EPD300-**SC **-CT Series

300 Watt DC/DC Power Supply

SINGLE OUTPUT
4:1 Wide input range VDC
Isolation 3000 VDC
Efficiency up to 89%
Wide operating temperature range from -40°C to +100°C
No minimum load required- Soft Start
Meet EN62368-1
Available Inputs Voltage (nominal):
28VDC Nom. (DC 9~36V)
48VDC Nom. (DC18~75V)
Meets 1/2 Brick DOSA standard approx. 2.3"× 2.4"× 0.35
Dedicated Case pin (#3 pin) for improved EMI performance.

3 Year Warranty

RoHS

		UNIT	EPD300-**SC28-CT	EPD300-**SC48-CT
INPUT	**Nom Voltage (Range)**	V	DC 24V (9~36)	DC 48V (18~75)
	Current Typ.	mA	12, 15, 24VDC; 50 48VDC; 70	50
	Start-up time		100% load @ nominal Vin 200 mS	
	Under Volatge lockout	24Vin 48Vin	Typ. 7.0 VDC Typ. 15.0 VDC	
	Startup Voltage	24Vin 48Vin	Typ. 9.0 VDC Typ. 18.0 VDC	
	Voltage Surge (1s max)	24Vin 48Vin	Max. 50VDC Max. 90VDC	

		EPD300	-12SC28-CT	-15SC28-CT	-24SC28-CT	-48SC28-CT
OUTPUT **28Vin Nom**	**Nominal Voltage**	VDC	12	15	24	48
	Capacitive Load max.	uF	8800	8800	4300	1500
	Current	A	25	20	12.5	6.25
	Total Power	W	300	300	300	300
	Efficiency	%	86.5	87	86	87
	Line Regulation	%	+/-0.2%	+/-0.2%	+/-0.2%	+/-0.2%
	Load Regulation	%	+/-0.5%	+/-0.5%	+/-0.5%	+/-0.5%
	Switching Frequency	KHZ	250	250	250	250
	Ripple Noise	mVp-p	120	150	300	480
	Over Voltage Protection @28vdc input	VDC	13.4~19.2	16.8~24	26.9~38.4	56.2~67.2
	Voltage Adjust. **28Vin**	% (0%~100% load at Vin range; Pout ≦ max rated power)	+/- 10%	+/- 10%	+/- 10%	- 10/ + 15%

	Transient res. recovery time **25% load step change**	µs	500	500	500	500

		EPD300	12SC48-CT	24SC48-CT	48SC48-CT
OUTPUT **48Vin Nom**	**Nominal Voltage**	VDC	12	24	48
	Capacitive Load max.	uF	8800	4300	1500
	Current	A	25	12.5	6.25
	Total Power	W	300	300	300
	Efficiency	%	89	87	87
	Line Regulation	%	+/-0.2%	+/-0.2%	+/-0.2%
	Load Regulation	%	+/-0.5%	+/-0.5%	+/-0.5%
	Switching Frequency	KHZ	250	250	230
	Ripple Noise	mVp-p	120	300	480
	Over Voltage Protection 48 vdc input	Vdc	13.8 ~ 16.8	26.9 ~38.4	56.2 ~ 67.2
	Voltage Adjust. **48Vin**	% (0%~100% load at Vin range Pout≦max rated power)	+/- 10%	+/- 10%	- 10/ + 15%
	Transient res. recovery time 25% load step change	µs	500	500	500

ISOLATION	**Voltage**	60 Sec. input/output- 3000 vdc DC Isolation cuttoff 1mA AC Isolation 2000vac cuttoff 5mA 60 Sec.input/output to case- 1600 vdc DC Isolation cuttoff 1mA AC Isolation 1000 vac cuttoff 5mA
	Resistance	>= 500Vdc 1000 MΩ
	Capacitance	Typ. 4700pF
Protection	**Overload Protection** **28Vdc** **48Vdc**	>= 150% full load >= 130% full load
	Short Circuit	Auto Recovery
Environment	**Operating temp**	-40 ~ +100℃
	Storage	-55 ~ +125℃
	Baseplate Temp.	105 °C
	Relative Humidity RH%	5 ~ 95
	Cooling	Convection (Extended Operation when mounted to heatsink)
	Vibration	Mil STD. 202G
MTBF	**24Vin** **48Vin**	600 kHrs 150 kHrs

