

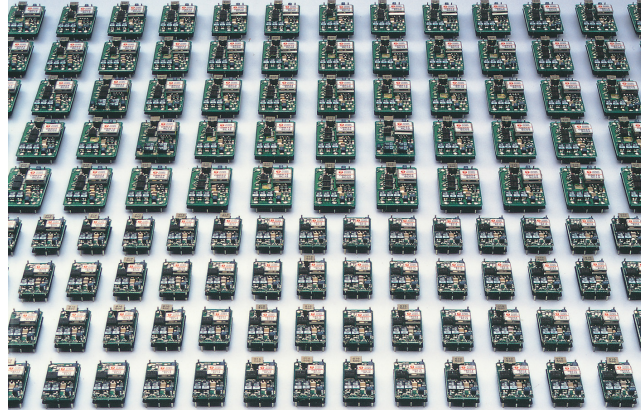


ETA-USA

HIGH QUALITY SWITCHING POWER SUPPLIES

10 WATT DC-DC CONVERTER

OBS-SC/WC series



Features

1. PCB Mountable
2. Small , Light Weight
3. High Efficiency
4. Cost effective
5. Output Voltage adjustable
6. Over Voltage Protection

General Description

In response to market demand for “DISTRIBUTED POWER,” ETA has developed a new DC/DC converter suitable for PCB mounting. OB-Series AC/DC Switching Power Supplies are designed and built to be installed right onto the user’s printed circuit board like a piece of “patch-work”. They are small, light in weight and cost effective.

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www.eta-usa.com

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HIGH QUALITY SWITCHING POWER SUPPLIES

| Specifications | Model | | | | | |
|--|--|-----------|-----------|-----------|------------|------------|
| | OBS05SC12 | OBS12SC12 | OBS15SC12 | OBS24SC12 | OBS22WC12 | OBS23WC12 |
| OBS**SC/WC12 10 WATTS/SINGLE/2 OUTPUT | | | | | | |
| Input Voltage DC[V] | 12 | 12 | 12 | 12 | 12 | 12 |
| Input Range DC[V] | 8-18 | | | | | |
| Inrush Current [A] | Not specified | | | | | |
| Input Range | | | | | | |
| at no load [mA](typical) | 32 | 37 | 39 | 42 | 44 | 47 |
| at full load[mA](typical) | 1042 | 1097 | 1040 | 1046 | 1097 | 1041 |
| Line Back Noise [mVp-p] (typical) | 500 | 500 | 500 | 500 | 500 | 500 |
| Efficiency [%] (typical) *1 | 80 | 82 | 84 | 86 | 82 | 84 |
| Output Voltage [V] | 5 | 12 | 15 | 24 | +12 -12 | +15 -15 |
| Output Current [A] | 2 | 0.9 | 0.70 | 0.45 | 0.045-0.45 | 0.035-0.35 |
| Voltage Tolerance +/-[mV](maximum) *2 | 100 | 240 | 300 | 480 | 240 240 | 300 300 |
| Ripple and Noise [mVp-p](maximum) *3 | 100 | | | | | |
| Regulation | | | | | | |
| a.Static Line Regulation [mV](maximum) | 25 | 60 | 75 | 120 | 60 | 75 |
| b.Dynamic Line Regulation +/-[mV](maximum) *4 | 100 | 100 | 100 | 100 | 200 | 300 |
| c.Static Load Regulation [mV](maximum) *5 | 25 | 60 | 75 | 120 | ±1500 | ±1500 |
| [mV](maximum) *6 | | | | | ±750 | ±750 |
| [mV](maximum) *7 | | | | | ±60 | ±75 |
| d.Temperature Coefficient *8 | 0.03%/°C maximum) | | | | | |
| e.Drift[mV](maximum) *9 | 40 | 75 | 90 | 135 | 75 | 90 |
| f.Dynamic Load Regulation [mV](maximum) *10 | 200 | 400 | 300 | 400 | 300 | 400 |
| g.Recovery Time *4,*10 | 10mS(typical) | | | | | |
| Rise up time | 10mS(typical) at rated input/output | | | | | |
| Hold up time | Not specified | | | | | |
| Overcurrent Protection | Foldback/Current Limiting with automatic recovery at discontinuous short circuit conditions | | | | | |
| Overvoltage Protection | Not available | | | | | |
| Remote Sense | Not available | | | | | |
| Trimming of output voltage[mV] *11 | +250 | +250 | +350 | +650 | | |
| [mV] *12 | -250 | -900 | -1600 | -4000 | | |
| Input Fuse | Installed | | | | | |
| Operating Temperature | -20 to 71°C | | | | | |
| (derating) | 3.5%/°C(50°C to 71°C) (out of warranty >= 71 °C) | | | | | |
| Operating Humidity | 20-90%/RH(non-condensing) | | | | | |
| Storage Temperature | -20 to +85°C | | | | | |
| Storage Humidity | 20 to 90%/RH(non-condensing) | | | | | |
| Withstanding Voltage | Primary-Secondary AC500V for 1minute | | | | | |
| Isolation Resistance | Primary-Secondary 50MΩ(minimum) by DC500V insulation tester | | | | | |
| Capacitance(input-output) [pF](typical) | 4400 | | | | | |
| Vibration | 5-10Hz:10m m double amplitude,10-55Hz:19.6m/§,20minutes' period for 60minutes each along X,Y,Z axes(non-operating) | | | | | |
| Shock | 294m/s ² | | | | | |
| Cooling | Convection | | | | | |
| Weight (typical) | open board type:14g | | | | | |

