 15 | 25 | |
| Temp. rise at full load | 1.5mm from case for 10 seconds | -- | -- | 300 | |
| Cooling | | Free air convection | | | |
| Case material | | Plastic(UL94-V0) | | | |
| Short circuit protection | *SIFXX05S/D-1W | -- | -- | 1 | S |
| | Others | Continuous | | | |
| Switching Frequency | 100% load, Input voltage range | -- | 120 | 300 | KHz |
| MTBF | | 3500 | -- | -- | K hours |
| Weight | SIF_S-1W / SIF_S-W75 | -- | 2.1 | -- | g |
| | SIF_D-1W / SIF_D-W75 | -- | 2.4 | -- | g |
| *Supply voltage must be discontinued at the end of short circuit duration. | | | | | |

## ISOLATION SPECIFICATIONS

| Item | Test condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Isolation voltage | Input-Output, tested for 1 minute and leakage current less than 1 mA | 3000 | -- | -- | VDC |
| Isolation resistance | Input-Output, test at 500VDC | 1000 | -- | -- | MΩ |
| Isolation Capacitance | Input-Output,100KHz/0.1V | -- | 60 | -- | pF |

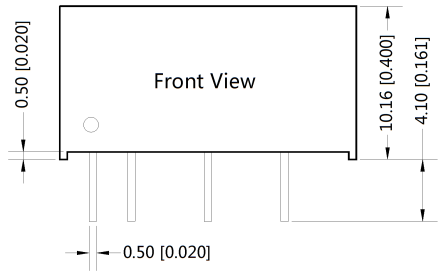
## TYPICAL CHARACTERISTICS

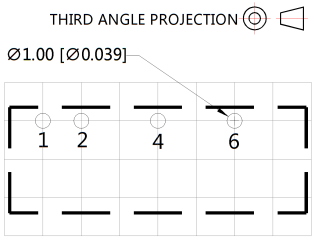
Temperature Derating Graph



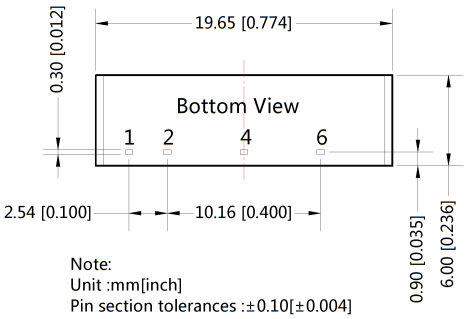

## OUTLINE DIMENSIONS & PIN CONNECTIONS

SIF_S-1W / SIF_S-W75



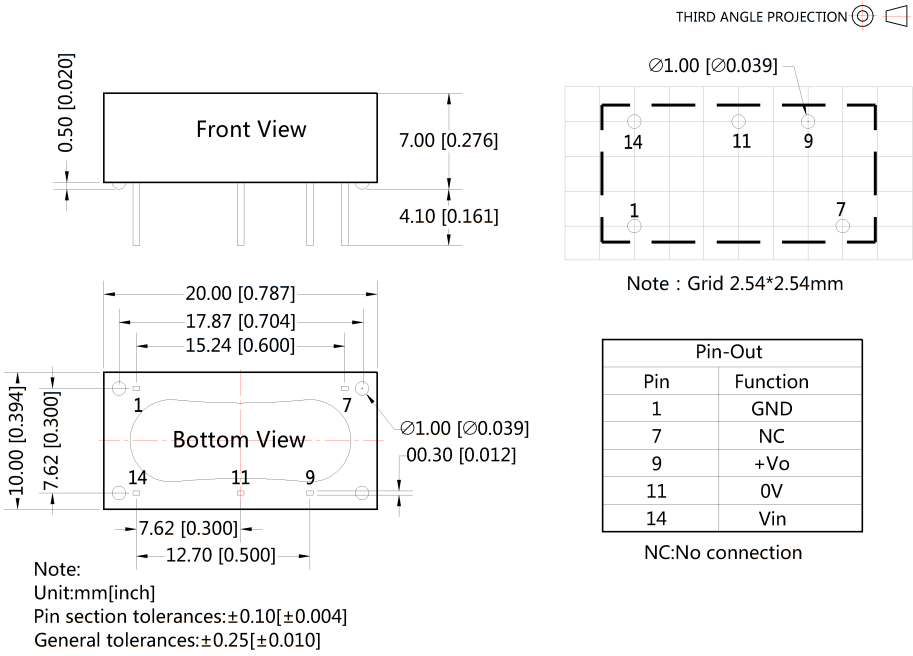




Note : Grid 2.54*2.54mm




Note:
Unit :mm[inch]
Pin section tolerances :±0.10[±0.004]
General tolerances:±0.25[±0.010]

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




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

NC:No connection

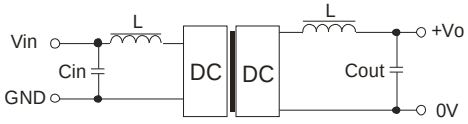
## APPLICATION NOTE

**1)Requirement on output load**

To ensure this module can operate efficiently and reliably, During operation, the minimum output load could not be less than 10% of the full 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.

**2)Recommended circuit**

If you want to further decrease the input/output ripple, an “LC” filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 1).




(Figure 1)

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 avoi mutual interference. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem migh arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees (Table 1).

EXTERNAL CAPACITOR TABLE (TABLE 1)

| Vin (VDC) | Cin (μF) | Vout (VDC) | Cout (μF) |
|---|---|---|---|
| 5 | 4.7 | 5 | 10 |
| 12 | 2.2 | 9 | 4.7 |
| 24 | 1 | 12 | 2.2 |
| - | - | 15 | 1 |

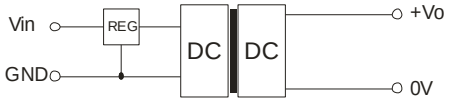
It’s not recommend to connect any external capacitor in the application field with less than 0.5 watt output.

**3)Overload Protection**

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

**4)Input Over-voltage Protection Circuit**

The simplest device for input over-voltage protection is a linear voltage regulator with overheat protection that is connected to the input end i series (Figure 2).




(Figure 2)

**5)When the environment temperature is higher than 71°C, the product output power should be less then 60% of the rated power.**

**6)It is not recommended to increase the output power capability by connecting two or more converters in parallel. The product is not hot-swappable.**

Note:

1. Operation under minimum load will not damage the converter; However, they may not meet all specifications.
2. Max. Capacitive Load is tested at nominal input voltage and full load.
3. Unless otherwise noted, All specifications are measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load.
4. In this datasheet, all test methods are based on our corporate standards.
5. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more detail.