

D78BXXX-1.0 SERIES

Single Output 1.0Amp

Non-Isolated DC-DC CONVERTER



FEATURES

- SINGLE IN LINE PACKAGE
- 6.5-20V 、 9-18V WIDE INPUT RANGE
- 100% BURN IN
- HIGH EFFICIENCY
- INTERNAL SMD TECHNOLOGY
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT



OUTPUT SPECIFICATIONS

| | | |
|---------------------------------------|-------------|------------------|
| Voltage Set-point Accuracy | | +/-2% max. |
| Temperature Coefficient | | +/-0.05%/°C |
| Ripple & Noise(20MHz BW) ¹ | | 100mVp-p max. |
| Line Regulation ² | D78BXXM-1.0 | +/-1% max. |
| | D78BXXT-1.0 | +/-1.5%max. |
| Load Regulation ³ | D78BXXM-1.0 | +/-1% max. |
| | D78BXXT-1.0 | +/-1.5%max. |
| Minimum Load | D78BXXM-1.0 | 0% of Full Load |
| | D78BXXT-1.0 | 10% of Full Load |
| Short Circuit Protection | | Continuous |
| Short Circuit Restart | | Automatic |
| Capacitance Load | | 220uF max. |

ENVIRONMENTAL SPECIFICATIONS

| | |
|--------------------------------------|-------------------|
| Operating Temperature(with derating) | -40 °C to +85 °C |
| Case Temperature | +100 °C max. |
| Storage Temperature | -55 °C to +125 °C |
| Humidity | 95% max. |

INPUT SPECIFICATIONS

| | |
|---------------------|-----------------|
| Input Voltage Range | 6.5-20V 、 9-18V |
| Input Filter | Capacitor Type |

GENERAL SPECIFICATIONS

| | |
|---------------------|------------------------|
| Efficiency | 83 % min. |
| Isolation Voltage | Non-isolation |
| Switching Frequency | 280KHz min. |
| Weight | 1.3g Typ. |
| Case Material | Non-Conductive Plastic |
| Case Size | 11.6mm*7.6mm*10.14mm |
| Conducted Emissions | EN55022 Class A |
| Radiated Emissions | EN55022 Class A |
| MTBF ⁴ | +25°C >3,260,000Hours |
| | +71°C >1,130,000Hours |

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD, AND 25 °C UNLESS OTHERWISE NOTED.

● SELECTION GUIDE(1)

¹ Measured with 1uF ceramic capacitor connect to the output pins.

² High Line to Low Line.

³ Load Regulation is for output load current change from 10% to 100%.

⁴ MIL-HDBK-217F @25 °C , Ground Benign.

| MODEL NUMBER | INPUT VOLTAGE (VDC) | NOMINAL VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ⁵ CURRENT(mA) | | EFF (%) ⁶ |
|--------------|---------------------|-----------------------|----------------------|---------------------|--------------------------------|---------|----------------------|
| | | | | | FULL LOAD | NO LOAD | |
| | | | | | | | |
| D78B33M-1.0 | 6.5-20 | 12 | 3.3 | 1000 | 320 | 10 | 86 |
| D78B05M-1.0 | 6.5-20 | 12 | 5 | 1000 | 463 | 10 | 90 |

Note: Other input to output voltages may be available. Please contact factory.

● SELECTION GUIDE(2)

| MODEL NUMBER | INPUT VOLTAGE (VDC) | NOMINAL VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ⁷ CURRENT(mA) | | EFF (%) ⁸ |
|--------------|---------------------|-----------------------|----------------------|---------------------|--------------------------------|---------|----------------------|
| | | | | | FULL LOAD | NO LOAD | |
| | | | | | | | |
| D78B33T-1.0 | 9-18 | 12 | 3.3 | 1000 | 312 | 10 | 88 |
| D78B05T-1.0 | 9-18 | 12 | 5 | 1000 | 458 | 10 | 91 |

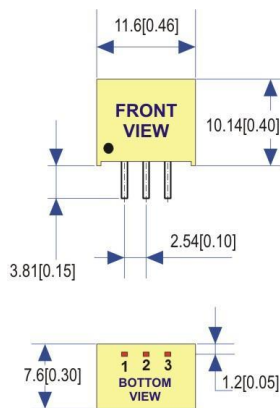
Note: Other input to output voltages may be available. Please contact factory.

Note1.

| MODEL NUMBER | External with output capacitor(min) |
|--------------|-------------------------------------|
| D78BXXT-1.0 | 27uF/100V (CHEMICON KY series) |

● MECHANICAL DIMENSIONS

PACKAGE



All dimensions in mm[inches].

| PIN | SINGLE |
|-----|--------|
| 1 | +Vin |
| 2 | GND |
| 3 | +Vout |

NOTE: Pin Size is Tolerance 0.50Φ ±0.05mm

All Dimensions In mm(Inches)

Tolerance .X or .XX= ±0.5mm

● RECOMMENDED FOOTPRINT DETAILS

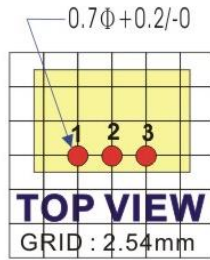
D78BXXX-1.0 SELECTION PACKAGE

⁵ NOMINAL INPUT VOLTAGE.

