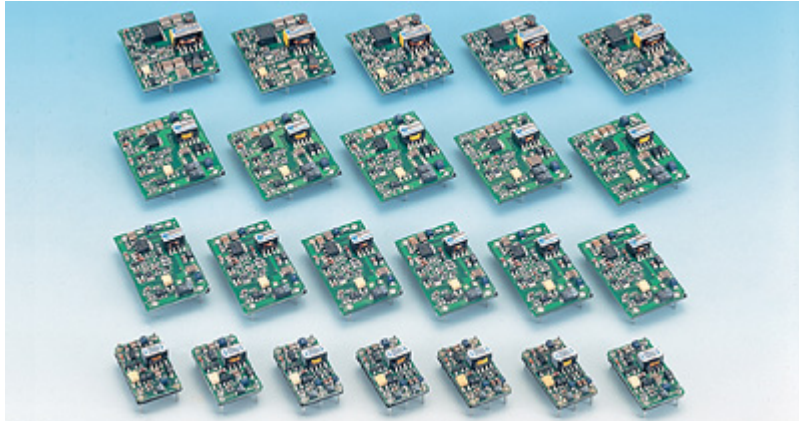


# 3 WATT DC-DC CONVERTER

## OEQ-SC/WC Series



### Features

1. Compatibility type of PIN in the power supply unit market
2. Realized wide range input (Ultra wide input)

Specifications OEQ**SC/WC0512 3WATTS/SINGLE/2 OUTPUT	Model											
	OEQ05SC0512		OEQ12SC0512		OEQ15SC0512		OEQ24SC0512		OEQ22WC0512		OEQ23WC0512	
<b>Input Characteristic</b>												
Input Voltage DC[V]	5	12	5	12	5	12	5	12	5	12	5	12
Input Range DC[V]	4.5-16											
Inrush Current [A]	Not specified											
Input Range												
at no load [mA](typical)	42	50	50	57	51	61	60	66	63	73	66	81
at full load[mA](typical)	680	299	805	347	795	344	815	350	860	365	822	352
Line Back Noise [mVp-p](typical)	300	150	300	150	300	150	300	150	300	150	300	150
Efficiency [%] (typical) *1	73	69	74	72	75	72	76	74	72	71	73	71

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Specifications OEQ**SC/WC0512 3WATTS/SINGLE/2 OUTPUT	Model							
	OEQ05SC0512	OEQ12SC0512	OEQ15SC0512	OEQ24SC0512	OEQ22WC0512		OEQ23WC0512	
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15
Output Current [A]	0.5	0.25	0.20	0.13	0.013-0.13		0.010-0.10	
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	200	480	600	960	480	480	600	600
c.Static Load Regulation +/-[mV](maximum) *5	25	60	75	120	1200	1200	1500	1500
+/-[mV](maximum) *6					480	480	600	600
+/-[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	480	600	960	480	480	600	600
g.Recovery Time *4,*10	20mS(typical)							
Rise up time	10ms(typical) at rated input/output							
Hold up time	Not specified							
<b>Functions</b>								
Overcurrent Protection	Current Limiting with automatic recovery at discontinuous short circuit conditions							
>=110% of Rated Output Current [A]	0.55	0.275	0.22	0.143	0.143	0.143	0.111	0.111
Overvoltage Protection	Not available							
Remote Sence	Not available							
Trimming of output voltage[mV]	Not available							
Input Fuse	Installed							
<b>Environmental</b>								
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 50MW(minimum) by DC500V insulation tester							
Capacitance(input-output) [pF](typical)	2200							
Vibration	5-10Hz:10mm double amplitude,10-55Hz:2G,20minutes' period for 60minutes each along X,Y,Z axes(non-operating)							
Shock	3G							
Cooling	Convection							
Weight (typical)	open board type:7g							

Conditions:

\*1 at 25°Cand rated input/output

\*2 OEQ\*\*WC0512 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 4.5V to 16V 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 the 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 7hours from 1hour after switch-on at 25°Cand rated input/output

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

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**OEQ-SC/WC1224 Input specifications**

