



ETA-POWER EUROPE LTD.

OBS-SC/WC

10W

DC/DC converter
Single / multi output



In response to market demand for “DISTRIBUTED POWER”, ETA has developed a new DC/DC converter for PCB mounting. The open board design of this series results to a lighter weight, lower cost and smaller size. Wide input range of four tune, maximum to minimum.



Features

Wide input voltage range (8-72Vdc)
High efficiency & reliability
Adjustable output (ext. resistor)
Switching frequency: 170kHz (fix)
Warranty: 3 years

Mechanical features

Dimension (WxLxH): 39x46x11.5mm
Weight: 14g
Open frame type

Possibly applications

Office equipment
Telecommunications
Industrial electronics&machines
Automation
Robotics
House equipment

Control features

Over current protection: Fold back curr. limiting, aut. rec.



Specifications<DC/DC>	Model							
	OBS**SC / WC12 10WATTS/ SINGLE / 2 OUTPUTS	OBS-05SC0512	OBS-12SC0512	OBS-15SC0512	OBS-24SC0512	OBS-22WC0512	OBS-23WC0512	
Input Characteristic								
Input Voltage DC[V]	12	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 Characteristic								
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	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](typical) *10	200	400	300	400	300	400		
f.Recovery Time *4, *10	10mS(typical)							
Rise up time	10mS(maximum) at 25°C and rated input/output							
Hold up time	not specified							
Functions								
Over current Protection *10	Fold back / Current Limiting with automatic recovery at discontinuous short circuit conditions							
Over voltage 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							
Environmental								
Operating Temperature (derating)	-20 to +71°C							
Operating Humidity	3.5%/°C (50°C to 71°C) (out of warranty ≥71°C)							
Storage Temperature	20-90%RH(non-condensing)							
Storage Humidity	-20 to +85°C							
Withstanding Voltage	20-90%RH(non-condensing)							
Isolation Resistance	Primary-Secondary AC500V for 1minute							
Capacitance(input-output) [pF](typical)	Primary-Frame Ground 50MΩ(minimum) by DC500V insulation tester							
Vibration	4400							
Shock	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)							
Cooling	294m/s ²							
Weight (typical)	Convection							
	open board type: 14g							

Conditions:

- *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 bayonet probe at the output connector at 0 to 100Mhz bandwidth
- *4 When input voltage changed from 8V to 18V rapidly at rated output
- *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 When 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 rapidly between 25% and 75% of rated current at rated input
- *11 To increase output voltage, put a resistor between pin "0" and trimming pin
- *12 To reduce output voltage, put a resistor between pin "+" and trimming pin



