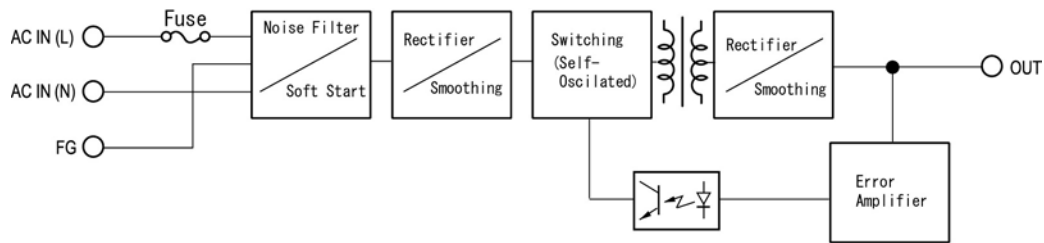


# 6 WATT AC-DC CONVERTER

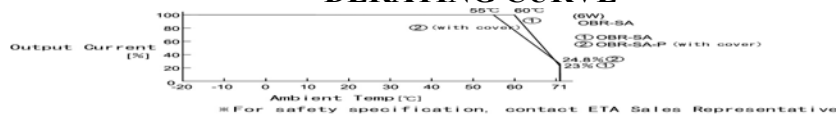
## OBR- SA/WA SERIES SINGLE/ DUAL CHANNEL

| Specifications<br>OBR**SA/WA<br>6WATTS/SINGLE/2 OUTPUT | Model                  |           |           |           |           |           |           |           |
|--|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|  | OBR3.3SA-U             | OBR05SA-U | OBR12SA-U | OBR15SA-U | OBR24SA-U | OBR48SA-U | OBR22WA-U | OBR23WA-U |
| Input Voltage [V]                                      | AC115V (DC130V)        |           |           |           |           |           |           |           |
| Input Current [A]                                      | 0.25                   |           |           |           |           |           | 0.2       |           |
| Input Range  | AC85-132V(DC110-175V)  |           |           |           |           |           |           |           |
| Input Frequency  | 50/60Hz                |           |           |           |           |           |           |           |
| Input Frequency Range                                  | 47-440Hz               |           |           |           |           |           |           |           |
| Phase  | Single                 |           |           |           |           |           |           |           |
| Inrush Current *1                                      | 18A(maximum) at AC100V |           |           |           |           |           |           |           |
| Efficiency [%] (typical) *2                            | 68                     | 75        | 78        | 79        | 81        | 81        | 78        | 79        |

### BLOCK DIAGRAM



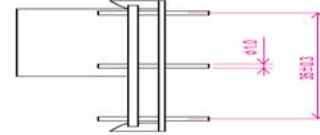
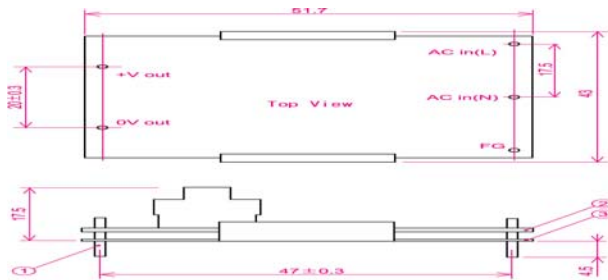
### DERATING CURVE



Derating Curve OBR-SA (6W)

