

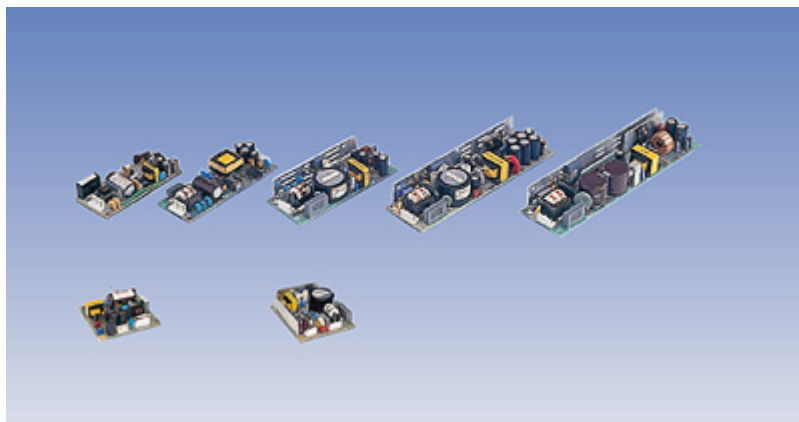
# 30 WATT AC-DC CONVERTER

## BWT/BWTE-SX SERIES

### General Description

BW-series is an open board, low profile, low price switcher without chassis and cover. It is designed for small size and low cost applications world-wide. The output power can be boosted 15% to 30% above nominal.

Dimensions: 55x163x36 mm



### Options

Cover (Add suffix "-P" ex. BWT05SX-PU)  
40cm long wire harness

### Features

1. Open frame type
2. EMI: Complies with EN55022B, FCC/B
3. Low cost
4. Option: Chassis + cover
5. Mountable on any axis
6. Universal Input 85-264 VAC
7. BWTE now applying for safety approval



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| Specifications<AC/DC>       | Model                                         |           |           |           |           |           |           |
|-----------------------------|-----------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| BWT/BWTE**SX-U              | BWT3.3SX-U                                    | BWT05SX-U | BWT12SX-U | BWT15SX-U | BWT24SX-U | BWT36SX-U | BWT48SX-U |
| <b>30WATTS/SINGLE</b>       | BWTE3.3SX                                     | BWTE05SX  | BWTE12SX  | BWTE15SX  | BWTE24SX  | BWTE36SX  | BWTE48SX  |
| <b>Input Characteristic</b> |                                               |           |           |           |           |           |           |
| Input Voltage               | AC100-230V                                    |           |           |           |           |           |           |
| Input Current               | 0.7A at AC100V/0.4A at AC230V                 |           |           |           |           |           |           |
| Input Range                 | AC85-264V(DC110-370V)                         |           |           |           |           |           |           |
| Input Frequency             | 50/60Hz                                       |           |           |           |           |           |           |
| Input Frequency Range       | 47-440Hz                                      |           |           |           |           |           |           |
| Phase                       | Single                                        |           |           |           |           |           |           |
| Inrush Current *1           | 15A(maximum) at AC100V/30A(maximum) at AC230V |           |           |           |           |           |           |
| Efficiency [%] (typical) *2 | 70                                            | 75        | 78        | 80        | 81        | 81        | 84        |


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## BWT/BWTE\*\*SX Specification