Dimension	**WxHxL inch/g**	2.28" X 2.4" X 0.5" / 120 g
Case	**Case Material** **Potting Material** **Over temp. protection**	Aluminum base plate with plastic case Potting Silicon To case Temp. 110 °C
Standards	**Safety Standard**	Meet EN62368-1
	EMI	EN55032, Class A/B with external Circuit
	ESD	IEC 61000 4.2 Air +/-8kV; contact +/-6kV Criteria A
	EMC	Radiant immunity: IEC 61000 -4.3, 10V/m Criteria A Fast Transient: IEC 61000 -4.4, +/-2kV Criteria A Surge : IEC 61000 -4.5, +/-2kV Criteria A (external input Cap. Required 1000uF/100V) Conducted immunity: IEC 61000 -4.6, 10V/rms Criteria A Magnetic field immunity: IEC 61000 -4.8, 10 A/m Criteria A

HOW TO ORDER

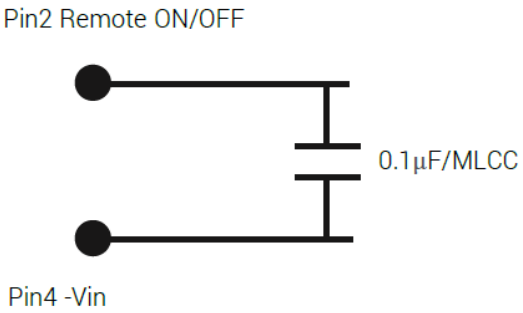
EPD300-##SCxx-CT

Series Name

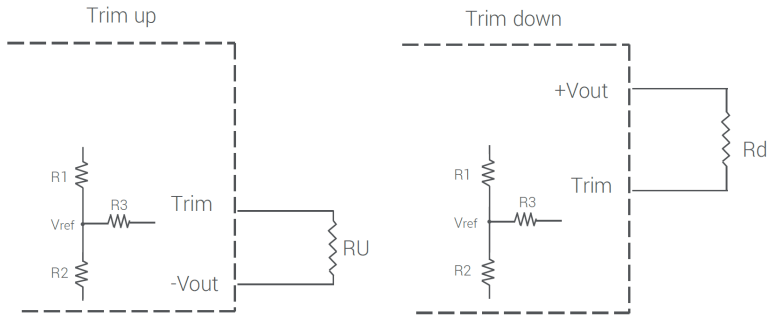
##=Output Voltage
12
15 (Available at 28Vin only)
24
48

xx=Input Voltage
28= 9~36V
48=18~75

Remote On/Off



VOLTAGE TRIM



Formula for trim resistor:

UP: $Ru=\frac{aR_2}{R_2-a}-R_3$ $a=\frac{V_{ref}}{V_o'-V_{ref}}\cdot R_1$

DOWN: $Rd=\frac{bR_1}{R_1-b}-R_3$ $b=\frac{V_o'-V_{ref}}{V_{ref}}\cdot R_2$

Note:

1.Ru, Rd is mean trim resistor, please check the formula.

2.a & b: user define parameter, no actual meanings.

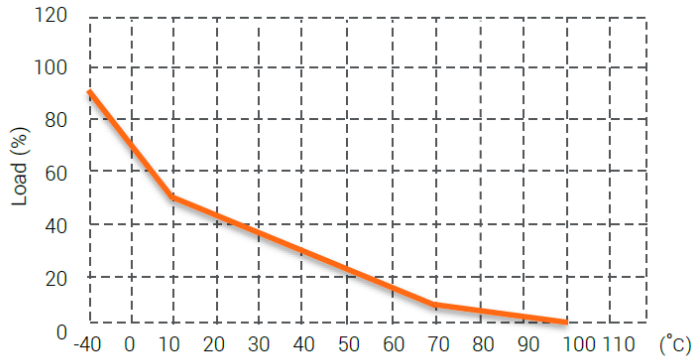
3. V_o' is mean trim up/down voltage.

