



# ETA-USA

The Power Professionals

## ODC150 SC48-W

## 150W DC/DC



### Features

- Ultra wide input range voltage from 9-75VDC
- Ultra wide input range VDC 8:1
- 150W power in industrial standard half brick package
- Fixed switching frequency
- Continuous short circuit protection
- Over temperature protection, Over voltage/ current protection, input under voltage lockout, and remote ON/OFF control function
- 3000VDC isolation
- Design meet EN 62368 standard

MODEL/CHANNEL		Unit	ODC150-12SC48-W	ODC150-24SC48-W	ODC150-28SC48-W	ODC150-48SC48-W	ODC150-54SC48-W
<b>OUTPUT</b>	Nominal Voltage	V	12	24	28	48	54
	Current	A	12.5	6.25	5.357	3.125	2.778
	Capacitive Load Max	µs	5000	2000	1500	1000	
	Efficiency Typ.	%	90	89			
	Ripple and Noise	mVp-p	120	240			
	Voltage Accuracy	-	±1%				
	Voltage Adjustability	-	±10%				
	Load Regulations	%	LL-HL at 100% load ±0.2%				
	Load Regulations	%	0%-100% load ±0.5%				
	Operating Frequency	KHZ	100% load nominal input 200KHz				
Transient Response	-	recovery time 25% load step change 500 (75%-100%)µs					
MODEL/CHANNEL		Unit	ODC150-SC48-W				
<b>INPUT</b>	Nominal Voltage	V	Input voltage range 9~75 VDC				
	Start Up Voltage	VDC	9				
	Input Current	-	Vout≤28Vdc 35mA; Vout= 48, 54Vdc 75 mA				
	Start Up Time	-	100% load @48V in 200 to 400 ms				
	Remote On/Off	-	DC/DC ON Open or DCDC OFF 3V < Vr < 12V Short or 0V < Vr < 1.2V				
	Voltage Surge	-	0.1s. Max 100 VDC				
	Under Voltage Lookout	-	0%~100% load 8 VDC				



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## ODC150 SC48-W

MODEL/CHANNEL		Unit	ODC150-12SC48-W	ODC150-24SC48-W	ODC150-28SC48-W	ODC150-48SC48-W	ODC150-54SC48-W	
<b>Function</b>	Over Voltage Protection	V	13.4~18	26.9~36	31.4~42	53.8~72	60.5~81	
	Overload Protection	A	150%					
	Remote On/OFF	-	DC-DC ON Open or $3V < V_r < 12V$ ; DC-DC OFF Short or $0V < V_r < 1.2V$					
	Voltage	-	Input to output 60 sec. 3000VDC					
	Resistance	-	500VDC 1000M $\Omega$					
	Capacitance	-	3500 $\mu$ F					
	Short Circuit Protection	-	Continuous, automatic recovery					
<b>Environment</b>	Operating temp. & Hum.	-	@Nominal Vin -40 to 105°C; 5~95% RH					
	Storage temp. & Hum.	-	-55 to 125°C; 5~95% RH					
	Vibration	-	MIL-STD-202G					
	MTBF	-	(MIL-HDBK-217F) +25°C TBDKHrs					
<b>Dimension</b>	Size(WxLxH) / Weight	mm/g	57.9 x 61 x 12.7/109					
	Safety	-	Meet EN62368					
	<b>Emission</b>	-	EMC, EMI, EN 55022 CLASS A/ B with external filter ESD EN61000-4-2, Criteria A Air $\pm$ 8kV; Contact $\pm$ 6kV Radiated immunity EN61000-4-3, 10 V/m Criteria A EN61000-4-4, $\pm$ 2kV Criteria A, EN61000-4-5, $\pm$ 2kV Criteria A, EN61000-4-6, 10 V/rms Criteria A, EN61000-4-8, 10 A/m Criteria A					



