

Features

- High power density up to 120W
- Open-frame packaging
- 100°C base plate operation
- Water washable
- Outputs from 2.5V to 15V
- 1500V isolation
- Positive or negative enable logic

Description

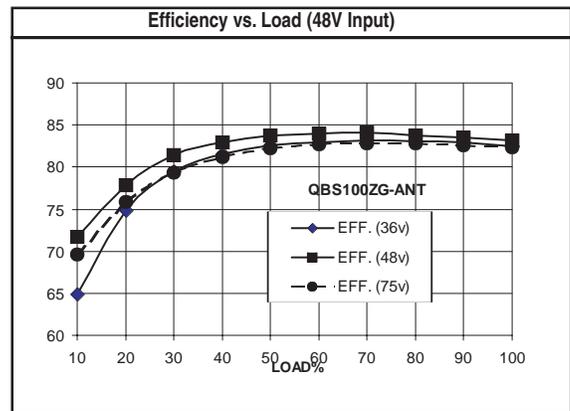
QBS single output dc-dc converters provide up to 120 watts of output power in an industry-standard, quarter-brick footprint. The QBS converters feature open-frame packaging, along with planar magnetics to provide maximum useable power with minimal thermal constraints. The QBS is especially suited to telecom, networking, and industrial applications, and is fully compatible with production board washing processes.

Technical Specifications

| Input | |
|----------------------------------|-------------|
| Voltage Range | 18 - 36 VDC |
| 24 VDC Nominal | 18 - 36 VDC |
| 48 VDC Nominal | 36 - 75 VDC |
| Input Reverse Voltage Protection | Shunt Diode |

| Output | |
|----------------------------------------------------------------|---------------------------|
| Setpoint Accuracy | ±1% |
| Line Regulation V_{in} Min. - V_{in} Max., I_{out} Rated | 0.2% V_{out} |
| Load Regulation I_{out} Min. - I_{out} Max., V_{in} Nom. | 0.5% V_{out} |
| Remote Sense Headroom | 0.5 VDC |
| Minimum Output Current | 10% I_{out} Rated |
| Dynamic Regulation, Loadstep | 25% I_{out} |
| Pk Deviation | 4% V_{out} |
| Settling Time | 500 m s |
| Voltage Trim Range | ±10% |
| Short Circuit And Overcurrent Protection | Shutdown |
| Current Limit Threshold Range, % of I_{out} Rated | 110 - 140% |
| Short Circuit Current Limit | 200% I_{out} OVP Trip |
| Range | 115 - 140% V_{out} Nom. |
| UVP Trip Range | 70 - 90% V_{out} Nom. |
| OVP/UVP Type | Latching |

| General | |
|--------------------------------|----------------------------|
| Turn-On Time | 30 ms |
| Remote Shutdown | Positive or Negative Logic |
| Remote Shutdown Reference | V_{in} Negative |
| Switching Frequency | 400 kHz |
| Isolation | |
| Input - Output | 1500 VDC |
| Input - Case | 1050 VDC |
| Output - Case | 1050 VDC |
| Temperature Coefficient | 0.02 ppm/°C |
| Case Temperature | |
| Operating Range | -40°C To +100°C |
| Storage Range | -40°C To +125°C |
| Thermal Shutdown Range | 105°C To 115°C |
| Vibration, 3 Axes, 5 Min Each | 5 g, 10 - 55 Hz |
| MTBF† (Bellcore TR-NWT-000332) | 2.5 X 10 ⁶ hrs |
| Safety | UL, cUL, TUV |
| Weight (Approx.) | 1.7 oz |



| Notes |
|----------------------------------------------------------------------------------------------------------------------|
| † MTBF predictions may vary slightly from model to model. |
| Specifications typically at 25°C, normal line, and full load, unless otherwise stated. |
| Soldering Conditions: I/O pins, 260°C, ten seconds; fully compatible with commercial wave-soldering equipment. |
| Safety: Agency approvals may vary from model to model. Please consult factory for specific model information. |
| Units are water-washable and fully compatible with commercial spray or immersion post wave-solder washing equipment. |