*1 at 25°C and rated input/output

*2 OBS**WC12 satisfies the above-mentioned specifications at the same load conditions on both outputs

*3 measured by a probe at the output connector at a 0 to 100MHz bandwidth

*4 when input voltage changed from 8V to 18V rapidly at rated input

*5 when output current changed from 0mA to rated current keeping the current of other output below minimum rated current at rated input

*6 when output current changed from minimum rated current to rated current keeping the current of other output above minimum rated current

*7 output current of both outputs changed from 0mA to rated current identically at rated input

*8 at -20 to +71°C

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

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

*11 to reduce output voltage,put a resistor between pin"0" and trimming pin

*12 to increase output voltage,put a resistor between pin"+" and trimming pin

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Input specifications SC/WC2448

| Specifications | Model | | | | | | | | | | | | |
|---|---------------|-------------|-------------|-------------|-------------|-------------|-----|-----|-----|-----|-----|-----|--|
| OBS**SC/WC2448 10WATTS/SINGLE/2 OUTPUT | OBS05SC2448 | OBS12SC2448 | OBS15SC2448 | OBS24SC2448 | OBS22WC2448 | OBS23WC2448 | | | | | | | |
| Input Characteristic | | | | | | | | | | | | | |
| Input Voltage DC[V] | 24 | 48 | 24 | 48 | 24 | 48 | 24 | 48 | 24 | 48 | 24 | 48 | |
| Input Range DC[V] | 18-72 | | | | | | | | | | | | |
| Inrush Current [A] | Not specified | | | | | | | | | | | | |
| Input Range | | | | | | | | | | | | | |
| at no load [mA](typical) | 16 | 18 | 14 | 17 | 14 | 17 | 17 | 20 | 18 | 22 | 19 | 23 | |
| at full load[mA](typical) | 520 | 262 | 542 | 274 | 520 | 263 | 523 | 268 | 542 | 277 | 520 | 263 | |
| Line Back Noise [mVp-p] (typical) | 500 | 300 | 500 | 300 | 500 | 300 | 500 | 300 | 500 | 200 | 500 | 200 | |
| Efficiency [%] (typical) *1 | 80 | 79 | 83 | 82 | 84 | 83 | 86 | 84 | 83 | 81 | 84 | 83 | |

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HIGH QUALITY SWITCHING POWER SUPPLIES

