

Features

- Ultra Wide 4:1 Input Voltage Range
- Very High Efficiency up to 85%
- 5W Single and Dual outputs
- I/O Isolation 2KVDC, 4KVDC and 6KVDC Option
- Continuous Short Circuit Protection
- Remote ON/OFF Control add Suffix "/CTRL" Option
- A&C Pinning Option

DIP24, Single & Dual Outputs

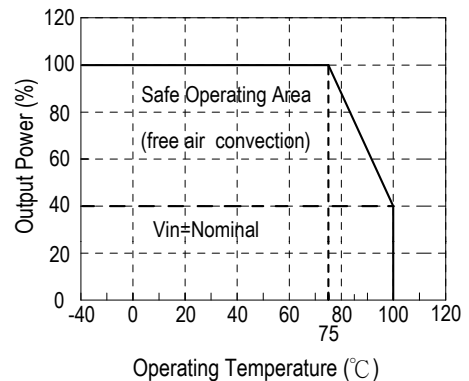


RoHS

Description

The BWQ5 series is an excellent performance and, Ultra Wide 4:1 input voltage ranges: 9V-36V and 18V-75V. The highest efficiency allows -40°C to +75°C operating temperatures. The very low stand-by (no-load) input power consumption 50mW typ, makes them an ideal solution for application in battery-powered equipment and instrumentation.

Derating Graph



Selection Guide

(X=2=2KVDC, X=4=4KVDC, X=6=6KVDC, Y=A=A PINNING, Y=C=C PINNING)

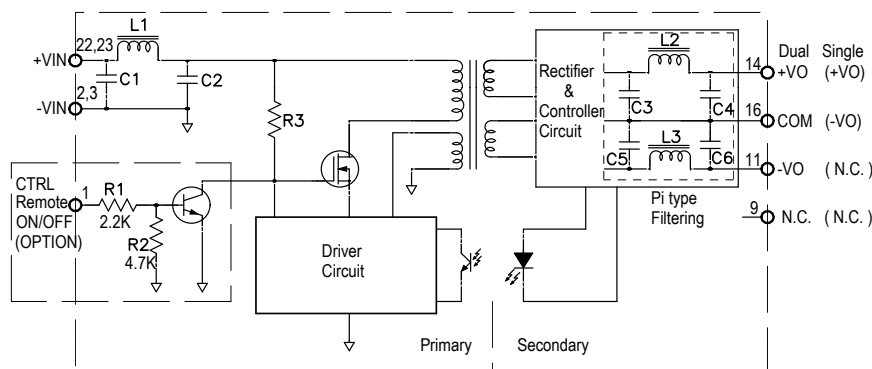
| Part Number | Input Voltage | Output Voltage | Output Current max. | Efficiency Typ. | Max. Capacitive Load |
|--------------|-----------------------------|----------------|---------------------|-----------------|----------------------|
| BWQ5-2403SXY | 9-36VDC (24VDC nominal) | 3.3 VDC | 1000 mA | 78% | 1000uF |
| BWQ5-2405SXY | | 5 VDC | 1000 mA | 82% | 1000uF |
| BWQ5-2409SXY | | 9 VDC | 556 mA | 83% | 680uF |
| BWQ5-2412SXY | | 12 VDC | 420 mA | 85% | 470uF |
| BWQ5-2415SXY | | 15 VDC | 340 mA | 85% | 330uF |
| BWQ5-2405DXY | | ±5 VDC | ±500 mA | 83% | ±470uF |
| BWQ5-2409DXY | | ±9 VDC | ±278 mA | 84% | ±330uF |
| BWQ5-2412DXY | | ±12 VDC | ±210 mA | 85% | ±100uF |
| BWQ5-2415DXY | | ±15 VDC | ±170 mA | 85% | ±47uF |
| BWQ5-4803SXY | 18-75VDC (48VDC nominal) | 3.3 VDC | 1000 mA | 79% | 1000uF |
| BWQ5-4805SXY | | 5 VDC | 1000 mA | 83% | 1000uF |
| BWQ5-4809SXY | | 9 VDC | 556 mA | 84% | 680uF |
| BWQ5-4812SXY | | 12 VDC | 420 mA | 85% | 470uF |
| BWQ5-4815SXY | | 15 VDC | 340 mA | 85% | 330uF |
| BWQ5-4805DXY | | ±5 VDC | ±500 mA | 83% | ±470uF |
| BWQ5-4809DXY | | ±9 VDC | ±278 mA | 84% | ±330uF |
| BWQ5-4812DXY | | ±12 VDC | ±210 mA | 85% | ±100uF |
| BWQ5-4815DXY | | ±15 VDC | ±170 mA | 85% | ±47uF |

