

## Features

- Ultra Wide 4:1 Input Voltage Range
- Very Low Stand-by (no-load) Power Consumption  
50mW typ. and 150mW max.
- Very High Efficiency up to 86%
- 3W Single and Dual outputs
- I/O Isolation 2KVDC and 4KVDC Option
- Operating Temperature Range -40°C to +71°C
- Continuous Short Circuit Protection
- Remote ON/OFF Control

## Description

The BSQ3 series is an excellent performance and high power density design, Ultra Wide 4:1 input voltage ranges: 4.5V-18V, 9V-36V and 18V-75V.

The highest efficiency allows -40°C to +71°C operating temperatures.

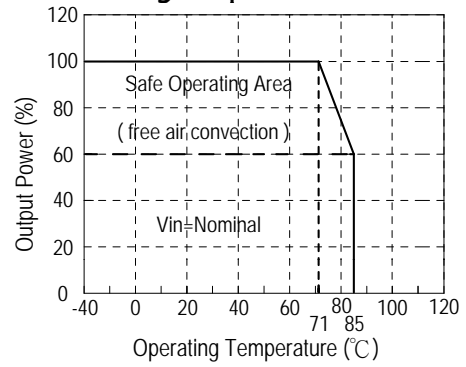
The very low stand-by (no-load) input power consumption 50mW typ. makes them an ideal solution for application in battery-powered equipment and instrumentation.

## SIP8, Single & Dual Outputs



RoHS

## Derating Graph



## Selection Guide (X=2=2KVDC, X=4=4KVDC)

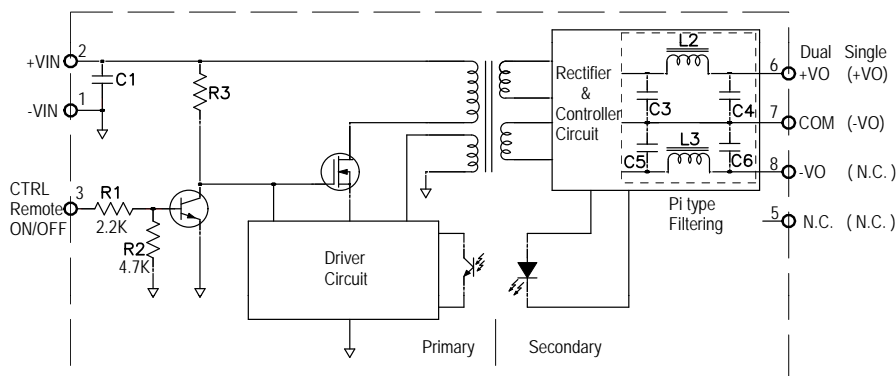
Part Number	Input Voltage	Output Voltage	Output Current max.	Efficiency Typ.	Max. Capacitive Load
BSQ3-1203SX	4.5-18VDC (12VDC nominal)	3.3 VDC	600 mA	78%	1000uF
BSQ3-1205SX		5 VDC	600 mA	82%	1000uF
BSQ3-1212SX		12 VDC	250 mA	85%	470uF
BSQ3-1215SX		15 VDC	200 mA	85%	330uF
BSQ3-1205DX		±5 VDC	±300 mA	82%	±470uF
BSQ3-1212DX		±12 VDC	±125 mA	84%	±100uF
BSQ3-1215DX		±15 VDC	±100 mA	85%	±47uF
BSQ3-2403SX	9-36VDC (24VDC nominal)	3.3 VDC	600 mA	79%	1000uF
BSQ3-2405SX		5 VDC	600 mA	83%	1000uF
BSQ3-2412SX		12 VDC	250 mA	85%	470uF
BSQ3-2415SX		15 VDC	200 mA	85%	330uF
BSQ3-2405DX		±5 VDC	±300 mA	84%	±470uF
BSQ3-2412DX		±12 VDC	±125 mA	86%	±100uF
BSQ3-2415DX		±15 VDC	±100 mA	86%	±47uF
BSQ3-4803SX	18-75VDC (48VDC nominal)	3.3 VDC	600 mA	80%	1000uF
BSQ3-4805SX		5 VDC	600 mA	83%	1000uF
BSQ3-4812SX		12 VDC	250 mA	85%	470uF
BSQ3-4815SX		15 VDC	200 mA	85%	330uF
BSQ3-4805DX		±5 VDC	±300 mA	83%	±470uF
BSQ3-4812DX		±12 VDC	±125 mA	85%	±100uF
BSQ3-4815DX		±15 VDC	±100 mA	85%	±47uF

