

FEATURES

- ◆ Small footprint
- ◆ SIP6 package
- ◆ Temperature range: -40°C~+85°C
- ◆ 1KVDC isolation
- ◆ No Heat sink required
- ◆ No external component required
- ◆ Internal SMD Construction
- ◆ Industry standard pinout
- ◆ RoHS Compliance

MODEL SELECTION

D^①05^②05^③05^④X^⑤N^⑥M^⑦-1W^⑧

- ① Product Series
- ② Input Voltage
- ③ The 1st Output Voltage
- ④ The 2nd Output Voltage
- ⑤ Fixed Input
- ⑥ Negation output
- ⑦ Mini SIP Package
- ⑧ Rated Power

APPLICATIONS

The D-XNM-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 $\leq 1000\text{VDC}$);
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding. Such as: purely digital circuits, ordinary low frequency analog circuits, and IGBT power device driving circuits.



PRODUCT PROGRAM

| Part Number | Input | | Output | | | Efficiency (%Typ) |
|---------------|--------------|-----------|---------------|-------------|------|-------------------|
| | Voltage(VDC) | | Voltage (VDC) | Current(MA) | | |
| | Nominal | Range | | Max | Min. | |
| D030505XNM-1W | 3.3 | 2.97-3.63 | 5 | 100 | 10 | 70 |
| D050303XNM-1W | 5 | 4.5-5.5 | 3.3 | 152 | 15 | 62 |
| D050505XNM-1W | 5 | 4.5-5.5 | 5 | 100 | 10 | 71 |

COMMON SPECIFICATIONS

| Item | Test Conditions | Min. | Typ. | Max. | Units |
|---------------------------|--------------------------------|---------------------|------|------|---------|
| Storage humidity range | | | | 95 | % |
| Operating temperature | | -40 | | 85 | °C |
| Storage temperature | | -55 | | 125 | |
| Lead temperature | 1.5mm from case for 10 seconds | | | 300 | |
| Temp. rise at full load | | | 15 | 25 | |
| Short circuit protection* | | | | 1 | S |
| Cooling | | Free air convection | | | |
| Case material | | Plastic(UL94-V0) | | | |
| MTBF | | 3500 | | | K hours |
| Weight | | | 1.4 | | g |

*Supply voltage must be discontinued at the end of short circuit duration.

ISOLATION SPECIFICATIONS

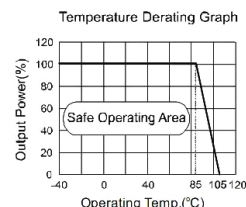
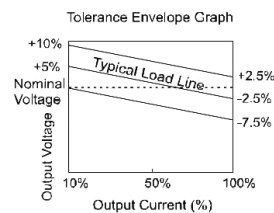
| Item | Test Conditions | Min. | Typ. | Max. | Units |
|---------------------------------|---------------------------------|------|------|------|-------|
| Isolation voltage (Vin/Vout) | Tested for 1 minute and 1mA max | 1000 | | | VDC |
| Isolation voltage (Vo1/Vo2) | Tested for 1 minute and 1mA max | 1000 | | | VDC |
| Isolation resistance (Vin/Vout) | Test at 500VDC | 1000 | | | MΩ |
| Isolation resistance (Vo1/Vo2) | Test at 500VDC | 1000 | | | MΩ |
| Isolation capacitance(Vin/Vout) | | | 30 | | pF |
| Isolation capacitance(Vo1/Vo2) | | | 30 | | pF |

OUTPUT SPECIFICATIONS

| Item | Test Conditions | Min. | Typ. | Max. | Units |
|-------------------------|--------------------------------|------------------------------|------|-------|-------|
| Output power | | 0.1 | | 1 | W |
| Line regulation | For Vin change of 1% | | | ±1.5 | % |
| Load regulation | 10% to 100% load (3.3V output) | | 15 | 20 | % |
| Load regulation | 10% to 100% load(5V output) | | 12.8 | 15 | % |
| Output voltage accuracy | | See tolerance envelope graph | | | |
| Temperature drift | 100% full load | | | ±0.03 | %/°C |
| Ripple & Noise* | 20MHz Bandwidth | | 75 | 100 | mVp-p |
| Switching frequency | Full load, nominal input | | 130 | | KHz |

*Test ripple and noise by "Parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

TYPICAL CHARACTERISTICS



APPLICATION NOTE

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 , or use our company products with a lower rated output power.

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).

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. 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 recommended capacitance of its filter capacitor sees (Table 1).

Output Voltage Regulation and Over-voltage Protection Circuit

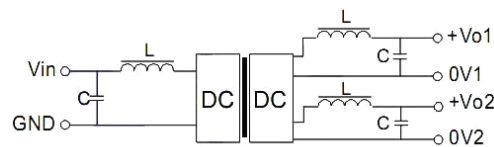
The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series (Figure 2).

