



6 watt dc-dc converters

- 24 PIN DIP PACKAGE
- WIDE 2:1 INPUT RANGE
- HIGH EFFICIENCY UP TO 86%
- SHIELDED METAL PACKAGE
- INPUT/OUTPUT ISOLATION OF 1500VDC
- OPERATING TEMPERATURE: -40°C ... +71°C
- CONTINUOUS SHORT CIRCUIT PROTECTION
- PIN-COMPATIBLE WITH MULTIPLE MANUFACTURERS

DC-DC CONVERTERS

GENERAL DESCRIPTION

Our AM6T-N series is a family of cost effective 6W single and dual output DC/DC converters. These converters combine a shielded metal package in a 24-pin DIP compatible case and includes high performance features such as a 1500VDC input/output isolation voltage, continuous short circuit protection and a tight line / load regulation. Wide range devices operate over a 2:1 input voltage range continuously providing a stable output voltage.

27 models operate from input voltages of 12, 24 and 48VDC with output voltages of 3.3, 5, 12, 15, 24, ± 5 , ± 12 , ± 15 & ± 24 VDC. High performance features include high efficiency operation up to 86% and output voltage accuracy of $\pm 1\%$. All models are packaged in a low profile 31.75 x 20.32 x 10.16mm case. Operation is specified over the full operating temperature range of -40°C to +71°C with no derating required. Cooling is by free-air convection.

ELECTRICAL SPECIFICATIONS

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

| | |
|--------------------------------------|--|
| Voltage range | 12VDC, 9~18VDC 24VDC, 18~36VDC 48VDC, 36~72VDC |
| Filter | p (Pi) Network |
| Isolation Specifications: | |
| Rated voltage (60 sec) | 1500VDC |
| Resistance | > 1000M Ω |
| Capacitance | 120pF, typ. |
| Environmental Specifications: | |
| Operating temperature (ambient) | -40°C ... +71°C |
| Storage temperature | -55°C ... +125°C |
| Case Temperature | +100°C, max. |
| Derating | None required |
| Humidity (non-condensing) | Up to 95% |
| Cooling | Free-air Convection |

| | |
|---------------------------------|---|
| General Specifications: | |
| Efficiency | 76% to 86% |
| Switching frequency | 300KHz, typ., 100% load |
| Output Specifications: | |
| Voltage accuracy (Single) | $\pm 1\%$, typ. |
| Voltage accuracy (Dual) | $\pm 1\%$ p. & $\pm 3\%$ n., typ. |
| Ripple | 30m Vp-p, typ. |
| Noise (at 20MHz BW) | 100mVp-p, typ. |
| Short circuit protection | Continuous |
| Line voltage regulation | $\pm 0.2\%$, max. |
| Load voltage regulation | $\pm 0.5\%$, max. |
| Temperature coefficient | $\pm 0.02\%/^{\circ}\text{C}$, typ. |
| Physical Specifications: | |
| Dimensions | 31.75x20.32x10.16mm 1.25x0.80x0.40inches |
| Weight | 19g |
| Case material | Metal |

MTBF: > 1,000,000 hrs (MIL-HDBK-217F, Ground Benign, $t=+25^{\circ}\text{C}$)

Specifications are subject to change without notification.

Continued on next page

MODELS

Single Output

| Models | Input Voltage | Output Voltage | Max. Output Current |
|--------------|---------------|----------------|---------------------|
| AM6T-1203S-N | 9 - 18VDC | 3.3VDC | 1400mA |
| AM6T-1205S-N | | 5VDC | 1200mA |
| AM6T-1212S-N | | 12VDC | 500mA |
| AM6T-1215S-N | | 15VDC | 400mA |
| AM6T-1224S-N | | 24VDC | 250mA |
| AM6T-2403S-N | 18 - 36VDC | 3.3VDC | 1400mA |
| AM6T-2405S-N | | 5VDC | 1200mA |
| AM6T-2412S-N | | 12VDC | 500mA |
| AM6T-2415S-N | | 15VDC | 400mA |
| AM6T-2424S-N | | 24VDC | 250mA |
| AM6T-4803S-N | 36 - 72VDC | 3.3VDC | 1400mA |
| AM6T-4805S-N | | 5VDC | 1200mA |
| AM6T-4812S-N | | 12VDC | 500mA |
| AM6T-4815S-N | | 15VDC | 400mA |
| AM6T-4824S-N | | 24VDC | 250mA |