Specifications OEQ**SC/WC1224 3WATTS/SINGLE/2 OUTPUT	Model											
	OEQ05SC1224	OEQ12SC1224	OEQ15SC1224	OEQ24SC1224	OEQ22WC1224	OEQ23WC1224						
<b>Input Characteristic</b>												
Input Voltage DC[V]	12	24	12	24	12	24	12	24	12	24	12	24
Input Range DC[V]	8-32											
Inrush Current [A]	Not specified											
Input Range												
at no load [mA](typical)	24	25	29	30	30	31	34	34	38	35	40	37
at full load[mA](typical)	271	147	320	171	311	168	325	173	341	182	324	173
Line Back Noise [mVp-p](typical)	300	150	300	150	300	150	300	150	300	150	300	150
Efficiency [%] (typical) *1	76	70	78	72	80	74	80	75	76	71	77	72

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## OEQ-SC/WC1224 Output specifications

Specifications OEQ**SC/WC1224 3WATTS/SINGLE/2 OUTPUT	Model							
	OEQ05SC1224	OEQ12SC1224	OEQ15SC1224	OEQ24SC1224	OEQ22WC1224		OEQ23WC1224	
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15
Output Current [A]	0.5	0.25	0.20	0.130	0.013-0.13		0.010-0.10	
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	200	480	600	960	480	480	600	600
c.Static Load Regulation +/-[mV](maximum) *5	25	60	75	120	1200	1200	1500	1500
+/-[mV](maximum) *6					480	480	600	600
+/-[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	480	600	960	480	480	600	600
g.Recovery Time *4,*10	20mS(typical)							
Rise up time	10ms(typical) at rated input/output							
Hold up time	Not specified							
<b>Functions</b>								
Overcurrent Protection	Current Limiting with automatic recovery at discontinuous short circuit conditions							
>=110% of Rated Output Current [A]	0.55	0.275	0.22	0.143	0.143	0.143	0.111	0.111
Overvoltage Protection	Not available							
Remote Sence	Not available							
Trimming of output voltage[mV]	Not available							
Input Fuse	Installed							
<b>Environmental</b>								
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 50MW(minimum) by DC500V insulation tester							
Capacitance(input-output) [pF](typical)	2200							
Vibration	5-10Hz:10mm double amplitude,10-55Hz:2G,20minutes' period for 60minutes each along X,Y,Z axes(non-operating)							
Shock	30G							
Cooling	Convection							
Weight (typical)	open board type:7g							

Conditions:

\*1 at 25°Cand rated input/output

\*2 OEQ\*\*WC1224 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 32V 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 the other output

above minimum rated current at rated input

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## OEQ-SC/WC2448 Input Specifications

Specifications OEQ**SC/WC2448 3WATTS/SINGLE/2 OUTPUT	Model											
	OEQ05SC2448	OEQ12SC2448	OEQ15SC2448	OEQ24SC2448	OEQ22WC2448	OEQ23WC2448	OEQ24WC2448	OEQ25WC2448	OEQ26WC2448	OEQ27WC2448	OEQ28WC2448	OEQ29WC2448
<b>Input Characteristic</b>												
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)	11	11	15	15	16	16	18	18	19	19	20	19
at full load[mA](typical)	132	72	157	85	156	84	161	86	167	90	159	85
Line Back Noise [mVp-p](typical)	200	100	200	100	200	100	200	100	200	100	200	100
Efficiency [%] (typical) *1	78	72	79	74	80	74	80	75	77	72	78	73

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**OEQ-SC/WC2448 Output Specifications**

Specifications OEQ**SC/WC2448 3WATTS/SINGLE/2 OUTPUT	Model							
	OEQ05SC2448	OEQ12SC2448	OEQ15SC2448	OEQ24SC2448	OEQ22WC2448	OEQ23WC2448	OEQ23WC2448	OEQ23WC2448
Output Characteristic								
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15
Output Current [A]	0.5	0.25	0.20	0.130	0.013-0.13		0.010-0.10	
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	200	480	600	960	480	480	600	600
c.Static Load Regulation +/-[mV](maximum) *5	25	60	75	120	1200	1200	1500	1500
+/-[mV](maximum) *6					480	480	600	600
+/-[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	480	600	960	480	480	600	600
g.Recovery Time *4,*10	20mS(typical)							
Rise up time	10ms(typical) at rated input/output							
Hold up time	Not specified							
Functions								
Overcurrent Protection	Current Limiting with automatic recovery at discontinuous short circuit conditions							
>=110% of Rated Output Current [A]	0.55	0.275	0.22	0.143	0.143	0.143	0.111	0.111
Overvoltage Protection	Not available							
Remote Sense	Not available							
Trimming of output voltage[mV]	Not available							
Input Fuse	Installed							
Environmental								
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 50MW(minimum) by DC500V insulation tester							
Capacitance(input-output) [pF](typical)	2200							
Vibration	5-10Hz:10mm double amplitude,10-55Hz:2G,20minutes' period for 60minutes each along X,Y,Z axes(non-operating)							
Shock	3G							
Cooling	Convection							
Weight (typical)	open board type:7g							