4. Value for R1, R2, R3 and Vref refer to below table.

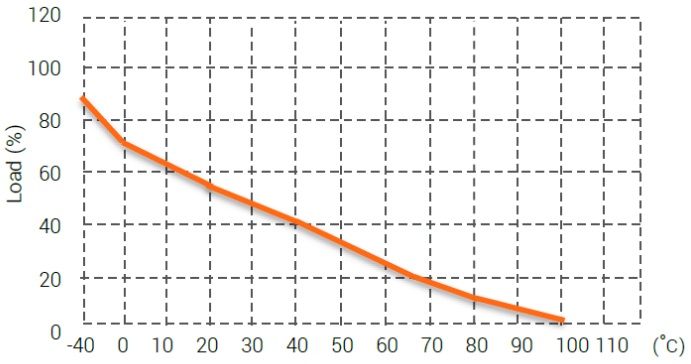
SERIES	OUTPUT VOLTAGE	Vref	R1	R2	R3
EPD300-28SC	12	2.50	38.0 KΩ	10.0 KΩ	68.0 KΩ
	15	2.50	50.0 KΩ	10.0 KΩ	68.0 KΩ
	24	1.24	103.0 KΩ	5.6 KΩ	51.0 KΩ
	48	2.50	36.4 KΩ	2.0 KΩ	12.4 KΩ
EPD300-48SC	12	2.50	6.92 KΩ	1.82 KΩ	12.4 KΩ
	24	1.24	103.00 KΩ	5.6 KΩ	47.0 KΩ
	48	2.50	36.4 KΩ	2.0 KΩ	12.4 KΩ

DERATING CURVE -TEMPERATURE

EPD300-12SC28-CT

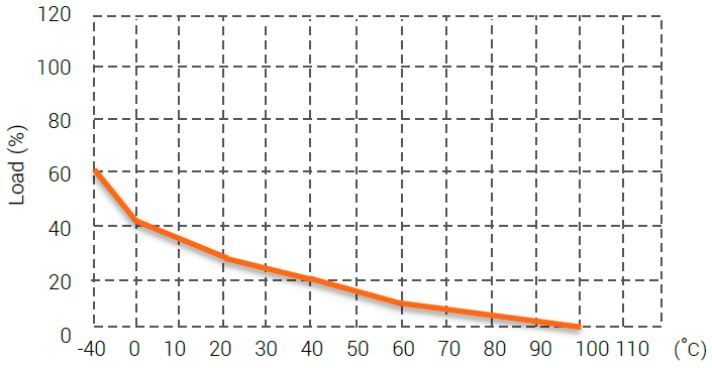


EPD300-15SC28-CT

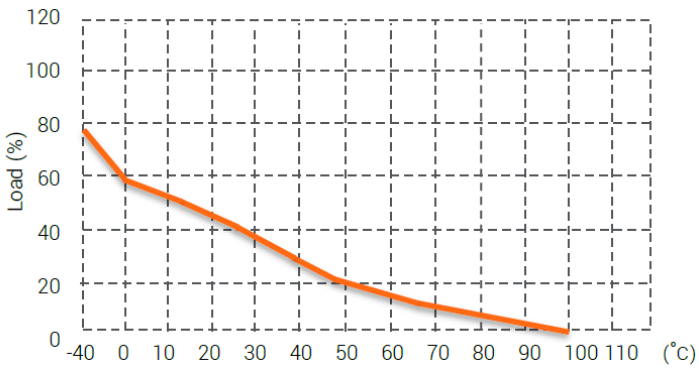


**Derating curves shown is in a convection cooled environment with no external heatsink or forced air, utilizing either or both cooling methods may improve results.*