| Specifications<AC/DC>                                 | Model                                                                                                                           |                       |                       |                       |                       |                       |                       |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| BWT/BWTE**SX-U<br>30WATTS/SINGLE                      | BWT3.3SX-U<br>BWTE3.3SX                                                                                                         | BWT05SX-U<br>BWTE05SX | BWT12SX-U<br>BWTE12SX | BWT15SX-U<br>BWTE15SX | BWT24SX-U<br>BWTE24SX | BWT36SX-U<br>BWTE36SX | BWT48SX-U<br>BWTE48SX |
| Output Characteristic                                 |                                                                                                                                 |                       |                       |                       |                       |                       |                       |
| Output Voltage [V]                                    | 3.3                                                                                                                             | 5                     | 12                    | 15                    | 24                    | 36                    | 48                    |
| Output Current [A]                                    | 6.0                                                                                                                             | 6.0                   | 2.5                   | 2.0                   | 1.3                   | 0.9                   | 0.7                   |
| Voltage Adjust Range                                  | +/- 10% of Rated Output Voltage(at no load within the input range)                                                              |                       |                       |                       |                       |                       |                       |
| Ripple and Noise [mVp-p](maximum) *3                  | 83                                                                                                                              | 100                   | 170                   | 200                   | 290                   | 410                   | 530                   |
| Regulation                                            |                                                                                                                                 |                       |                       |                       |                       |                       |                       |
| a.Statistic Line Regulation [mV](maximum)             | 26.4                                                                                                                            | 40                    | 96                    | 120                   | 192                   | 288                   | 384                   |
| b.Statistic Load Regulation [mV](maximum)             | 29.7                                                                                                                            | 45                    | 108                   | 135                   | 216                   | 324                   | 432                   |
| c.Temperature Coefficient *4                          | 0.03%/°C                                                                                                                        |                       |                       |                       |                       |                       |                       |
| d.Drift[mV](maximum) *5                               | 31.5                                                                                                                            | 40                    | 75                    | 90                    | 135                   | 195                   | 255                   |
| e.Dynamic Load Regulation [mV](typical) *6            | 99                                                                                                                              | 150                   | 360                   | 450                   | 720                   | 1080                  | 1440                  |
| f.Recovery Time *6                                    | 0.3mS(typical)                                                                                                                  |                       |                       |                       |                       |                       |                       |
| Rise up time                                          | 200mS(maximum) at 25°Cand rated input/output                                                                                    |                       |                       |                       |                       |                       |                       |
| Hold up time                                          | 20mS(minimum) at 25°Cand rated input/output                                                                                     |                       |                       |                       |                       |                       |                       |
| Functions                                             |                                                                                                                                 |                       |                       |                       |                       |                       |                       |
| Overcurrent Protection≥10% of Rated Output Current[A] | Current Limiting with automatic recovery                                                                                        |                       |                       |                       |                       |                       |                       |
|                                                       | 6.6                                                                                                                             | 6.6                   | 2.75                  | 2.2                   | 1.43                  | 0.99                  | 0.77                  |
| Overvoltage Protection≥15% of Rated Output Voltage[V] | Zener diode clamping                                                                                                            |                       |                       |                       |                       |                       |                       |
|                                                       | 3.8                                                                                                                             | 5.75                  | 13.8                  | 17.3                  | 27.6                  | 41.4                  | 55.2                  |
| Remote Sense                                          | not available                                                                                                                   |                       |                       |                       |                       |                       |                       |
| Remote On/Off                                         | not available                                                                                                                   |                       |                       |                       |                       |                       |                       |
| Environmental                                         |                                                                                                                                 |                       |                       |                       |                       |                       |                       |
| Operating Temperature                                 | open board type:-10 to +50°C/enclosed type:-10 to +40°C                                                                         |                       |                       |                       |                       |                       |                       |
| Operating Humidity                                    | 20 to 90%RH(non-condensing)                                                                                                     |                       |                       |                       |                       |                       |                       |
| Storage Temperature                                   | -20 to +85°C                                                                                                                    |                       |                       |                       |                       |                       |                       |
| Storage Humidity                                      | 20 to 90%RH(non-condensing)                                                                                                     |                       |                       |                       |                       |                       |                       |
| Withstanding Voltage                                  | Primary-Secondary AC3,000V for 1minute                                                                                          |                       |                       |                       |                       |                       |                       |
|                                                       | Primary-Frame Ground AC2,500V for 1minute                                                                                       |                       |                       |                       |                       |                       |                       |
|                                                       | Secondary-Frame Ground AC500V for 1minute                                                                                       |                       |                       |                       |                       |                       |                       |
| Isolation Resistance                                  | Primary-Secondary-Frame Ground 50MΩ(minimum) by DC500V insulation tester                                                        |                       |                       |                       |                       |                       |                       |
| Vibration                                             | 5-10Hz:10mm double amplitude,10-55Hz:19.6rms <sup>2</sup> 20minutes' period for 60minutes each along X,Y,Z axes (non-operating) |                       |                       |                       |                       |                       |                       |
| Shock                                                 | 294rms <sup>2</sup>                                                                                                             |                       |                       |                       |                       |                       |                       |
| Cooling                                               | Convection                                                                                                                      |                       |                       |                       |                       |                       |                       |
| ? Leakage Current                                     | 1mA(maximum) at 25 °Cated input/output and rated input frequency                                                                |                       |                       |                       |                       |                       |                       |
| ? Conducted Line Noise                                | Built to meet FCC Part15-B Class B                                                                                              |                       |                       |                       |                       |                       |                       |
|                                                       | Built to meet VCCI Class B                                                                                                      |                       |                       |                       |                       |                       |                       |
|                                                       | Built to meet EN55022 Class B                                                                                                   |                       |                       |                       |                       |                       |                       |
| ? Safety                                              | UL: UL1950(Except BWTE)                                                                                                         |                       |                       |                       |                       |                       |                       |
|                                                       | C-UL: CSA C22.2 No.950(Except BWTE)                                                                                             |                       |                       |                       |                       |                       |                       |
|                                                       | VDE: EN60950, IEC950, VDE0805(Except BWTE)                                                                                      |                       |                       |                       |                       |                       |                       |
| Weight (typical)                                      | open board type:135g /enclosed type:285g                                                                                        |                       |                       |                       |                       |                       |                       |
| ? MTBF [H]                                            | 580,000                                                                                                                         |                       |                       |                       |                       |                       |                       |
| ? Switching Frequency[kHz](typical) *7                | 60                                                                                                                              | 50                    | 50                    | 50                    | 50                    | 50                    | 50                    |