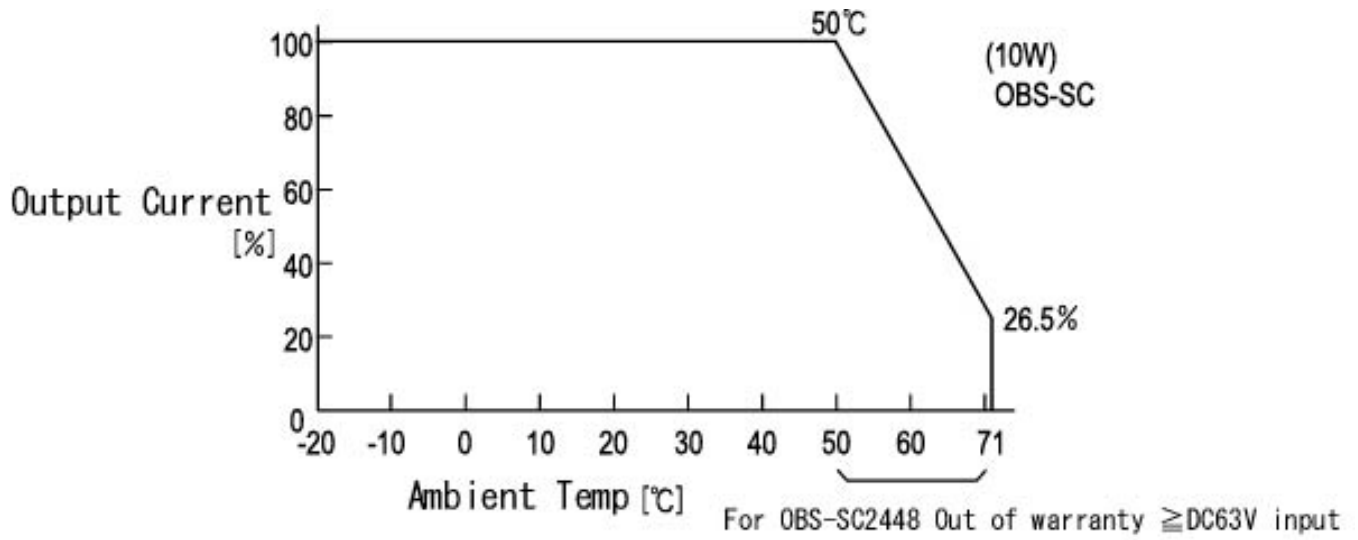
Specifications<DC/DC>	Model											
	OBS**SC / WC2448 10WATTS/ SINGLE / 2 OUTPUTS		OBS-05SC2448	OBS-12SC2448	OBS-15SC2448	OBS-24SC2448	OBS-22WC2448	OBS-23WC2448	OBS-24SC2448	OBS-22WC2448	OBS-23WC2448	OBS-23WC2448
Input Characteristic												
Input Voltage DC[V]	24	48	24	48	24	48	24	48	24	48	24	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	46	53	82	84	83	86	84	83	81	84	83
Output Characteristic												
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		75					
b.Dynamic Line Regulation [mV](maximum) *4	100	100	100	100	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](typical) *10	200	400	300	400	300	300	300	300				
f.Recovery Time *4, *10	10mS(typical)											
Rise up time	10mS(maximum) at 25°C and rated input/output											
Hold up time	not specified											
Functions												
Over current Protection *10	Fold back / Current Limiting with automatic recovery at discontinuous short circuit conditions											
Over voltage 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											
Environmental												
Operating Temperature (derating)	-20 to +71°C											
Operating Humidity	20-90%RH(non-condensing)											
Storage Temperature	-20 to +85°C											
Storage Humidity	20-90%RH(non-condensing)											
Withstanding Voltage	Primary-Secondary AC500V for 1minute											
Isolation Resistance	Primary-Frame Ground 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:

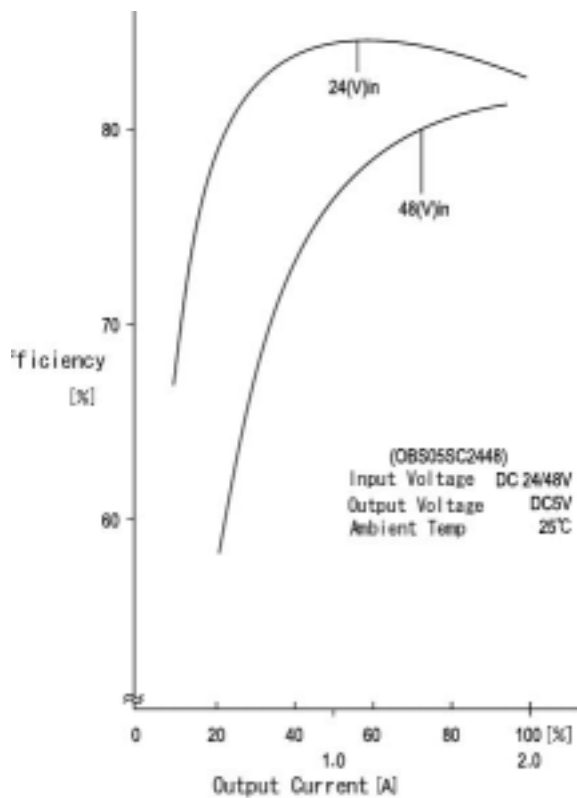
- *1 At 25°C and rated input/output
- *2 OBS**WC2448 satisfies the above-mentioned specifications at the same load conditions on both outputs
- *3 Measured by a bayonet probe at the output connector at 0 to 100Mhz bandwidth
- *4 When input voltage changed from 8V to 18V rapidly at rated output
- *5 When 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 When 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 rapidly between 25% and 75% of rated current at rated input
- *11 To increase output voltage, put a resistor between pin "0" and trimming pin
- *12 To reduce output voltage, put a resistor between pin "+" and trimming pin
- *13 Out of warranty ≥50°C at input voltage from 63V to 72V