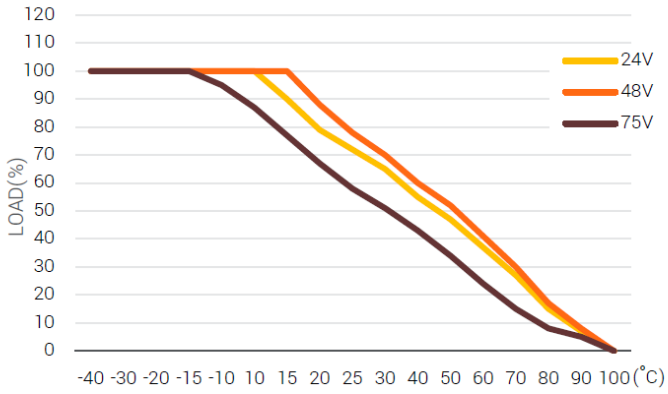
EPD300-24SC28



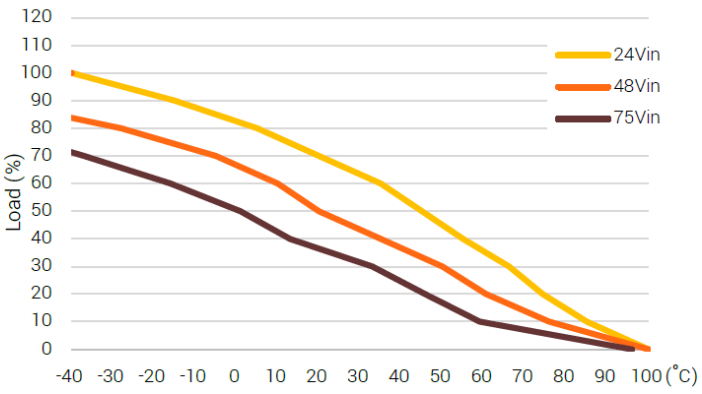
EPD300-48SC28-CT



EPD300-12SC48-CT



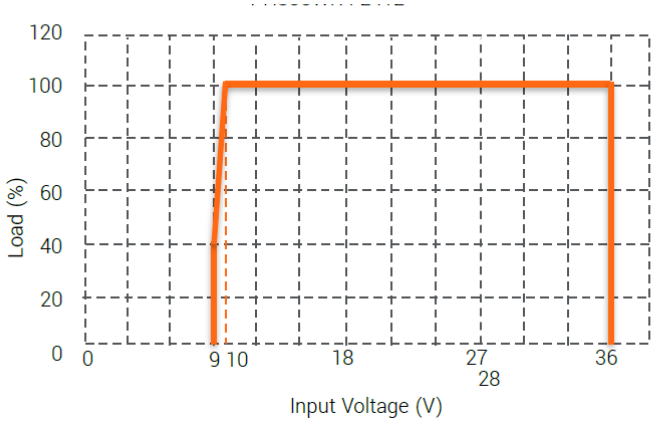
EPD300-24SC48-CT / EPD300-48SC48-CT



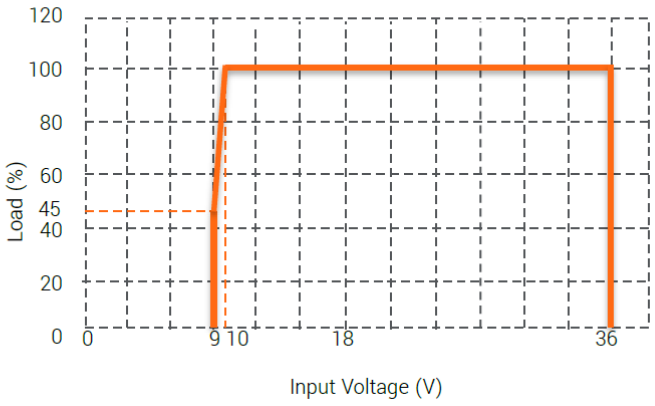
**Derating curves shown is in a convection cooled environment with no external heatsink or forced air, utilizing either or both cooling methods may improve results.*