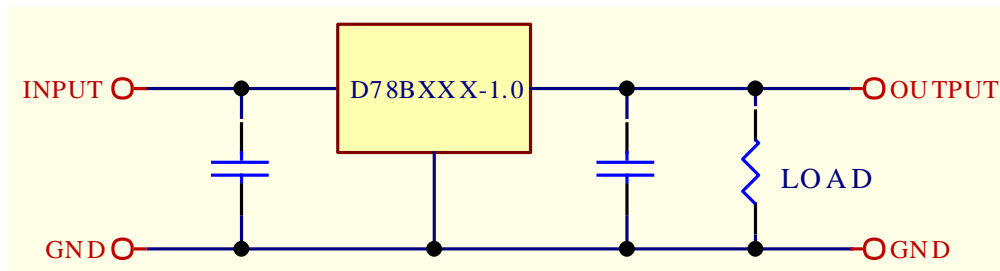
⁶ NOMINAL INPUT VOLTAGE, FULL LOAD.

⁷ NOMINAL INPUT VOLTAGE.

⁸ NOMINAL INPUT VOLTAGE, FULL LOAD.



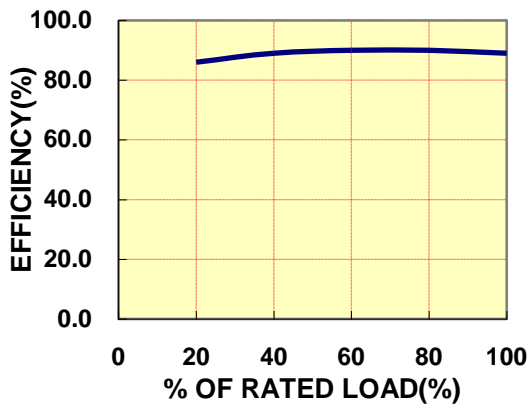
● TYPICAL APPLICATIONS



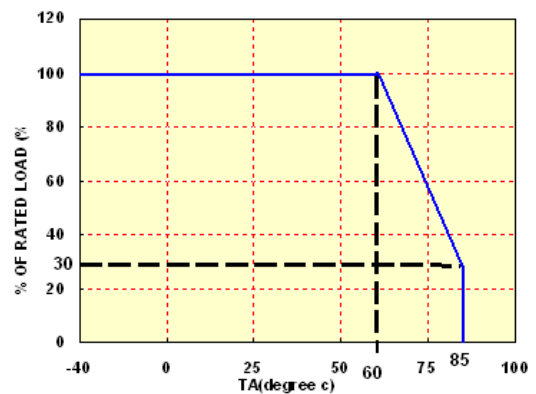
● TYPICAL PERFORMANCE CURVES

Specifications typical at $t_a=25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

EFFICIENCY VS LOAD



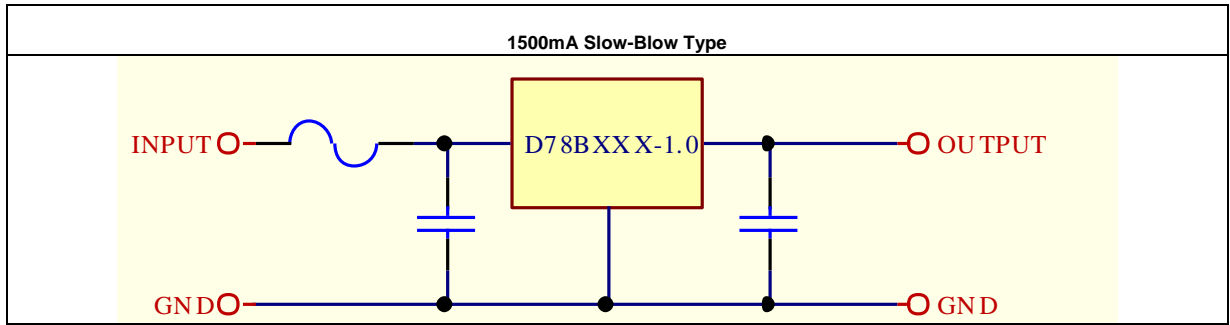
TEMPERATURE DERATING



● INPUT FUSE SELECTION GUIDE

6.5-20V · 9-18V

INPUT VOLTAGE(VDC)



Note: Certain applications may require the installation of external fuse in front of the input.