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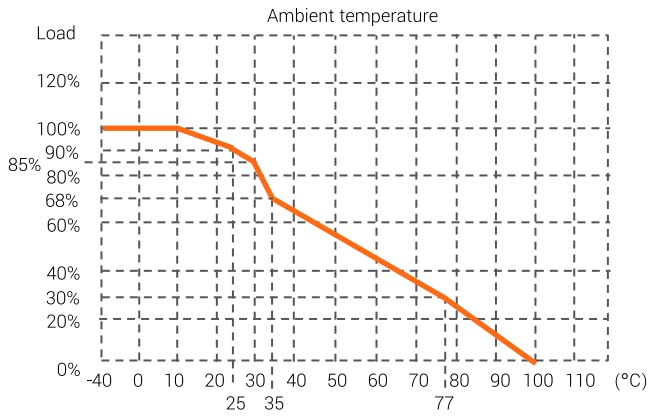
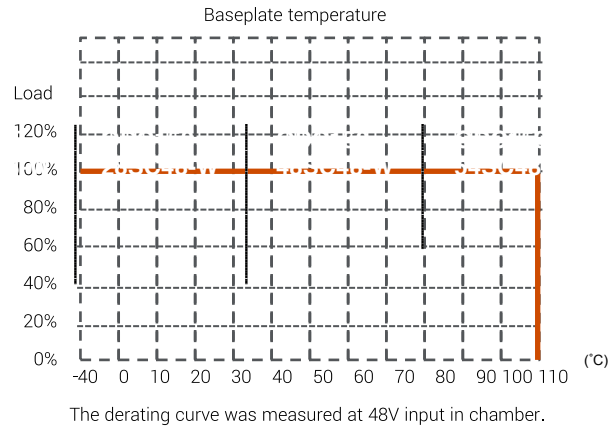
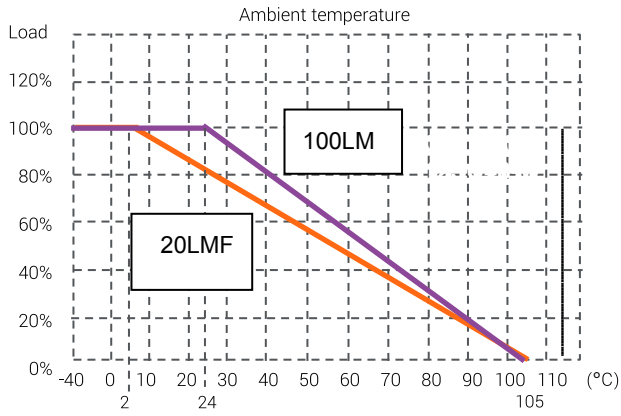
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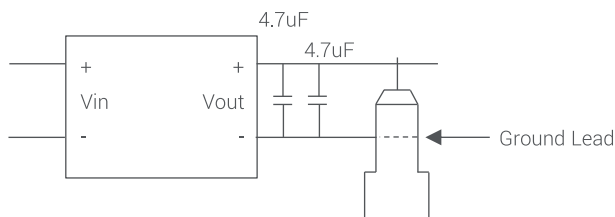
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## Derating Curve



The derating curve was measured with heat sink.

## Ripple and Noise



Measured with 20MHz bandwidth and  $4.7\mu F + 4.7\mu F$  ceramic



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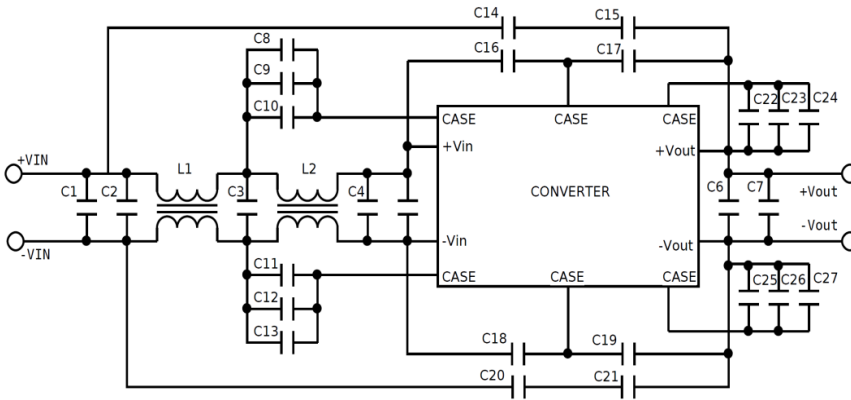
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## Dimensional Drawing(mm)