DERATING CURVES – INPUT VOLTAGE

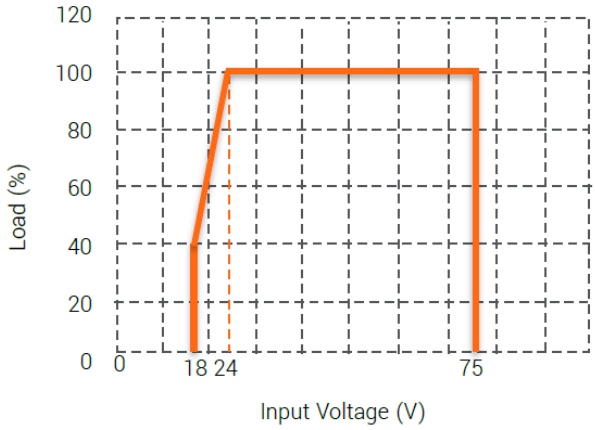
EPD300-12SC28-CT



EPD300-15SC28-CT

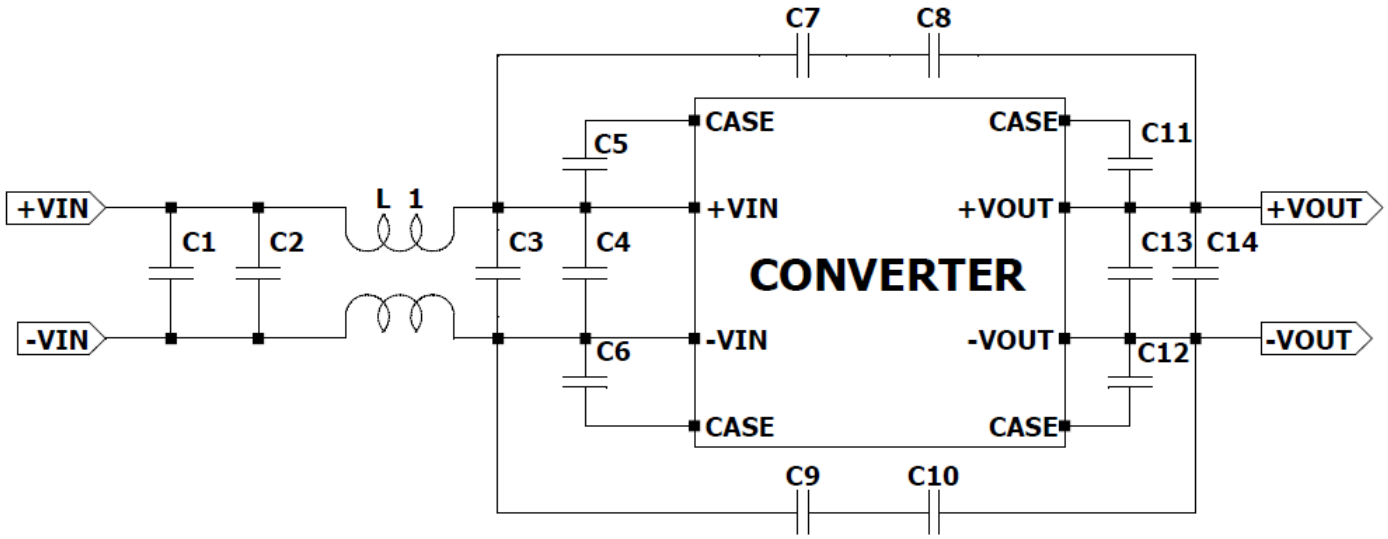


EPD300-xxSC48-CT (xx=12, 24, 48)



