

20 Watt**2x1 Inch Package B
2:1 Input Range - Metal Case**

- o Single & Dual Outputs
- o Pi Input Filter
- o Six-Sided Shielded
- o Efficiency up to 90%
- o Remote On/Off Control
- o Continuous Short Circuit Protection



| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | | INPUT CURRENT | | %EFF | CAPACITOR LOAD MAX. | | | |
|---------------|---------------|----------------|----------------|---------|---------------|-----------|---------|---------------------|---------|----|---------|
| | | | MIN. | MAX. | NO LOAD | FULL LOAD | | | | | |
| 20BRD12W12LC | 9-18 VDC | ±12 VDC | 42 mA | ±835 mA | 40 mA | 1856 mA | 90 | 1000 µF | | | |
| 20BRD12W15LC | | ±15 VDC | 33 mA | ±670 mA | | 1861 mA | | 800 µF | | | |
| 20BRS24W1.8LC | 18-36 VDC | 1.8 VDC | 0 mA | 6000 mA | 30 mA | 523 mA | 86 | 6000 µF | | | |
| 20BRS24W2.5LC | | 2.5 VDC | | 6000 mA | | 710 mA | | | 88 | | |
| 20BRS24W3.3LC | | 3.3 VDC | | 5000 mA | 40 mA | 764 mA | 90 | 5000 µF | | | |
| 20BRS24W5LC | | 5 VDC | | 4000 mA | 60 mA | 926 mA | | 4000 µF | | | |
| 20BRS24W12LC | | 12 VDC | | 1670 mA | 20 mA | 928 mA | | 2000 µF | | | |
| 20BRS24W15LC | | 15 VDC | | 1330 mA | | 924 mA | | 1000 µF | | | |
| 20BRD24W12LC | | ±12 VDC | | 42 mA | | ±835 mA | | 928 mA | 1000 µF | | |
| 20BRD24W15LC | | ±15 VDC | | 33 mA | | ±670 mA | | 930 mA | 800 µF | | |
| 20BRS48W1.8LC | | 36-75 VDC | | 1.8 VDC | 0 mA | 6000 mA | | 30 mA | 262 mA | 86 | 6000 µF |
| 20BRS48W2.5LC | | | | 2.5 VDC | | 6000 mA | | | 359 mA | | |
| 20BRS48W3.3LC | 3.3 VDC | | 5000 mA | 386 mA | | 89 | 5000 µF | | | | |
| 20BRS48W5LC | 5 VDC | | 4000 mA | 40 mA | | 463 mA | 4000 µF | | | | |
| 20BRS48W12LC | 12 VDC | | 1670 mA | 15 mA | | 469 mA | 89 | 2000 µF | | | |
| 20BRS48W15LC | 15 VDC | | 1330 mA | | | 472 mA | | | 88 | | |
| 20BRD48W12LC | ±12 VDC | | 42 mA | ±835 mA | | 10 mA | 464 mA | 90 | 1000 µF | | |
| 20BRD48W15LC | ±15 VDC | | 33 mA | ±670 mA | | | 471 mA | 89 | 800 µF | | |

SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS

| | | | |
|-------------------------------------|--|--|--------------|
| Input Voltage Range | | | 2:1 |
| Input Surge Voltage (100 ms max.) | 12 V | | 25 VDC max. |
| | 24 V | | 50 VDC max. |
| | 48 V | | 100 VDC max. |
| Undervoltage lockout | 12 Vin power up | | 8.8 V |
| | 12 Vin power down | | 8 V |
| | 24 Vin power up | | 17 V |
| | 24 Vin power down | | 16 V |
| | 48 Vin power up | | 34 V |
| | 48 Vin power down | | 33 V |
| Positiv Logic Remote ON/OFF Control | Logic compatibility Module ON Module OFF | CMOS or Open Collector TTL ref. to -Vin >+5.5 VDC or Open Circuit <1.2 VDC | |
| Input Filter | | | Pi Type |