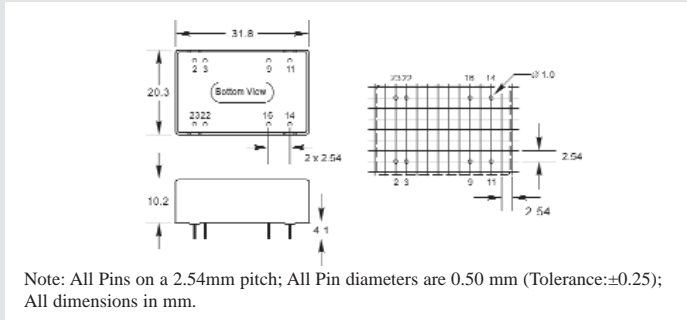
MODELS

Dual Output

| Models | Input Voltage | Output Voltage | Max. Output Current |
|--------------|---------------|----------------|---------------------|
| AM6T-1205D-N | 9 - 18VDC | ±5VDC | ±600mA |
| AM6T-1212D-N | | ±12VDC | ±250mA |
| AM6T-1215D-N | | ±15VDC | ±200mA |
| AM6T-1224D-N | | ±24VDC | ±125mA |
| AM6T-2405D-N | 18 - 36VDC | ±5VDC | ±600mA |
| AM6T-2412D-N | | ±12VDC | ±250mA |
| AM6T-2415D-N | | ±15VDC | ±200mA |
| AM6T-2424D-N | | ±24VDC | ±125mA |
| AM6T-4805D-N | 36 - 72VDC | ±5VDC | ±600mA |
| AM6T-4812D-N | | ±12VDC | ±250mA |
| AM6T-4815D-N | | ±15VDC | ±200mA |
| AM6T-4824D-N | | ±24VDC | ±125mA |

Continued on next page

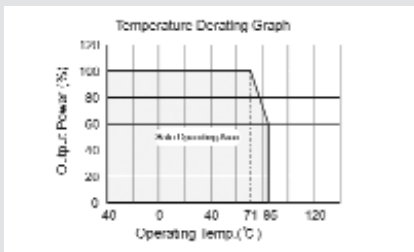
OUTLINE DIMENSIONS & PIN CONNECTIONS



| Pin | Single | Dual |
|-----|-----------|------------|
| 2 | -V Input | -V Input |
| 3 | -V Input | -V Input |
| 9 | Omitted | Common |
| 11 | N.C. | -V Output. |
| 14 | +V Output | +V Output |
| 16 | -V Output | Common |
| 22 | +V Input | +V Input |
| 23 | +V Input | +V Input |

DC-DC CONVERTERS

TYPICAL CHARACTERISTICS



APPLICATION NOTE

Recommended Circuit

All of our AM6T-N Series have been tested according to the following recommended testing circuit before leaving our factory. This series should be tested under load & never be tested under no load (See Figure 1).

If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with a low ESR. However, the capacitance should not be too high.(See table 1).

Input Current

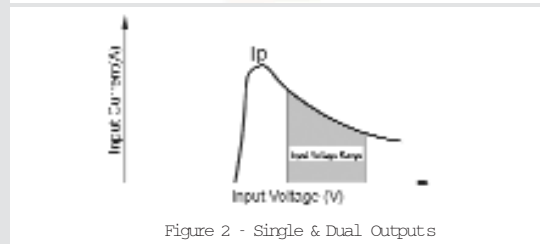
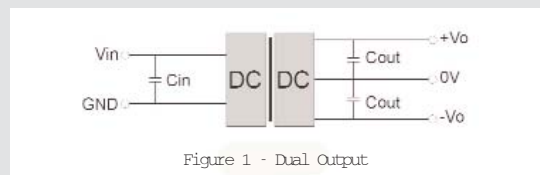
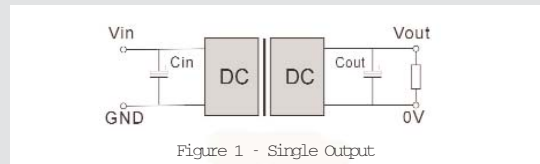
When it is used in an unregulated power supply, be sure that the fluctuating range of the power supply and the rippled voltage do not exceed the module standard. Input current of power supply should afford the startup current of this kind of DC/DC module. (See figure 2)

External Capacitor

Although this series of DC/DC converters can work without an external capacitor, it is highly recommended to use one in order to keep an optimum performance. (See Table 1)

Requirement on Output Load

To ensure this module 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 out put load is not less than 10% of the full load, and that this product should never be operated under no load!!! If the actual load is less below the specified minimum load, the output ripple of this type of DC/DC converter will increase drastically and at the same time efficiency & reliability of the circuit will decrease deeply .If the actual output power from the load in your circuit 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 other products with a lower rated output power.



External Capacitor Table Single & Dual Outputs

| Vin | Cin | Vout | Cout |
|-----|-------|------|--------------------------|
| 12V | 100uF | 5V | 100uF each 1A Current |
| 24V | 100uF | 12V | |
| 48V | 100uF | 15V | |
| - | - | 24V | |