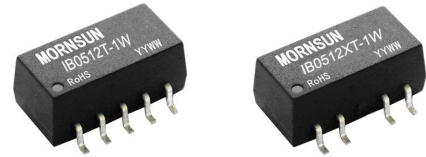


IB_(X)T-1W Series

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



multi-country patent protection **RoHS**

FEATURES

- I Small Footprint
- I Single Voltage Output
- I SMD Package Style
- I 1KVDC Isolation
- I No Heatsink Required
- I Continuous Short circuit protection
- I Internal SMD construction
- I Temperature Range: -40°C to +85°C
- I Industry Standard Pinout
- I No External Component Required
- I RoHS Compliance

APPLICATIONS

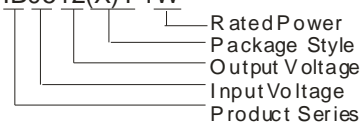
The IB_(X)T-1W Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

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.

MODEL SELECTION

IB0512(X)T-1W



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PRODUCT PROGRAM

| Part Number | Input | | Output | | | Efficiency (% Typ.) |
|----------------|---------------|-----------|---------------|--------------|-----|---------------------|
| | Voltage (VDC) | | Voltage (VDC) | Current (mA) | | |
| | Nominal | Range | | Max | Min | |
| IB0505(X)T-W75 | 5 | 4.75-5.25 | 5 | 150 | 15 | 68 |
| IB0512(X)T-1W | | | 12 | 83 | 9 | 69 |
| IB0515(X)T-1W | | | 15 | 67 | 7 | 69 |
| IB1205(X)T-W75 | 12 | 11.4-12.6 | 5 | 150 | 15 | 68 |
| IB1212(X)T-1W | | | 12 | 83 | 9 | 69 |
| IB1215(X)T-1W | | | 15 | 67 | 7 | 70 |

Note: 1. IB_XT-1W series designing;
2. IB_XT-1W series have no 3,6,8,9pin, for example IB0505XT-W75.

OUTPUT SPECIFICATIONS

| Item | Test Conditions | Min | Typ. | Max | Units |
|-------------------------|----------------------------------|-----|------|------------|-------|
| Output power | | 0.1 | | 1 | W |
| Line regulation | For V_{in} change of $\pm 5\%$ | | | ± 0.25 | % |
| Load regulation | 10% to 100% load | | | ± 1 | |
| Output voltage accuracy | 100% full load | | | ± 3 | |
| Temperature drift | 100% full load | | | 0.03 | %/°C |
| ripple* | 20MHz Bandwidth | | 10 | 20 | mVp-p |
| Noise* | 20MHz Bandwidth | | 50 | 100 | |
| Switching frequency | Full load, nominal input | | 100 | | KHz |

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

ISOLATION SPECIFICATIONS

| Item | Test Conditions | Min | Typ. | Max | Units |
|----------------------|---------------------------------|------|------|-----|-------|
| Isolation voltage | Tested for 1 minute and 1mA max | 1000 | | | VDC |
| Isolation resistance | Test at 500VDC | 1000 | | | MΩ |

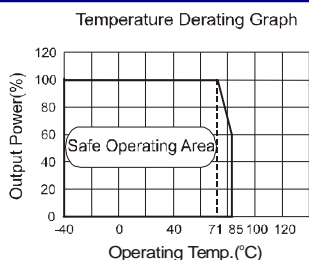
Note:

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.

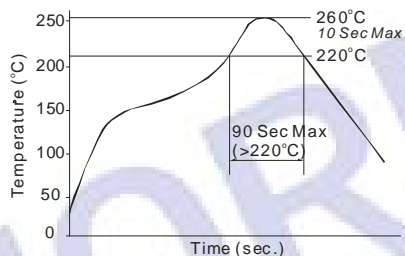
COMMON SPECIFICATION

| Item | Test Conditions | Min | Typ | Max | Units |
|--------------------------|--------------------------------|---------------------|-----|------|---------|
| Storage humidity | | | | 95 | % |
| Operating temperature | | -40 | | 85 | °C |
| Storage temperature | | -55 | | 125 | |
| Temp. rise at full load | | | 15 | 25 | |
| Lead temperature | 1.5mm from case for 10 seconds | | | 260 | |
| Cooling | | Free air convection | | | |
| Short circuit protection | | continuous | | | |
| Case material | | Plastic(UL94-V0) | | | |
| MTBF | | 3500 | | | K Hours |
| Weight | | | | 1.70 | g |

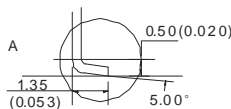
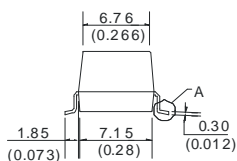
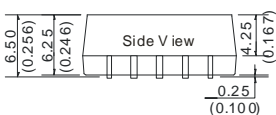
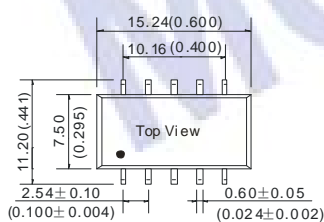
TYPICAL CHARACTERISTICS



RECOMMENDED REFLOW SOLDERING PROFILE

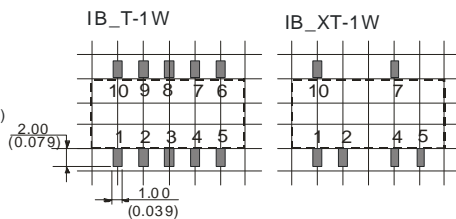


OUTLINE DIMENSIONS & FOOTPRINT DETAILS



First Angle Projection

RECOMMENDED FOOTPRINT
Top view, grid: 2.54*2.54mm (0.1*0.1 inch)



FOOTPRINT DETAILS

| Pin | Function(T) | Function(XT) |
|--------|-------------|--------------|
| 1 | GND | GND |
| 2 | Vin | Vin |
| 4 | 0V | 0V |
| 7 | +Vo | +Vo |
| 5, 10 | NC | NC |
| Others | NC | No Pin |

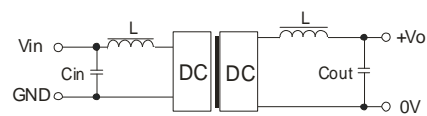
NC: No connection

Note:
Unit:mm (inch)
Pin section: 0.60*0.25mm (0.024*0.010inch)
Pin tolerances: ±0.10mm (±0.004inch)
General tolerances: ±0.15mm (±0.006inch)

APPLICATION NOTE

Recommended testing 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 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 greatest capacitance of its filter capacitor sees (Table 1).

EXTERNAL CAPACITOR TABLE (Table 1)

| Vin (VDC) | Cin (uF) | Vout (VDC) | Cout (uF) |
|-----------|----------|------------|-----------|
| 5 | 4.7 | 5 | 4.7 |
| 12 | 2.2 | 12 | 1 |
| - | - | 15 | 1 |

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

Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, 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.

Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against over-current. 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 71°C, the product output power should be less than 60% of the rated power.

No parallel connection or plug and play.