OUTPUT SPECIFICATIONS

| | | | |
|---|------------------|---|--------------------|
| Voltage Accuracy | | | ±1.5% max. |
| Voltage Balance (Dual) | | | ±2.0% max. |
| Minimum Output Current | | | 0 A |
| Transient Response 75%to 100% Step Load Change | | Error Band ±5% Vout Nominal, Recovery Time <500µ sec. | |
| External Trim Adj. Range | Single | | ±10% |
| Ripple and Noise at 20 MHz BW ³ | | | 75 mV p-p max. |
| Temperature Coefficient | | | ±0.03%/°C max. |
| Short Circuit Protection | | | Continuous |
| Line Regulation ¹⁾ | Single | | ±0.2% max. |
| | Dual | | ±0.5% max. |
| Load Regulation ²⁾ | Single/Dual | | ±1.0% max. |
| Over Voltage Protection | | | Zener or TVS Clamp |
| Start Up Time | 20 BRS24W12LC | | 13 ms |
| | ...15LC | | |
| | 20BRS48W12LC | | 22 ms |
| | ...15LC other | | 5ms |

NOTE:

1. Measured from High Line to Low Line.
2. Measured from Full Load to 1/10 Load.
3. The Output Noise is measured with 0.1 µ MLCC.

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GENERAL SPECIFICATION

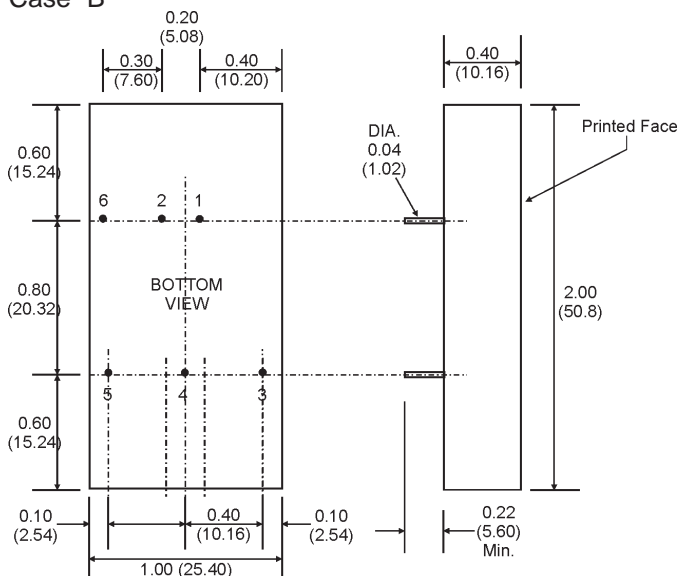
| | |
|--|--|
| Efficiency | see table |
| Isolation Voltage | 1500 VDC min. |
| Isolation Resistance | 100 Mohms min. |
| Isolation Capacitance | 1000 pF |
| Switching Frequency | 350 kHz |
| Operating Temperature Range | -40°C to +85°C |
| Derating above +71°C | Linearly to Zero Power at +100°C |
| Case Temperature ⁴⁾ | +100°C max. |
| Cooling | Natural Convection |
| Storage Temperature Range | -55°C to +125°C |
| Humidity | 95% RH max. Non Condensing |
| Recommended Reflow Soldering Pb-free ⁵⁾ | see diagram |
| EMI/RFI | Six-Sided Continuous Shield |
| Case Material | Black Coated Copper with Non-Conductive Base |
| Case Dimensions | 2.0 x 1.0 x 0.4 Inches (50.8 x 25.4 x 10.2 mm) |
| Weight | 35 g |
| Pinout | 6 Pin-Inner 6 Pin-Outer Standard add Suffix "PO" to Partno. |

4. Maximum Case Temperature under any operating condition should not exceed +100°C.

5. We do not recommend vapor phase soldering!

MECHANICAL SPECIFICATIONS

Case "B"



All Dimensions in Inches (mm).