## Specifications

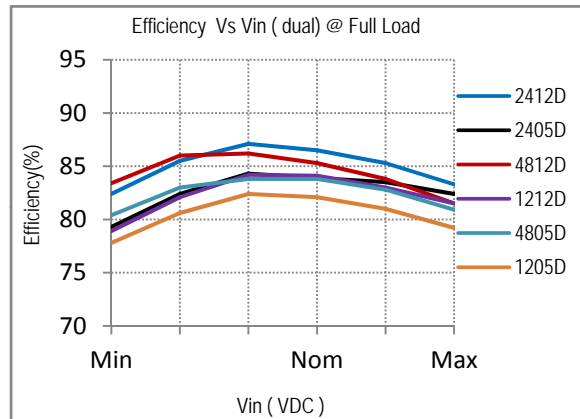
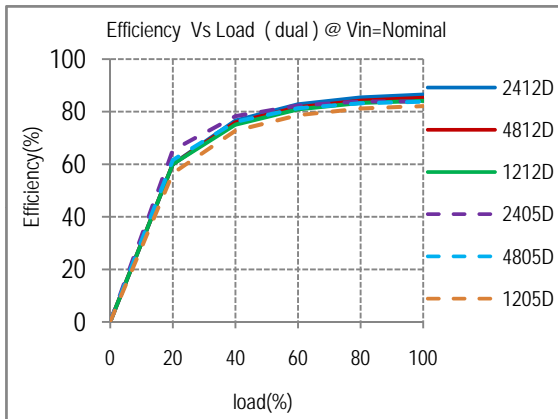
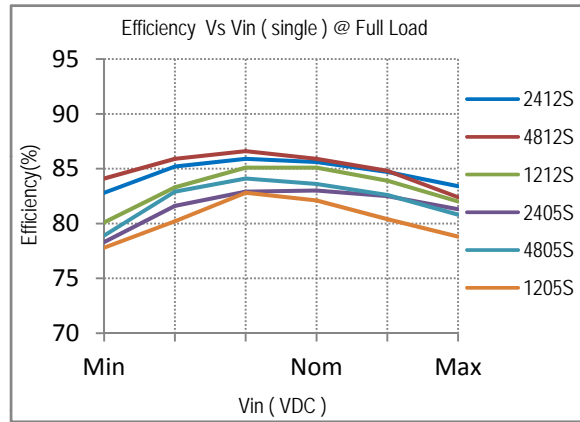
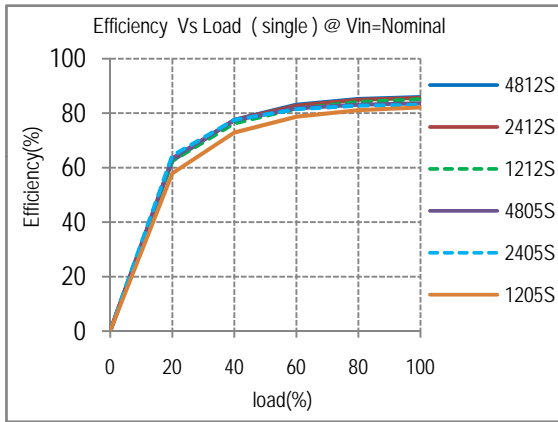
(measured at  $T_A=25^{\circ}\text{C}$ , nominal input voltage, full load and after warm-up)

Input Voltage Range	4.5-18V,9-36V,18-75V	4:1
Input Filter		Capacitor
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		150kHz min.
No Load Power Consumption		50mW typ. / 150mW max.
Isolation Voltage	1 second	2 & 4KVDC
Isolation Capacitance	100KHz tested	30PF max.
Isolation Resistance	500VDC, input to output	15G $\Omega$ min.
Short Circuit Protection		Continuous
Temperature Coefficient	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ ambient	0.015%/ $^{\circ}\text{C}$ 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		4.7g
Packing Quantity		23 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	2184x10 <sup>3</sup> hours
(+71 $^{\circ}\text{C}$ )	using MIL-HDBK 217F	298x10 <sup>3</sup> hours

## Functional Block Diagram

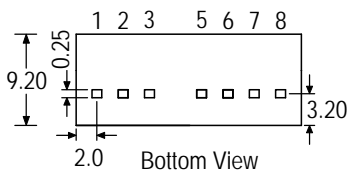
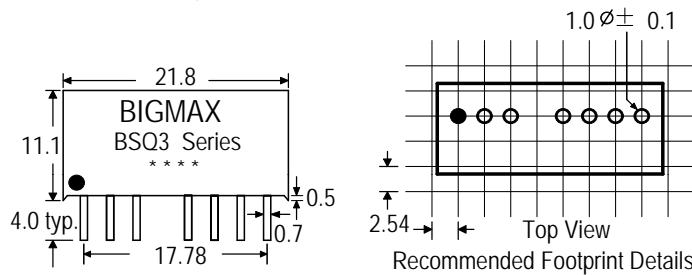


Input Voltage	C1 Values
4.5-18VDC	10uF/25V
9-36VDC	4.7uF/50V
18-75VDC	1uF/100V



**Package Style and Pinning (mm)**

8 Pin SIP Package



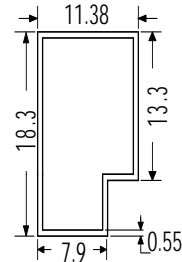
XX.X ± 0.25 mm  
XX.XX ± 0.15 mm

**Pin Connections**

Pin#	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	CTRL	CTRL
5	NC	NC
6	+Vout	+Vout
7	-Vout	COM
8	NC	-Vout

NC=No Connection  
CTRL=Remote ON/OFF Control

**Tube Outline Dimensions (mm)**



Tolerance:  
XX.X ± 0.5 mm

Note:  
L=520 ± 2 mm

Devices per tube quantity: 23PCS