Output Specifications SC/WC2448

| Specifications | Model | | | | | | | |
|---|---|-------------|-------------|-------------|-------------|-------|-------------|-------|
| | OBS05SC2448 | OBS12SC2448 | OBS15SC2448 | OBS24SC2448 | OBS22WC2448 | | OBS23WC2448 | |
| OBS**SC/WC2448 10WATTS/SINGLE/2 OUTPUT | | | | | | | | |
| Output Voltage [V] | 5 | 12 | 15 | 24 | +12 | -12 | +15 | -15 |
| Output Current [A] | 2 | 0.90 | 0.70 | 0.45 | 0.045-0.45 | | 0.035-0.35 | |
| Voltage Tolerance +/-[mV](maximum) *2 | 100 | 240 | 300 | 480 | 240 | 240 | 300 | 300 |
| Ripple and Noise [mVp-p](maximum) *3 | 100 | | | | | | | |
| Regulation | | | | | | | | |
| a.Static Line Regulation [mV](maximum) | 25 | 60 | 75 | 120 | 60 | 60 | 75 | 75 |
| b.Dynamic Line Regulation +/-[mV](maximum) *4 | 100 | 100 | 100 | 200 | 300 | 300 | 300 | 300 |
| c.Static Load Regulation [mV](maximum) *5 | 25 | 60 | 75 | 120 | ±1500 | ±1500 | ±1500 | ±1500 |
| [mV](maximum) *6 | | | | | ±750 | ±750 | ±750 | ±750 |
| [mV](maximum) *7 | | | | | ±60 | ±60 | ±75 | ±75 |
| d.Temperature Coefficient *8 | 0.03%/°C(maximum) | | | | | | | |
| e.Drift[mV](maximum) *9 | 40 | 75 | 90 | 135 | 75 | 75 | 90 | 90 |
| f.Dynamic Load Regulation +/- [mV](maximum) *10 | 200 | 400 | 300 | 500 | 300 | 300 | 300 | 300 |
| g.Recovery Time *4, *10 | 10mS(typical) | | | | | | | |
| Rise up time | 10mS(typical) at rated input/output | | | | | | | |
| Hold up time | Not specified | | | | | | | |
| Functions | | | | | | | | |
| Overcurrent Protection | Foldback/Current Limiting with automatic recovery at discontinous short circuit conditions | | | | | | | |
| Overvoltage Protection | Not available | | | | | | | |
| Remote Sence | Not available | | | | | | | |
| Trimming of output voltage[mV] *11 | +250 | +250 | +350 | +650 | | | | |
| [mV] *12 | -250 | -900 | -1600 | -4000 | | | | |
| Input Fuse | Installed | | | | | | | |
| Environmental | | | | | | | | |
| Operating Temperature | -20 to 71°C | | | | | | | |
| (derating) *13 | 3.5%/°C50°Cto 71°C (out of warranty ≥1°C) | | | | | | | |
| Operating Humidity | 20-90%/RH(non-condensing) | | | | | | | |
| Storage Temperature | -20 to +85°C | | | | | | | |
| Storage Humidity | 20 to 90%/RH(non-condensing) | | | | | | | |
| Withstanding Voltage | Primary-Secondary AC500V for 1minute | | | | | | | |
| Isolation Resistance | Primary-Secondary 50MΩ(minimum) by DC500V insulation tester | | | | | | | |
| Capacitance(input-output) [pF](typical) | 4400 | | | | | | | |
| Vibration | 5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes' period for 60minutes each along X,Y,Z axes(non-operating) | | | | | | | |
| Shock | 294m/s ² | | | | | | | |
| Cooling | Convection | | | | | | | |
| Weight (typical) | open board type:14g | | | | | | | |

Conditions:

*1 at 25°Cand rated input/output

*2 OBS**WC2448 satisfies the above-mentioned specifications at the same load conditions on both outputs

*3 measured by a probe at the output connector at a 0 to 100MHz bandwidth

*4 when input voltage changed from 18V to 72V rapidly at rated input

*5 when output current changed from 0mA to rated current keeping the current of other output below minimum rated current at rated input

*6 when output current changed from minimum rated current to rated current keeping the current of other output above minimum rated current at rated input

*7 output current of both outputs changed from 0mA to rated current identically at rated input