EMI FILTERING FOR EN55032 CLASS A REFERENCE DESIGN

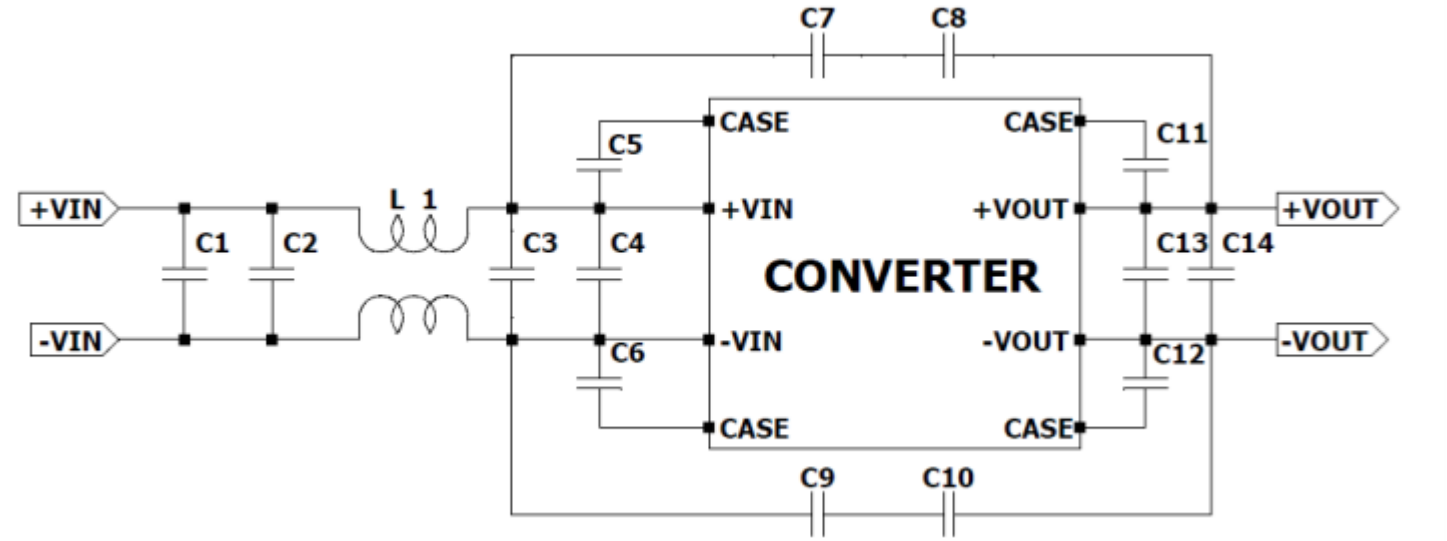
FOR 28Vin, 12 & 15 Vout



EPD300-28SC12/15-CT

C1	C2	C3	C4	C5	C6	C7	C8
KYA 220µF/100VDC	MLCC 1µF/50VDC	KYA 220µF/100VDC	MLCC 1µF/50VDC	MLCC 4700PF/2KVDC X 4	MLCC 4700PF/2KVDC X 4	MLCC 4700PF/2KVDC	MLCC 4700PF/2KVDC

C9	C10	C11	C12	C13	C14	L1
MLCC 4700PF/2KVDC	MLCC 4700PF/2KVDC	MLCC 4700PF/2KVDC X 4	MLCC 4700PF/2KVDC X 4	MLCC 47µF/50VDC	MLCC 0.1µF/50VDC	A10 T22X14X10 1.3mH

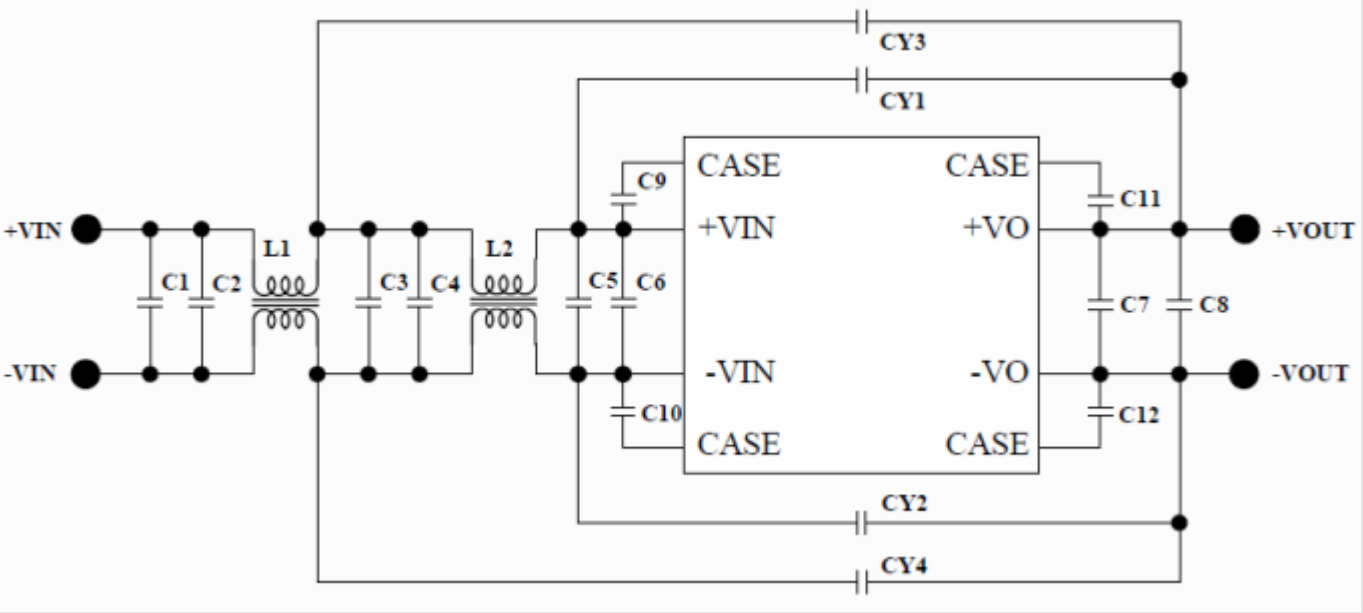


EPD300-28SC48-CT

C1	C2	C3	C4	C5	C6	C7	C8
KYA 220µF/100VDC	MLCC 1µF/50VDC	KYA 220µF/100VDC	MLCC 1µF/50VDC	MLCC 4700PF/2KVDC X 6	MLCC 4700PF/2KVDC X 6	MLCC 4700PF/2KVDC	MLCC 4700PF/2KVDC