Specifications

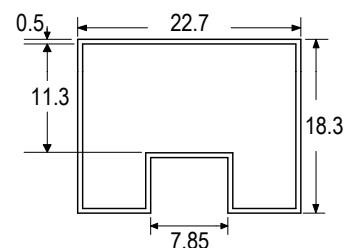
(measured at $T_A=25^{\circ}\text{C}$, nominal input voltage, full load and after warm-up)

| | | |
|---|--|--|
| Input Voltage Range | 9-36V,18-75V | 4:1 |
| Input Filter | | Pi type |
| Output Voltage Accuracy | Nominal V_{in} and full load | $\pm 2\%$ |
| Line Voltage Regulation | $V_{in}=\text{min to max, full load}$ | $\pm 0.5\%$ typ. |
| Load Voltage Regulation | 20% to 100% of full load | $\pm 0.5\%$ typ. |
| Output Ripple and Noise | 20MHz BW | 60mVp-p max. |
| Operating Frequency | $V_{in}=\text{Nominal}$ | 300KHz min. |
| No Load Power Consumption | | 100mW typ. / 300mW max. |
| Isolation Voltage | 1 second | 2K,4K & 6K VDC |
| Isolation Capacitance | 100KHz tested | 30PF max. |
| Isolation Resistance | 500VDC, input to output | 15G Ω min. |
| Short Circuit Protection | | Continuous |
| Temperature Coefficient | -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ ambient | 0.02%/ $^{\circ}\text{C}$ typ. |
| Temperature Rise at Full Load | | 25 $^{\circ}\text{C}$ typ. |
| Operating Temperature Range | see Graph | -40 $^{\circ}\text{C}$ to +100 $^{\circ}\text{C}$ |
| Operating Case Temperature | | +110 $^{\circ}\text{C}$ max. |
| Storage Temperature Range | | -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$ |
| Relative Humidity | | 95% RH |
| Case Material | UL94-V0 | Non-conductive black plastic |
| Potting Material | UL94-V0 | Epoxy |
| Package Weight | | 13g |
| Packing Quantity | | 15 pcs per Tube |
| Lead Temperature | | 300 $^{\circ}\text{C}$ max. 1.5mm from case for 10 sec |
| Remote Power OFF (leave open if not used) (15VDC max.) | Device ON Device OFF Device OFF Stand by input current | open or <0.8VDC CTRL>1.5VDC 0.5mA max. |
| MTBF(+25 $^{\circ}\text{C}$) | using MIL-HDBK 217F | 2263x10 ³ hours |
| (+75 $^{\circ}\text{C}$) | using MIL-HDBK 217F | 259x10 ³ hours |

Functional Block Diagram (A Pinning)



Tube Outline Dimensions (mm)

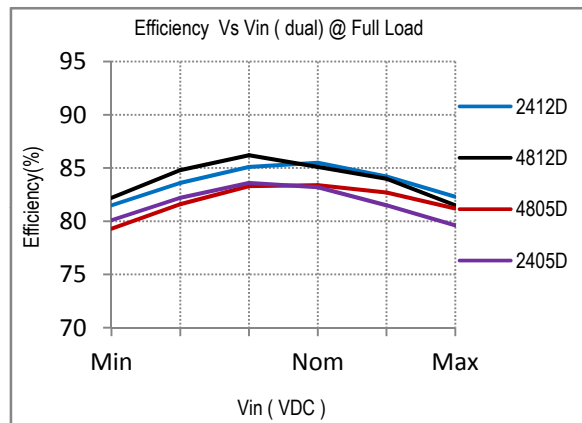
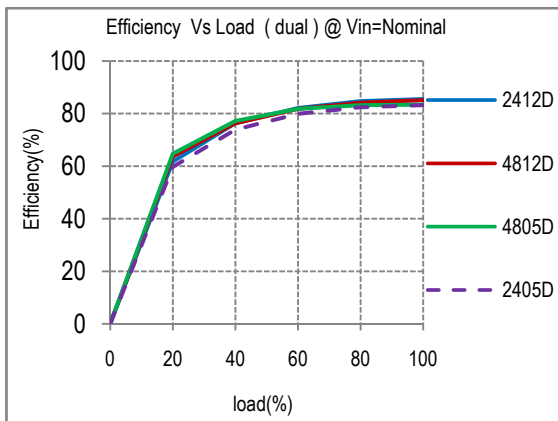
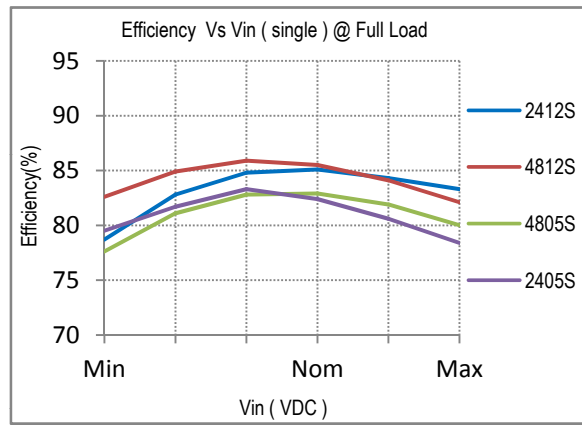
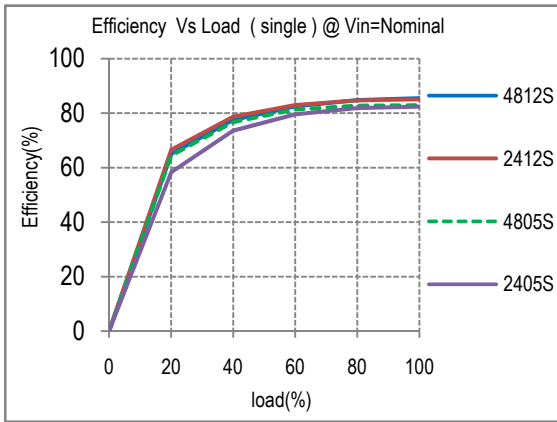