Tolerances x.xx = ±0.04, x.xxx = ±0.010 (Inches)

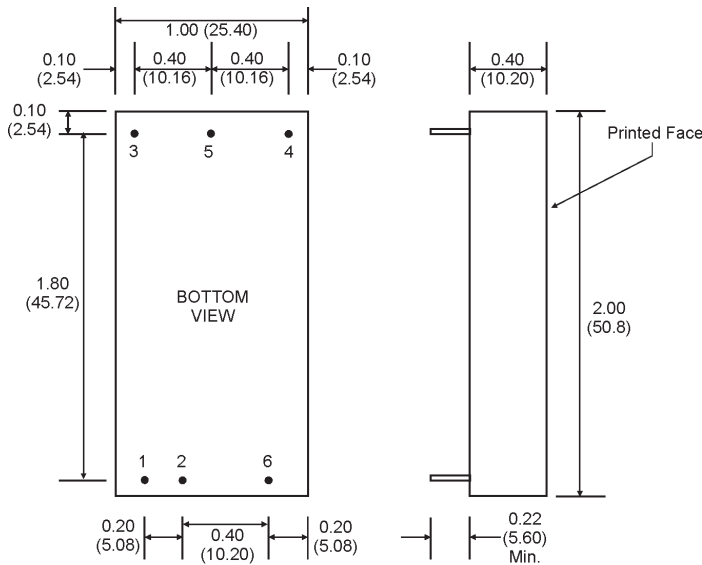
x.xx = ±1.0, x.xxx = ±0.25 (mm)

| PIN | PIN CONNECTIONS | |
|-----|-----------------|----------------|
| | SINGLE | DUAL |
| 1 | +INPUT | +INPUT |
| 2 | -INPUT | -INPUT |
| 3 | +OUTPUT | +OUTPUT |
| 4 | TRIM | COMMON |
| 5 | -OUTPUT | -OUTPUT |
| 6 | REMOTE CONTROL | REMOTE CONTROL |

SPECIFICATIONS

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Case "B" Suffix „PO“

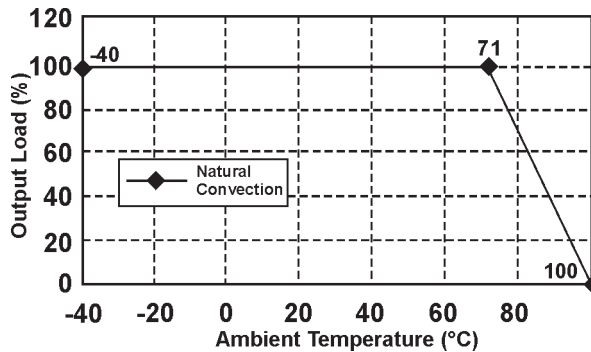


| PIN CONNECTIONS - SUFFIX "PO" | | |
|-------------------------------|----------------|----------------|
| PIN | SINGLE | DUAL |
| 1 | +INPUT | +INPUT |
| 2 | -INPUT | -INPUT |
| 3 | +OUTPUT | +OUTPUT |
| 4 | TRIM | -OUTPUT |
| 5 | -OUTPUT | COMMON |
| 6 | REMOTE CONTROL | REMOTE CONTROL |

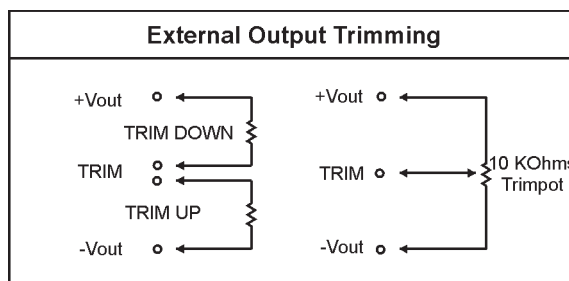
All Dimensions in Inches (mm).
 Tolerances x.xx = ±0.04 , x.xxx = ±0.010 (Inches)
 x.xx = ±1.0, x.xxx = ±0.25 (mm)

APPLICATION NOTES & DIAGRAMS

Derating Diagram



Maximum case temperature under any operating condition should not exceed 100°C.



Output may optionally be externally trimmed (±10%) with a fixed resistor or an external trimpot as shown.

NOTICE:
 The information in this document has been carefully checked. However, no responsibility is assumed for inaccuracies!
 Specifications can be changed without notice. The latest and most complete information can be found on our website.