

# 15 Watt BSI-24 Series

Ultra High Efficiency Step-Down DC-DC Converters/ BSI 24V Input Voltage 15Watt Series

Ultra High Efficiency (87%, 91%), Minimum Size Step-Down DC-DC Converter

**Input: 8V, 12V, 15V, 24V      Output: 3.3V (1.2V-5.1V)**

- Input Voltage Range 8V-27V
- Output Voltage Range 1.2V-5.1V
- Latest Technology, Synchronous Rectification Circuit
- Efficiency 87%-91%
- Adjustable Output Voltage
- Non-Isolated Type Converter
- Short Circuit, Over-Current Protection
- No Electrolytic Capacitor, No Tantalum Capacitor
- Heat Sink Not required, 15W
- Minimum Size
- Remote ON/OFF Control
- MTBF 1,000,000Hrs
- Operating Temp. Range -10°C to +70°C  
(Temp. derating required from 50°C)
- High Reliability, High Performance

| Models<br>BSI Series    | Input V<br>Vdc | Output V<br>Vdc            | Output I<br>A | Line Reg<br>%(typ) | Load Reg<br>%(typ) | Ripple/Noise<br>mVpp(typ) | Efficiency<br>%(typ) |
|-------------------------|----------------|----------------------------|---------------|--------------------|--------------------|---------------------------|----------------------|
| <b>BSI24-3.3/5S3R0</b>  | 8-27           | 3.3<br>(1.2-5.1)<br>Note 1 | 0-3           | 0.3                | 3                  | 40<br>(50)<br>Note 2      | 87<br>(91)<br>Note 2 |
| <b>BSI24-3.3/5S3R0F</b> |                |                            |               |                    |                    |                           |                      |

Note 1: Inside the ( ) is the adjustable voltage range.

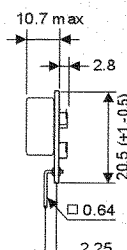
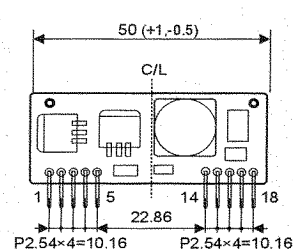
Note 2: Inside the ( ) is at 5V output.

Note 3: External capacitors are required.

## <Outline>

( SIP Type )

**BSI24-3.3/5S3R0**

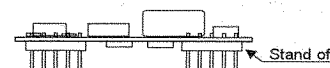
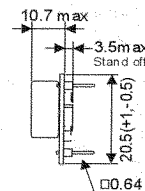
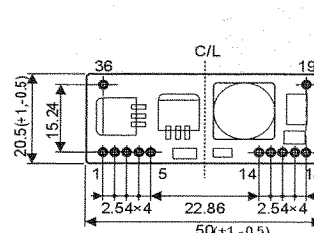


| pin | Function |
|-----|----------|
| 1   | +Vin     |
| 2   | +Vin     |
| 3   | -Vin     |
| 4   | -Vin     |
| 5   | on/off   |
| 14  | V.ADJ    |
| 15  | -Vout    |
| 16  | -Vout    |
| 17  | +Vout    |
| 18  | +Vout    |

Weight: 10g typ  
Dimensions: mm

( DIP Type )

**BSI24-3.3/5S3R0F**



| pin | Function |
|-----|----------|
| 1   | +Vin     |
| 2   | +Vin     |
| 3   | -Vin     |
| 4   | -Vin     |
| 5   | on/off   |
| 14  | V.ADJ    |
| 15  | -Vout    |
| 16  | -Vout    |
| 17  | +Vout    |
| 18  | +Vout    |
| 19  | NC       |
| 36  | NC       |

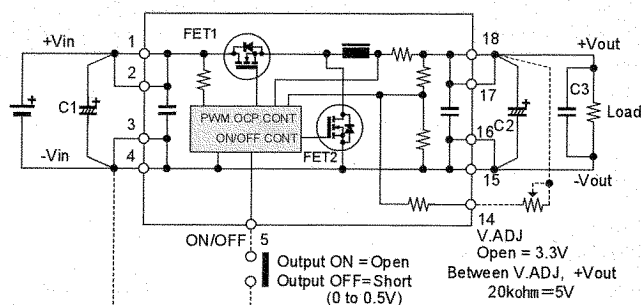
Weight: 11g typ  
Dimensions: mm

## - Note!

This catalogue is an outline of the products.

When designing, be sure to refer to the data sheets.

## <Standard Connection Circuit Diagram>



## - External Capacitors

Use two of C1=330μF or more, impedance 81m ohm (20°C/ 100kHz) or below.

Recommend: Electrolytic Capacitor

C2=150μF (ESR=28m ohm or below) ×2 or more

Recommend: OS-CON

To set the output voltage 3.1V or below, use three OS-CON (different from the one written above).

## - ON/OFF Control

ON/OFF control is controlled by opening and shortening between 5pin(ON/OFF) and 3, 4pin (-Vin).

Be sure to always keep the slew rate of 5pin at turn-on and turn-off transient 0.03V/ μs or more, when the voltage is near 1V.

## - Adjustable Output Voltage

The output voltage is adjustable by connecting a resistor between 14pin (V.ADJ) and 17, 18pin(+Vout).

When 14pin is open, the following rating voltage is output.

Output = +3.3V±5%

\*Lead-free pin parts have been corresponded serially since January, 2004.