Tolerance:
XX.X \pm 0.5 mm

The Values of Input π type Filtering

| Input Voltage | C1 | C2 | L1 |
|---------------|------------------------------------|------------------------|-------------------------------------|
| 9~36VDC | 0.1 μF ~1 μF | 4.7 μF /50V | 1 μH ~10 μH |
| 18~75VDC | 0.1 μF ~1 μF | 1 μF /100V | 2.2 μH ~22 μH |

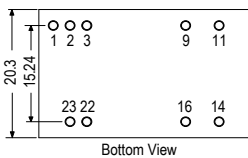
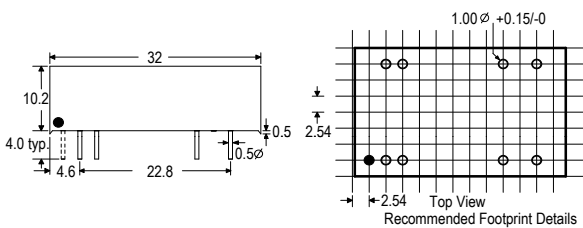
Note:
L=530 \pm 2 mm
Devices per tube
quantity: 15PCS



Package Style and Pinning (mm)

DIP24 Package

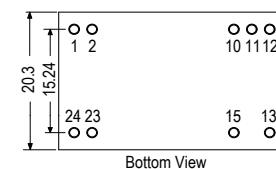
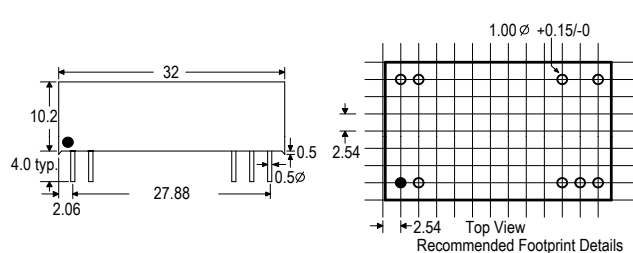
"A" PINNING



| Pin# | Single | Dual |
|-----------|--------|-------|
| 1(option) | CTRL | CTRL |
| 2 | -Vin | -Vin |
| 3 | -Vin | -Vin |
| 9 | NC | Com |
| 11 | NC | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | COM |
| 22 | +Vin | +Vin |
| 23 | +Vin | +Vin |

NC=No Connection
CTRL=Remote ON/OFF Control
e.g. BWQ5-1205S4A/CTRL

"C" PINNING



| Pin# | Single | Dual |
|------|--------|-------|
| 1 | +Vin | +Vin |
| 2 | +Vin | +Vin |
| 10 | NC | Com |
| 11 | NC | Com |
| 12 | -Vout | NC |
| 13 | +Vout | -Vout |
| 15 | NC | +Vout |
| 23 | -Vin | -Vin |
| 24 | -Vin | -Vin |

NC=No Connection

XX.X ± 0.25 mm

XX.XX ± 0.15 mm