*8 at -20 to +71°C

*9 for 7hour period after 1hour warm-up at 25°Cand rated input/output

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

*11 to reduce output voltage,put a resistor between pin"0" and trimming pin

*12 to increase output voltage,put a resistor between pin"+" and trimming pin

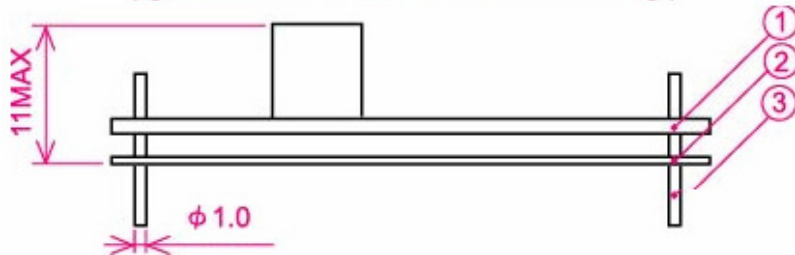
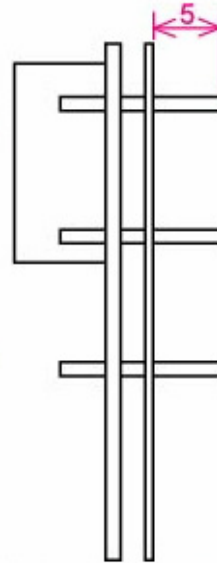
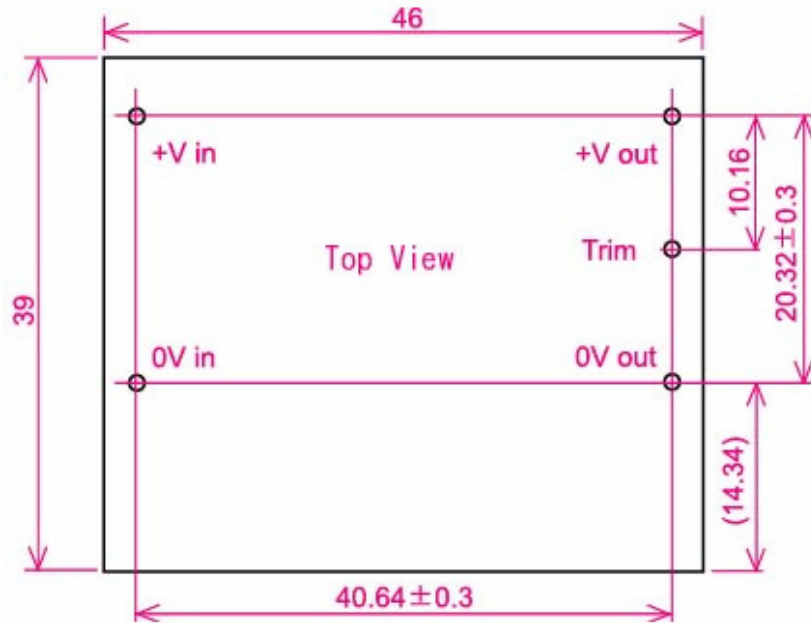
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DIMENSION DIAGRAM



- ① Double-sided PCB FR4t=1.0
 - ② t=0.5 Insulator V0
 - ③ 1.0DIA PIN Material:BsB2700 1/2H
Copper Plating 1~3μm
Solder Plating 3~6μm
- * Tolerance ±0.5

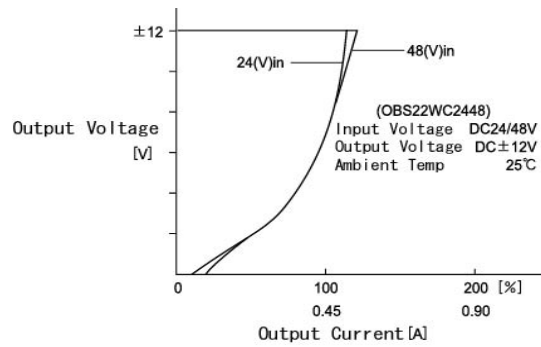
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HIGH QUALITY SWITCHING POWER SUPPLIES

OCP Curve



OCP Curve OBS22WC2448

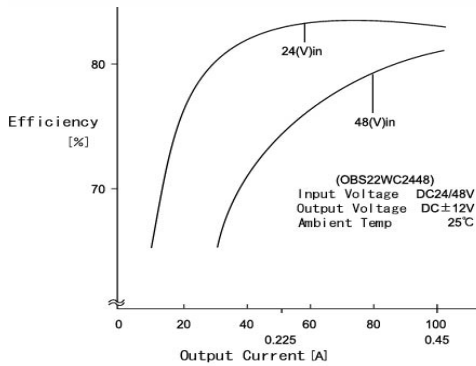
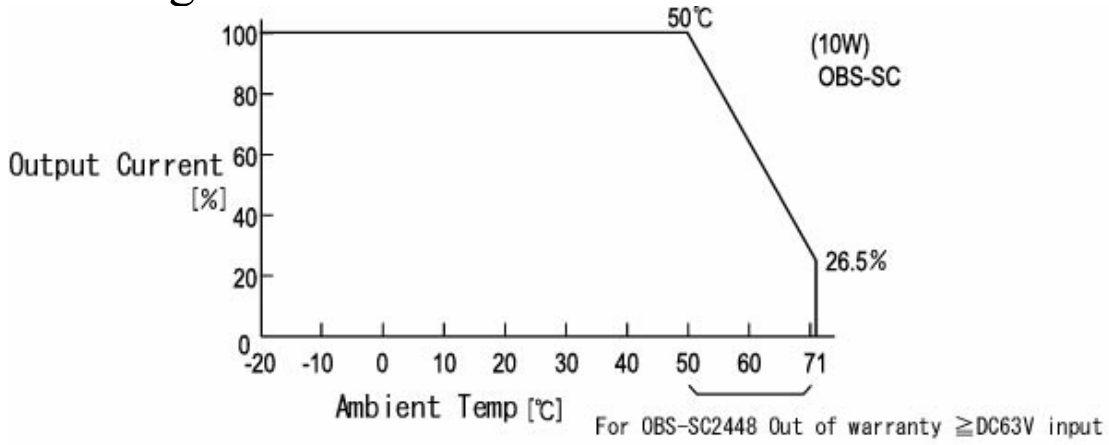
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HIGH QUALITY SWITCHING POWER SUPPLIES