Derating OBS** SC2448

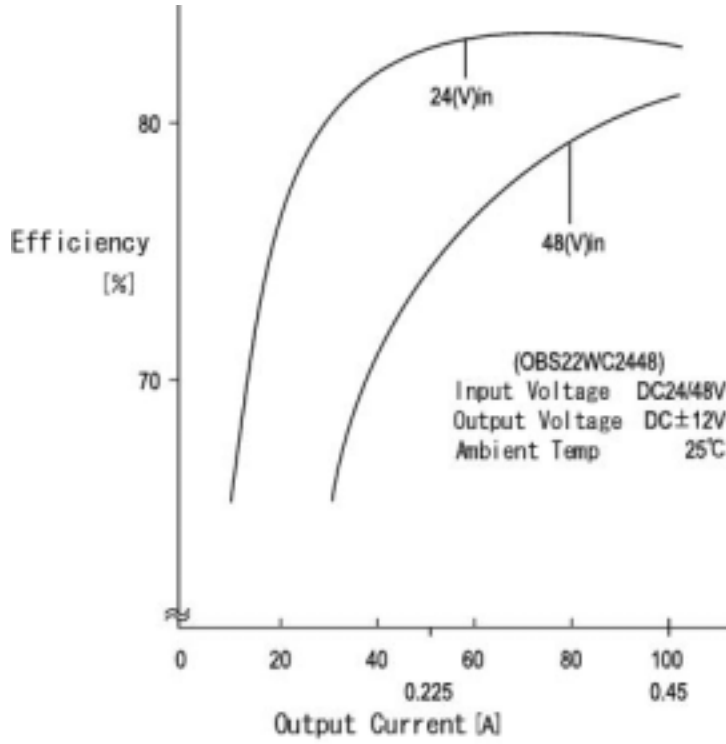


Efficiency: OBS** 05SC2448

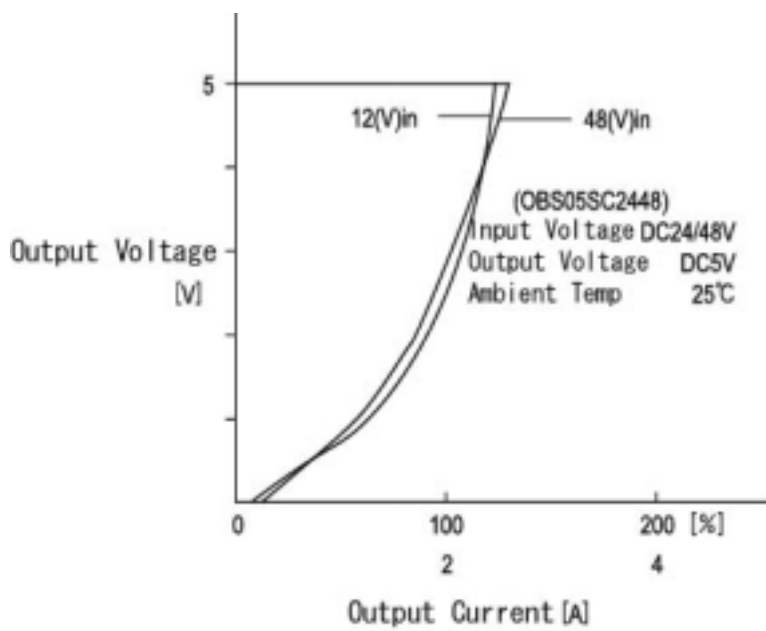




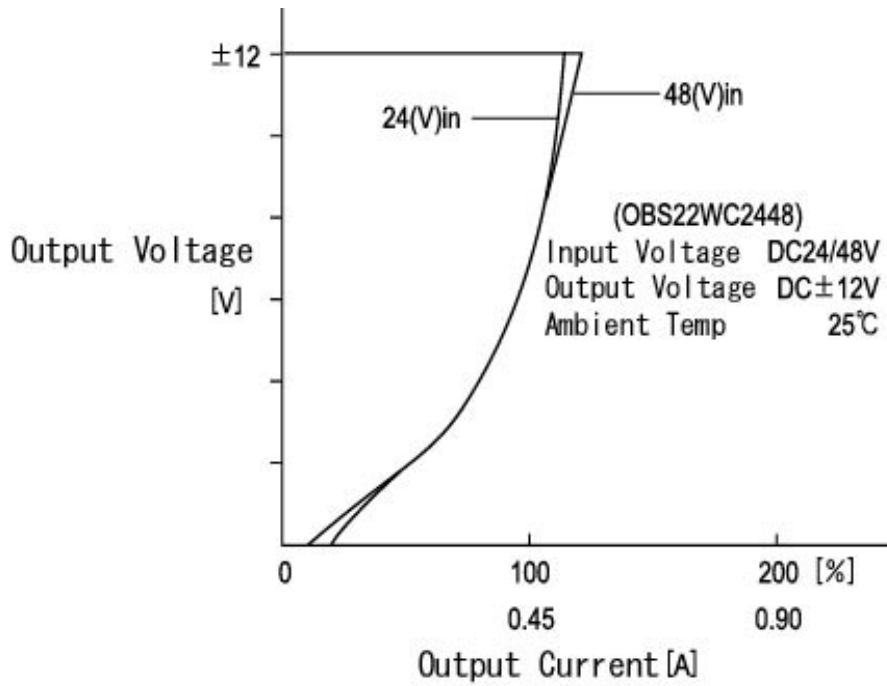
Efficiency: OBS** 22WC2448



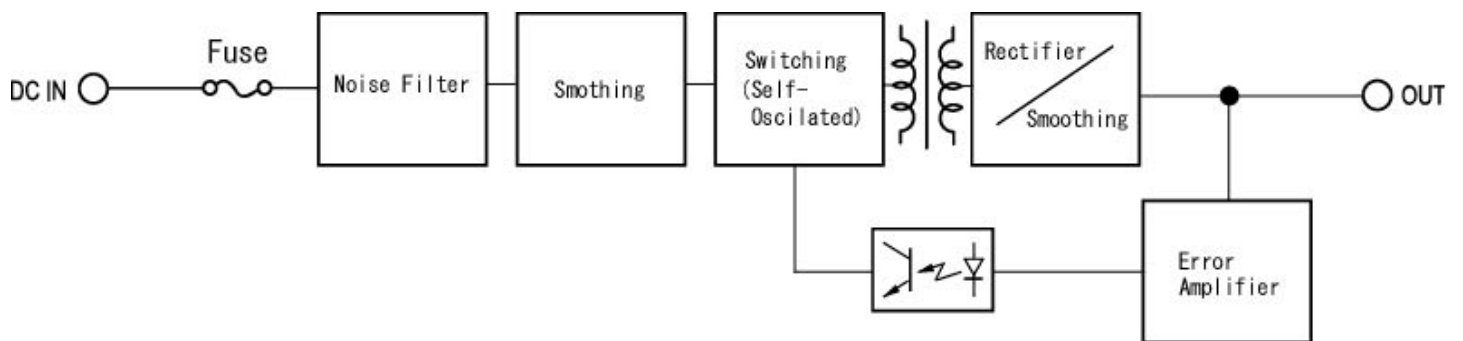
OCP: OBS**05SC2448



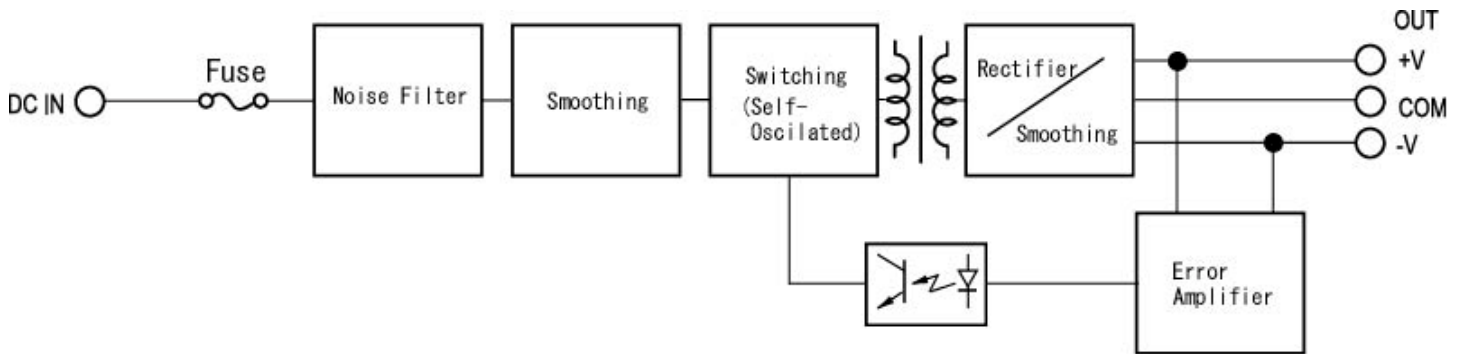