Vout	C1	C2	L1	L2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
12V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	NONE	NONE	4700pF	NONE
24V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	NONE	4700pF	4700pF
28V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	NONE	4700pF	4700pF
48V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	4700pF	4700pF	4700pF
54V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	4700pF	4700pF	4700pF
C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27
NONE	10pF	10pF	2200pF	2200pF	2200pF	2200pF	10pF	10pF	4700pF	NONE	NONE	4700pF	NONE	NONE
NONE	10pF	10pF	2200pF	3300pF	2200pF	3300pF	10pF	10pF	4700pF	4700pF	NONE	4700pF	4700pF	NONE
NONE	10pF	10pF	2200pF	3300pF	2200pF	3300pF	10pF	10pF	4700pF	4700pF	NONE	4700pF	4700pF	NONE
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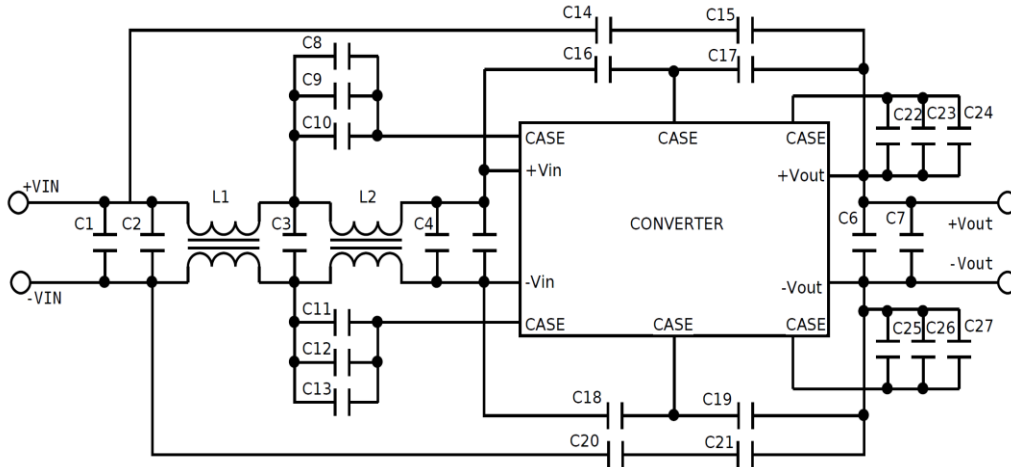
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## External Output



Vout	C1	C2	L1	L2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
12V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	NONE	NONE	4700pF	NONE
24V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	NONE	4700pF	4700pF
28V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	NONE	4700pF	4700pF
48V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	4700pF	4700pF	4700pF
54V	220uF	2.2uF	2.2mH	2.2mH	2.2uF	220uF	2.2uF	4.7uF	4.7uF	4700pF	4700pF	4700pF	4700pF	4700pF
C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	C25	C26	C27
NONE	10pF	10pF	2200pF	2200pF	2200pF	2200pF	10pF	10pF	4700pF	NONE	NONE	4700pF	NONE	NONE
NONE	10pF	10pF	2200pF	3300pF	2200pF	3300pF	10pF	10pF	4700pF	4700pF	NONE	4700pF	4700pF	NONE
NONE	10pF	10pF	2200pF	3300pF	2200pF	3300pF	10pF	10pF	4700pF	4700pF	NONE	4700pF	4700pF	NONE
4700pF	15pF	15pF	4700pF	4700pF	4700pF	4700pF	15pF	15pF	4700pF	4700pF	4700pF	4700pF	4700pF	4700pF
4700pF	15pF	15pF	4700pF	4700pF	4700pF	4700pF	15pF	15pF	4700pF	4700pF	4700pF	4700pF	4700pF	4700pF