C9	C10	C11	C12	C13	C14	L1
MLCC 4700PF/2KVDC	MLCC 4700PF/2KVDC	MLCC 4700PF/2KVDC X 6	MLCC 4700PF/2KVDC X 6	MLCC 47µF/50VDC	MLCC 0.1µF/50VDC	A10 T22X14X10 1.3mH

EN55032 CLASS A FOR 28Vin, 24 Vout

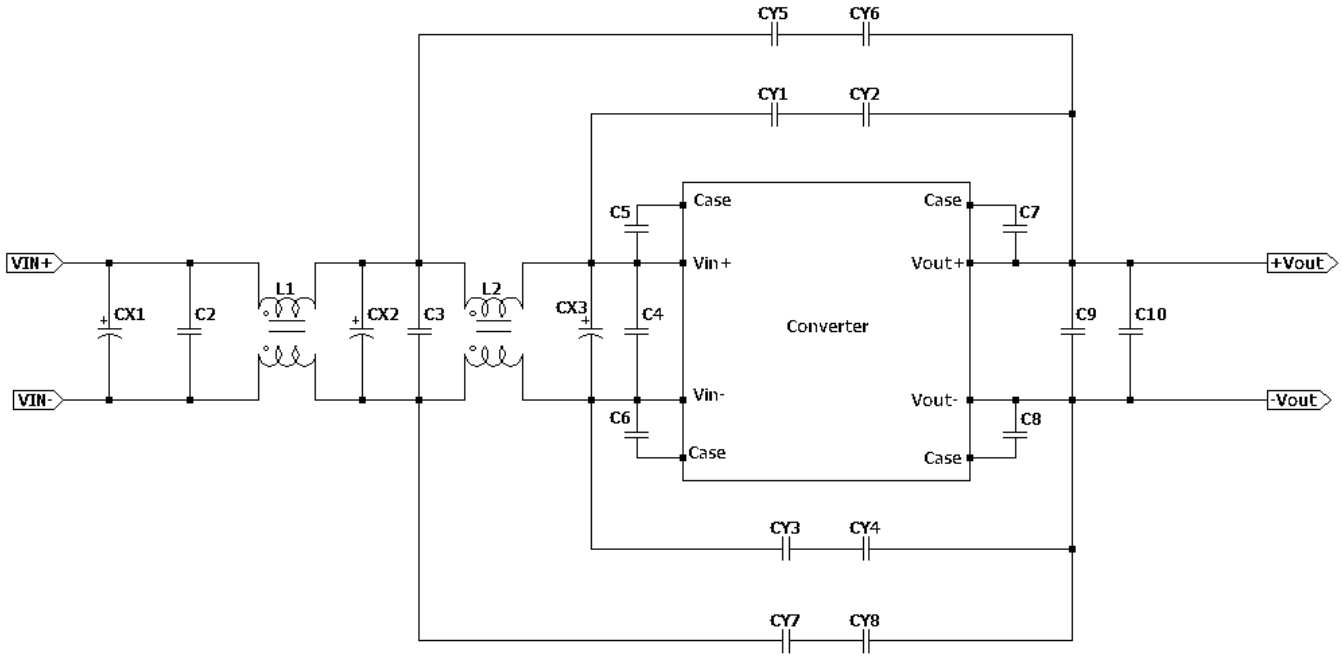


EPD300-28SC24-CT

C1	C2	C3	C4	C5	C6	C7	C8	C9
KYA 220µF/100VDC	MLCC 1µF/50VDC	KYA 220µF/100VDC	MLCC 1µF/50VDC	KYA 220µF/100VDC	MLCC 1µF/50VDC	MLCC 4.7µF/50VDC	MLCC 0.1µF/50VDC	MLCC 2200PF/3KVDC