Conditions:

\*1 at 25°Cand rated input/output

\*2 OEQ\*\*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 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 the 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 7hours from 1hour after switch-on at 25°Cand rated input/output

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

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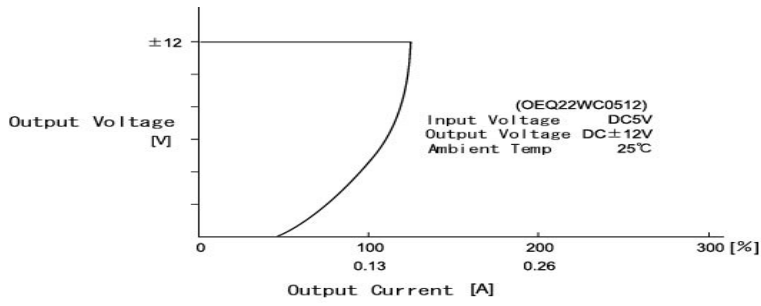
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## OCP Curve



OCP Curve OEQ22WC0512

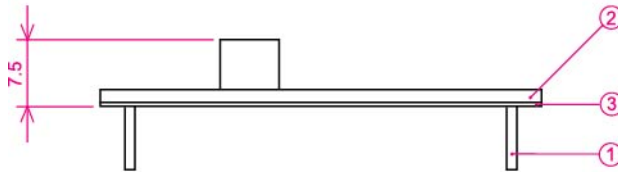
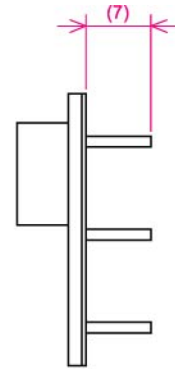
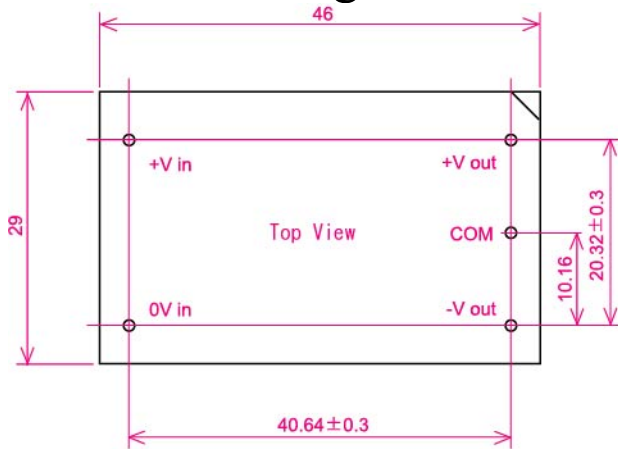
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## Dimension Diagram



- ① 1.0DIA PIN Material:BsB 2700 1/2H  
Copper Plating 1~3 $\mu$ m  
Solder Plating 3~8 $\mu$ m

② Double-sided PCB FR4t=1.0

③ t=0.5 Insulator V0

\*Tolerance  $\pm 0.5$

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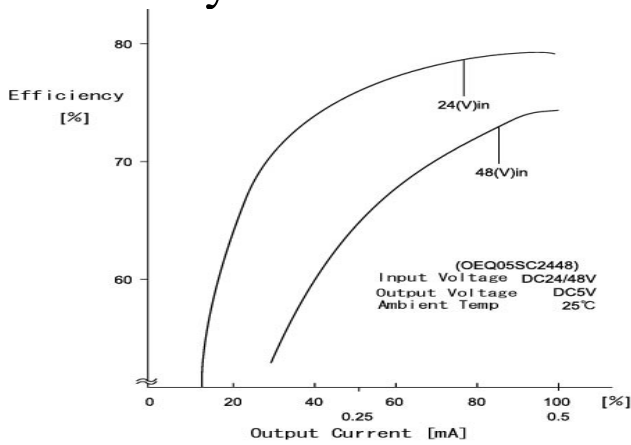




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## Efficiency Curve



Efficiency Curve/OEQ05SC2448

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