Overload Protection

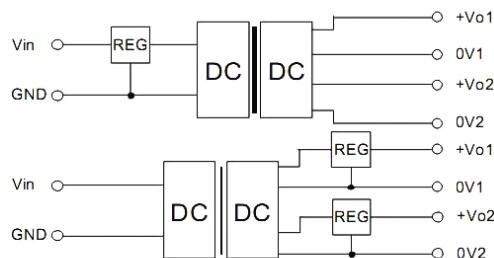
Under normal operating conditions, the output circuit of these products has no protection against overload .The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

No parallel connection or plug and play

RECOMMENDED CIRCUIT



(Figure 1)



(Figure 2)

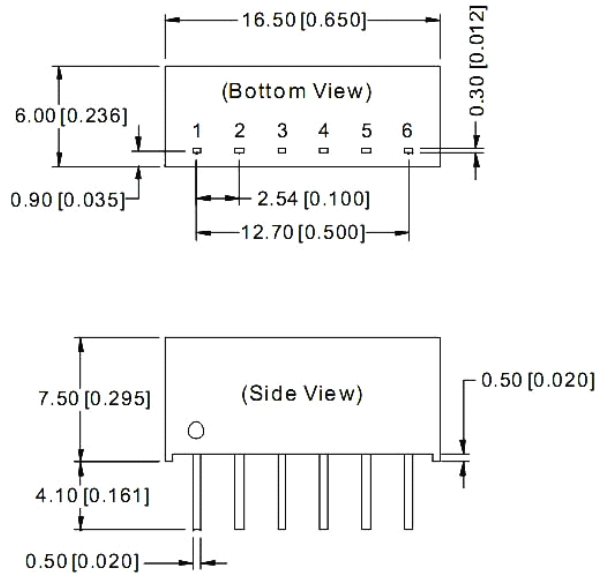
EXTERNAL CAPACITOR TABLE (TABLE 1)

| Vin(VDC) | Cin(μF) | Cout(μF) | Vout(VDC) |
|----------|---------|----------|-----------|
| 3.3/5 | 4.7 | 3.3/5 | 4.7 |

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

OUTLINE DIMENSIONS & FOOTPRINT DETAILS

MECHANICAL DIMENSIONS



Note:

Unit:mm[inch]

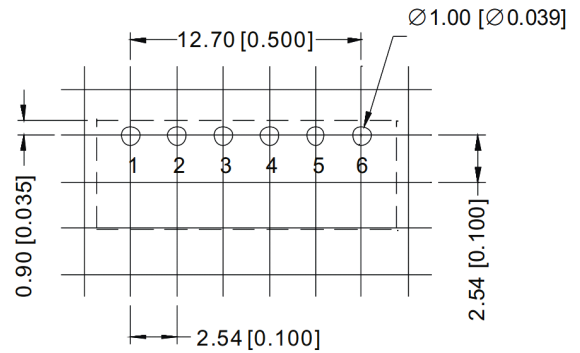
Pin section tolerances:±0.10mm[±0.004inch]

General tolerances:±0.25mm[±0.010inch]

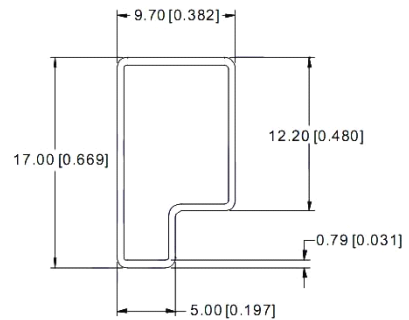
FOOTPRINT DETAILS

| Pin | Function |
|-----|----------|
| 1 | Vin |
| 2 | GND |
| 3 | 0V1 |
| 4 | Vo1 |
| 5 | 0V2 |
| 6 | Vo2 |

RECOMMENDED FOOTPRINT



TUBE OUTLINE DIMENSIONS



Note:

Unit :mm[inch]

General tolerances:±0.50mm[±0.020inch]

L=530mm[20.866inch] Tube Quantity: 30pcs

L=220mm[8.661inch] Tube Quantity: 11pcs

RoHS COMPLIANT INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300° C for 10 seconds.

The pin termination finish on the SIP package type is Tin Plate, Hot Dipped over Matte Tin with Nickel Preplate. The DIP types are Matte Tin over Nickel Preplate. Both types in this series are backward compatible with Sn/Pb soldering systems.

REACH COMPLIANT INFORMATION

This series has proven that this product does not contain harmful chemicals, it also has harmful chemical substances through the registration, inspection and approval.