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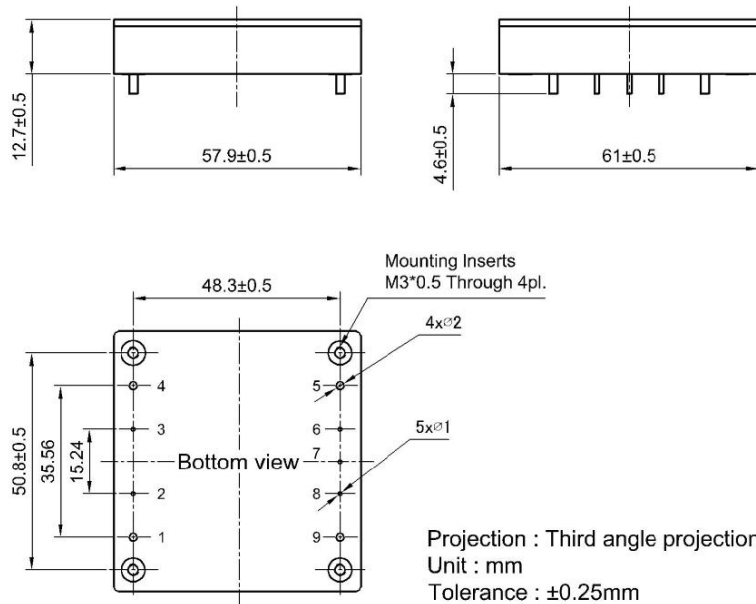
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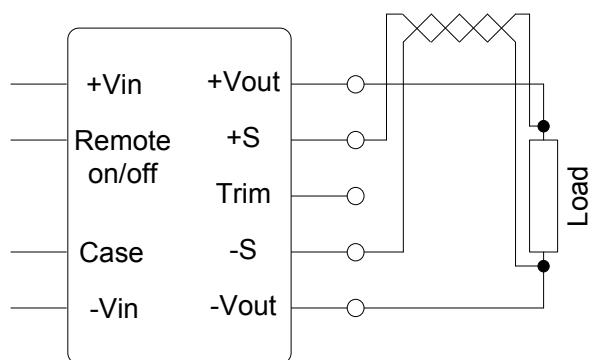


## Dimensional Drawing(mm)

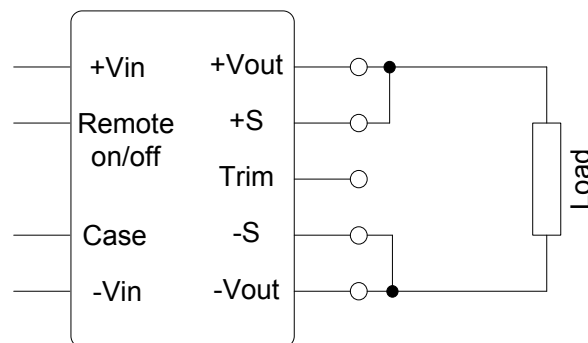


Pin	Function
1	+Vin
2	Remote ON/OFF
3	Case
4	-Vin
5	-Vout
6	-Sense
7	Trim
8	+Sense
9	+Vout

## Remote Sense Application



(a) With Remote Sense

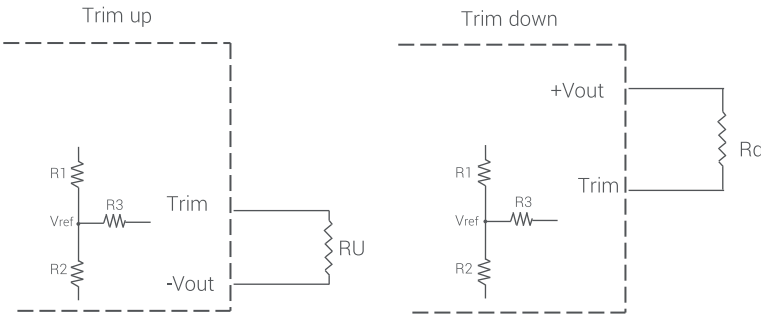


(b) Without Remote Sense





## External Output



Formula for trim resistor:

$$\text{UP: } R_u = \frac{aR_3}{R_2 - a} - R_3 \quad a = \frac{V_{ref}}{V_o - V_{ref}} \cdot R_1$$

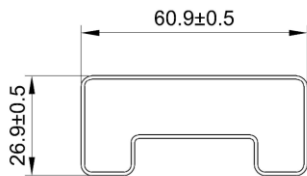
$$\text{DOWN: } R_d = \frac{bR_1}{R_1 - b} - R_3 \quad b = \frac{V_o - V_{ref}}{V_{ref}} \cdot R_2$$

Note:

1.  $R_u, R_d$  is mean trim resistor, please check the formula.
2.  $a$  &  $b$ : user define parameter, no actual meanings.
3.  $V_o$  is mean trim up/down voltage.

Vout	Vref	R1	R2	R3
12V	2.5V	38K	10K	68K
24V	2.5V	86K	10K	76.8K
28V	2.5V	102K	10K	76.8K
48V	2.5V	182K	10K	80.6K
54V	2.5V	206.1K	10K	82k

## Packaging (In tubes of 8)



UNIT:mm  
 1 Tube = 7 pcs  
 Length:520±2mm



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