Conditions:

\*1at cold start

\*2 at DC130V input/rated output

\*3 measured by a bayonet probe at the end of a pair of 20cm long wires terminated with a 47uF electrolytic capacitor and 0.1uF film capacitor in parallel at a 0 to 100MHz bandwidth

\*4 open board type: at -10 to +50°C enclosed type: at -10 to +40°C

\*5 for 7hour period after 1hour warm-up at 25°C and rated input/output

\*6 when output current changed from 25% of rated output current to 75% rapidly at rated input

\*7 variable on input voltage and load conditions

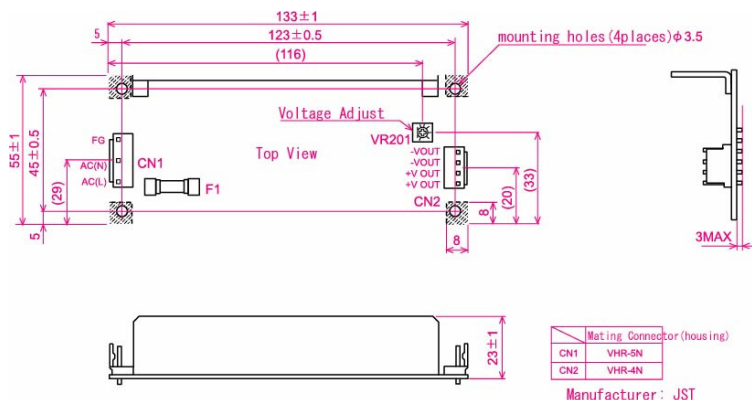


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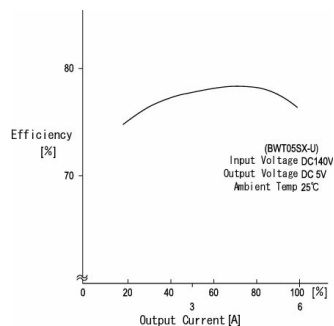
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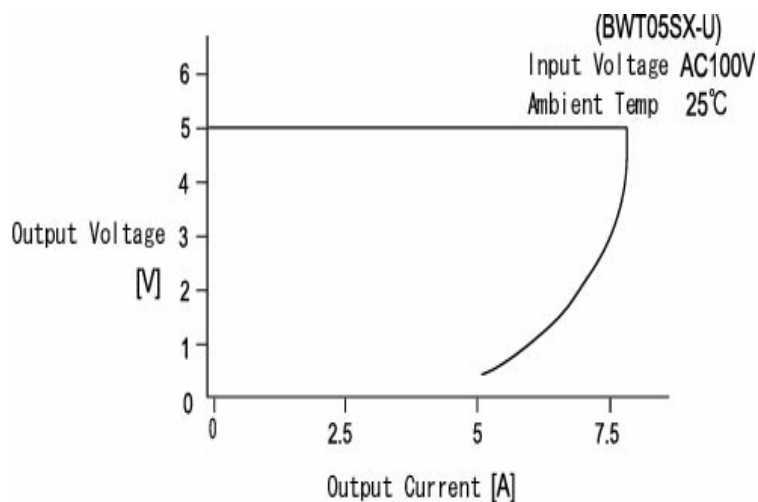
## Dimension (mm)



## Efficiency Curve



## OCP Curve



## Derating Curve