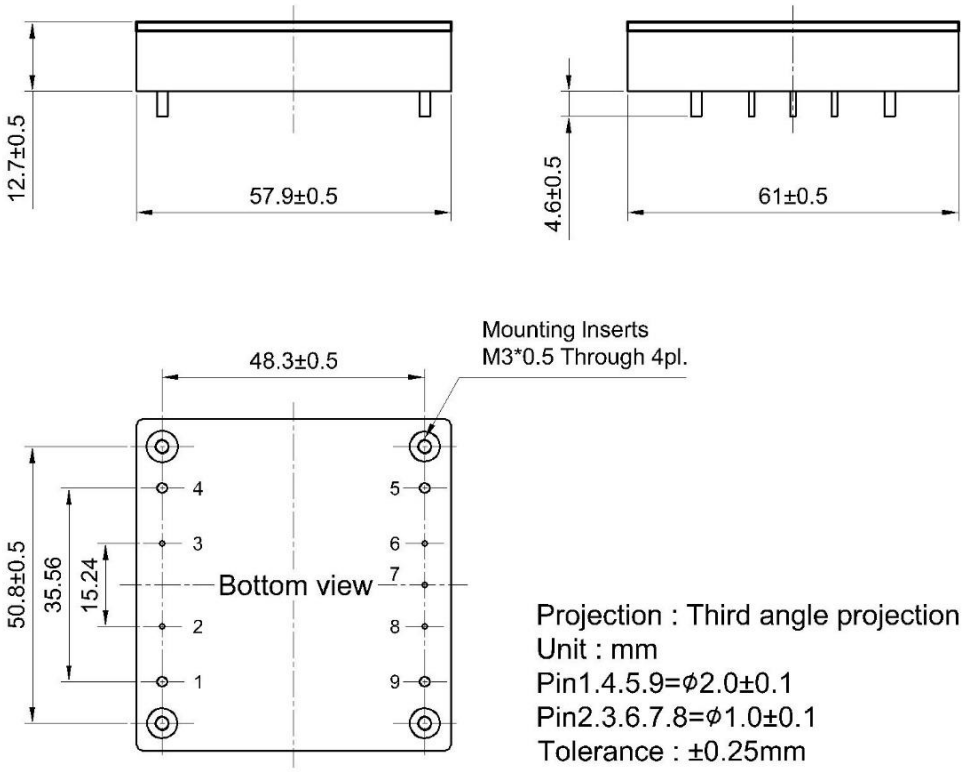
C10	C11	C12	CY1	CY2	CY3	CY4	L1	L2
MLCC 2200PF/3KVDC	MLCC 2200PF/3KVDC	MLCC 2200PF/3KVDC	MLCC 2200PF/3KVDC X 5 parallel	MLCC 2200PF/3KVDC X 5 parallel	NC	NC	A10 T22X14X10 1.3mH	A10 T22X14X10 1.3mH

EN55032 CLASS A (FOR 48Vin)



CX1	C2	CX2	C3	CX3	C4	C5	C6
KYA 220µF/100VDC	NC	KYA 220µF/100VDC	NC	KYA 220µF/100VDC	NC	MLCC 4700pF/2kV	MLCC 4700pF/2kV
C7	**C8**	**CY1**	**CY2**	**CY3**	**CY4**	**C9**	**C10**
MLCC 4700pF/2kV	MLCC 4700pF/2kV	MLCC 2200PF/3KVdc	MLCC 2200PF/3KVdc	MLCC 2200PF/3KVdc	MLCC 2200PF/3KVdc	MLCC 0.1µF/50V or 63V	MLCC 22µF/25V or 63V
L1	**L2**	**CY5**	**CY6**	**CY7**	**CY8**		
Wurth, CMC 7448042001 (1mH)	Wurth, CMC 7448251201 (1 mH)	MLCC 100PF/3KVdc	MLCC 220PF/3KVdc	MLCC 100PF/3KVdc	MLCC 220PF/3KVdc		

Dimensional Drawing



Projection : Third angle projection
Unit : mm
Pin1.4.5.9=ϕ2.0±0.1
Pin2.3.6.7.8=ϕ1.0±0.1
Tolerance : ±0.25mm

PIN	FUNCTION
1	+Vin
2	CTRL (remote on/off)
3	Case
4	-Vin
5	-Vout
6	-Sense
7	Trim
8	+Sense
9	+Vout

Note: Product subject to Change Without Notice