Model Selection

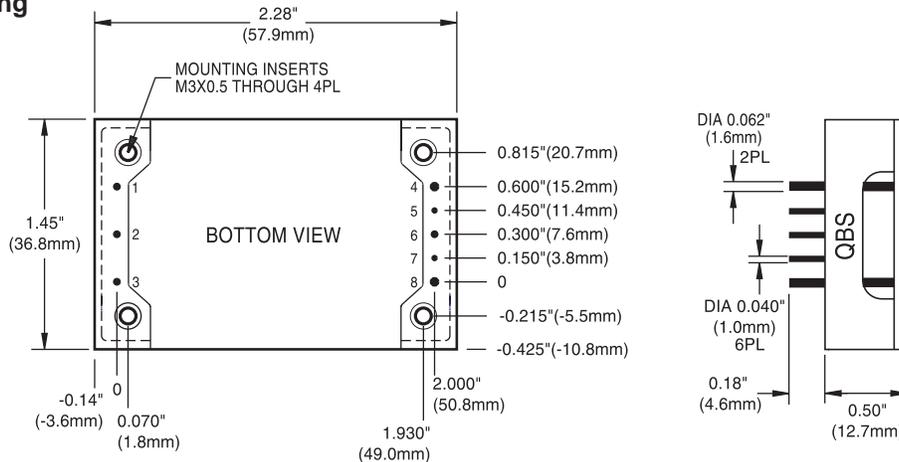
| MODEL | INPUT VOLTAGE (VOLTS) | INPUT VOLTAGE RANGE (VOLTS) | MAXIMUM INPUT CURRENT (AMPS)* | OUTPUT VOLTAGE (VOLTS) | RATED OUTPUT CURRENT (AMPS) | RIPPLE & NOISE pk-pk (mV) | TYPICAL EFFICIENCY** |
|------------|-----------------------|-----------------------------|-------------------------------|------------------------|-----------------------------|---------------------------|----------------------|
| QBS038YD-A | 24 | 18 - 36 | 2.90 | 2.5 | 15.00 | 100 | 76% |
| QBS050YE-A | 24 | 18 - 36 | 3.50 | 3.3 | 15.00 | 100 | 80% |
| QBS075YG-A | 24 | 18 - 36 | 5.20 | 5 | 15.00 | 100 | 84% |
| QBS100YH-A | 24 | 18 - 36 | 6.80 | 12 | 8.33 | 150 | 85% |
| QBS100YJ-A | 24 | 18 - 36 | 6.80 | 15 | 6.67 | 150 | 85% |
| QBS038ZD-A | 48 | 36 - 75 | 1.40 | 2.5 | 15.00 | 100 | 75% |
| QBS050ZE-A | 48 | 36 - 75 | 1.70 | 3.3 | 15.00 | 100 | 78% |
| QBS075ZG-A | 48 | 36 - 75 | 2.50 | 5 | 15.00 | 100 | 83% |
| QBS100ZH-A | 48 | 36 - 75 | 3.30 | 12 | 8.33 | 150 | 86% |
| QBS120ZH-A | 48 | 36 - 75 | 4.00 | 12 | 10.00 | 150 | 84% |
| QBS100ZJ-A | 48 | 36 - 75 | 3.30 | 15 | 6.67 | 150 | 86% |
| QBS066ZE-A | 48 | 36 - 75 | 2.50 | 3.3 | 20.0 | 100 | 80% |
| QBS100ZG-A | 48 | 36 - 75 | 3.45 | 5 | 20.0 | 100 | 82% |
| QBS120ZJ-A | 48 | 36 - 75 | 4.00 | 15 | 8.0 | 150 | 84% |

NOTES:

- * Maximum input current at minimum input voltage, maximum rated output power.
- ** At nominal V_{in} , rated output.

Model numbers highlighted in yellow or shaded are not recommended for new designs.

Mechanical Drawing



| Thermal Impedance | |
|--------------------|-----------|
| Natural Convection | 10.1 °C/W |
| 100 LFM | 8.0 °C/W |
| 200 LFM | 5.4 °C/W |
| 300 LFM | 4.4 °C/W |
| 400 LFM | 3.4 °C/W |

Note:
Thermal impedance data is dependent on many environmental factors. The exact thermal performance should be validated for specific application.

| Pin | Function |
|-----|-------------------|
| 1 | -V _{in} |
| 2 | On/Off |
| 3 | +V _{in} |
| 4 | -V _{out} |
| 5 | -Sense |
| 6 | Trim |
| 7 | +Sense |
| 8 | +V _{out} |

| Tolerances | |
|----------------------------------------------------|---------------|
| Inches: | (Millimeters) |
| .XX ± 0.020 | .X ± 0.5 |
| .XXX ± .010 | .XX ± 0.25 |
| Pin: | |
| ± 0.002 | ± 0.05 |
| (Dimensions as listed unless otherwise specified.) | |

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

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