| Specifications<br>OBR**SA/WA<br>6WATTS/SINGLE/2 OUTPUT | Model  |           |           |           |           |           |               |           |
|--|--|-----------|-----------|-----------|-----------|-----------|---------------|-----------|
|  | OBR3.3SA-U   | OBR05SA-U | OBR12SA-U | OBR15SA-U | OBR24SA-U | OBR48SA-U | OBR22WA-U     | OBR23WA-U |
| Output Voltage [V]                                     | 3.3  | 5         | 12        | 15        | 24        | 48        | ±12           | ±15       |
| Output Current [A]                                     | 1  | 1         | 0.5       | 0.4       | 0.26      | 0.13      | 0.25          | 0.2       |
| Voltage Tolerance [V]                                  | ±0.07  | ±0.1      | ±0.24     | ±0.3      | ±0.48     | ±0.96     | ±0.24         | ±0.3      |
| Ripple and Noise [mVp-p](maximum) *3                   | 100  |           |           |           |           |           |               |           |
| Regulation   |  |           |           |           |           |           |               |           |
| a.Static Line Regulation [mV](maximum)                 | 5  | 10        | 24        | 30        | 48        | 96        | 60            | 75        |
| b.Static Load Regulation [mV](maximum) *4              | 10   | 15        | 36        | 45        | 72        | 144       | ±1.2          | ±1.5      |
| [mV](maximum) *5                                       |  |           |           |           |           |           | ±480          | ±600      |
| [mV](maximum) *6                                       |  |           |           |           |           |           | ±60           | ±75       |
| c.Temperature Coefficient *7                           | ≤0.03%/°C  |           |           |           |           |           |               |           |
| e.Drift[mV](maximum) *8                                | 30   | 40        | 75        | 90        | 135       | 255       | 75            | 90        |
| f.Dynamic Load Regulation [mV](typical) *9             | ±200   | ±250      | ±360      | ±450      | ±720      | ±1500     | ±480          | ±600      |
| g.Recovery Time *9                                     | 10mS(typical)  |           |           |           |           |           | 20mS(typical) |           |
| Rise up time   | 100mS(maximum) at rated input/output   |           |           |           |           |           |               |           |
| Hold up time   | 20mS(typical) at rated input/output  |           |           |           |           |           |               |           |
| <b>Functions</b>                                       |  |           |           |           |           |           |               |           |
| Overcurrent Protection *10                             | Foldback/Current Limiting with automatic recovery at discontinuous short circuit conditions                                      |           |           |           |           |           |               |           |
| Overvoltage Protection                                 | Not available  |           |           |           |           |           |               |           |
| <b>Environmental</b>                                   |  |           |           |           |           |           |               |           |
| Operating Temperature                                  | -20 to 71°C  |           |           |           |           |           |               |           |
| Operating Humidity                                     | 30-85%/RH(non-condensing)  |           |           |           |           |           |               |           |
| Storage Temperature                                    | -20 to +85°C   |           |           |           |           |           |               |           |
| Storage Humidity                                       | 20 to 90%/RH(non-condensing)   |           |           |           |           |           |               |           |
| Withstanding Voltage                                   | Primary-Secondary AC2,000V for 1minute<br>Primary-Frame Ground AC2,000V for 1minute<br>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:19.6m/s <sup>2</sup> ,20minutes' period for 60minutes each along X,Y,Z axes(non-operating)  |           |           |           |           |           |               |           |
| Shock  | 294m/s <sup>2</sup>  |           |           |           |           |           |               |           |
| Cooling  | Convection   |           |           |           |           |           |               |           |
| Leakage Current(typical)                               | 40uA at AC100V input [70uA at AC100V input for OBR**WA-U]  |           |           |           |           |           |               |           |
| EMI(Electromagnetic Interference)                      | Built to meet FCC Part15-B Class B<br>Built to meet VCCI Class A   |           |           |           |           |           |               |           |
| Safety   | UL: UL1950<br>C-UL: CSA C22.2 No.950   |           |           |           |           |           |               |           |
| Weight (typical)                                       | open board type:27g[unit with chassis/cover:30g]   |           |           |           |           |           |               |           |
| MTBF [H] *11   | 1,000,000  |           |           |           |           |           |               |           |

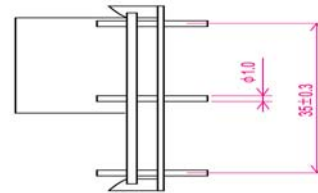
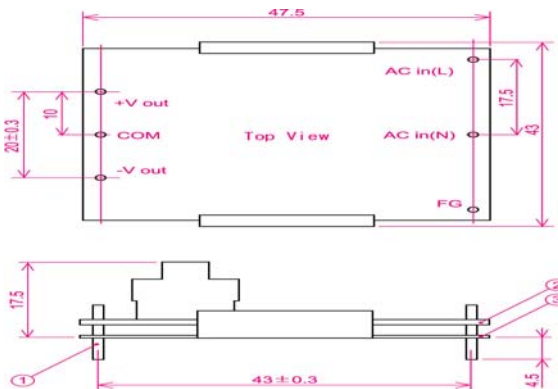
## DIMENSION DIAGRAM OBR-SA



- ① 1.0 DIA PIN Material BsB 2700 1/2H  
Copper Plating 1~3μm  
Solder Plating 3~8μm
- ② Double-sided PCB FR4 t=1.0
- ③ Insulator UL94V2
- \*Tolerance ±0.5

Dimension Diagram OBS-SA

## DIMENSION DIAGRAM OBR-WA



- ① 1.0DIA PIN Material:BsB 2700 1/2H  
Copper Plating 1~3μm  
Solder Plating 3~8μm
- ② Double-sided PCB FR4t=1.0
- ③ Insulator UL94V2
- \* Tolerance ±0.5

Dimension Diagram OBR-WA