OCP: OBS**22WC2448



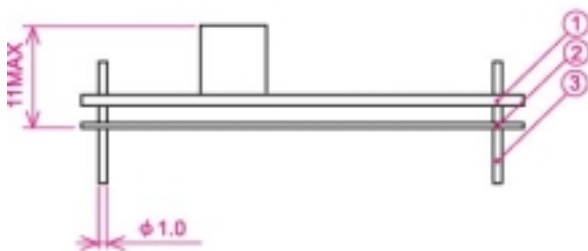
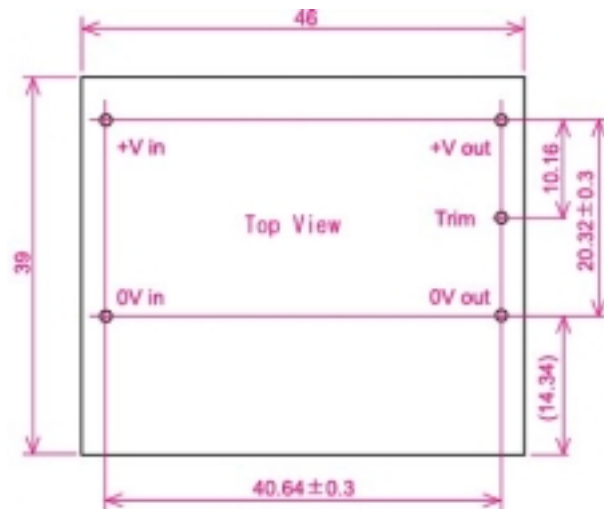
Block diagram: OBS**SC



Block diagram: OBS**WC

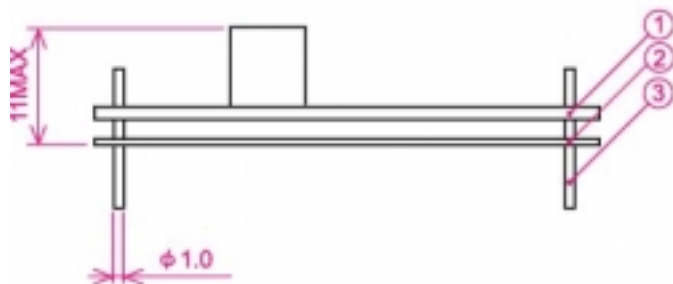
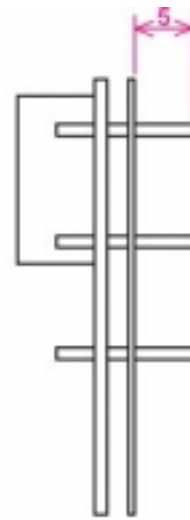
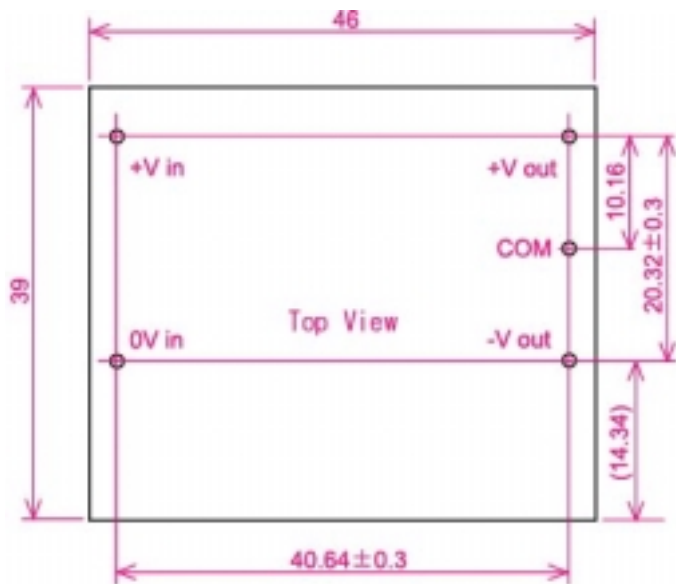


Dimension: OBS**SC



- ① Double-sided PCB FR4t=1.0
 - ② t=0.5 Insulator V0
 - ③ 1.0DIA PIN Material:BsB 2700 1/2H
Copper Plating 1~3μm
Solder Plating 3~6μm
- * Tolerance ±0.5

Dimension: OBS**WC



① Double-sided PCB FR4t=1.0

② t=0.5 Insulator V0

③ 1.0DIA PIN Material:BsB 2700 1/2H

Copper Plating 1~3μm

Solder Plating 3~6μm

* Tolerance ±0.5