Derating Curve



Efficiency Curve OBS22WC2448

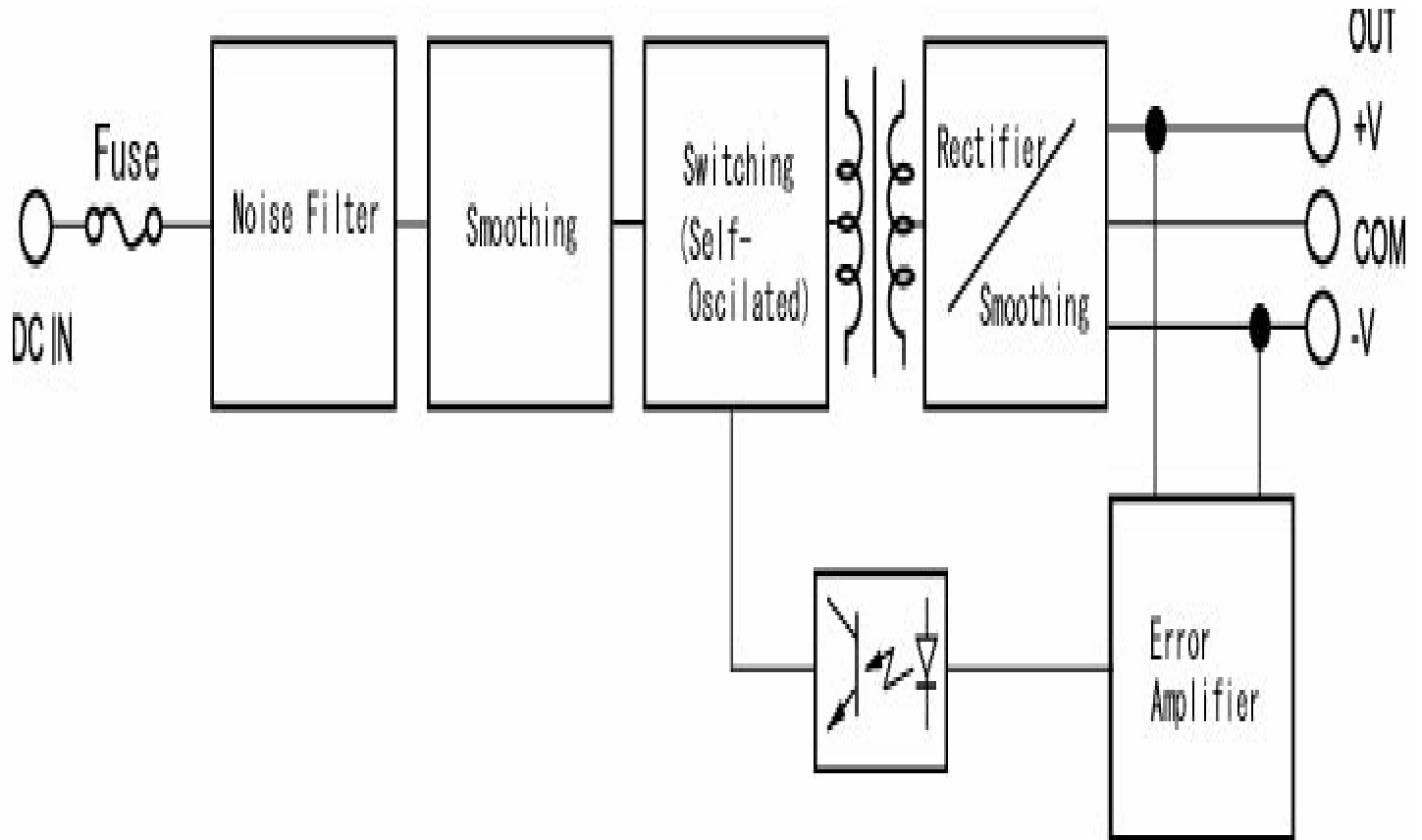
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HIGH QUALITY SWITCHING POWER SUPPLIES

BLOCK DIAGRAM



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