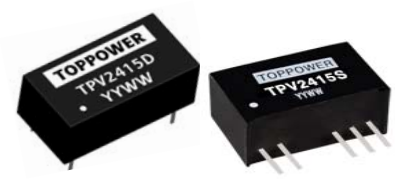
TPV 24V & 48V Series



DESCRIPTION: **1W 3KVDC Isolated Single & Dual Output DC/DC Converters**

The TPV series are miniature, isolated 1W DC/DC converters in a SIP and DIP package. They offer the ideal solution in many space critical applications for board level power distribution. The Internal SMD construction makes it possible to offer a product with high performance at low cost. The series offers smaller size, improved efficiency and 3KVDC isolation.

FEATURES

RoHS compliant、CE certification	Efficiency to 80%	Power density up to 0.85W/cm^3
Single or dual output	UL 94V-0 package material	Power sharing on dual output
Footprint from 1.17cm^2	Industry standard pinout	3KVDC isolation (1 minute)
Input voltage: 24V, 48V	Output voltage: 3.3V,5V, 9V, 12V, 15V / ±5V, ±9V, ±12V, ±15V	Operating temperature: -40℃ to 105℃

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current(Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TPV2405DA	24	5	200/20	71	DIP
TPV2409DA	24	9	111/11.1	79	DIP
TPV2412DA	24	12	84/8.4	80	DIP
TPV2415DA	24	15	67/6.7	81	DIP
TPV2403SA	24	3.3	303/30.3	70	SIP
TPV2405SA	24	5	200/20	71	SIP
TPV2409SA	24	9	111/11.1	79	SIP
TPV2412SA	24	12	84/8.4	80	SIP
TPV2415SA	24	15	67/6.7	81	SIP
TPV2424SA	24	24	42/4.2	77	SIP
TPV4805DA	48	5	200/20	71	DIP
TPV4809DA	48	9	111/11.1	79	DIP
TPV4812DA	48	12	84/8.4	80	DIP
TPV4815DA	48	15	67/6.7	81	DIP
TPV4803SA	48	3.3	303/30.3	71	SIP
TPV4805SA	48	5	200/20	71	SIP
TPV4809SA	48	9	111/11.1	79	SIP
TPV4812SA	48	12	84/8.4	80	SIP
TPV4815SA	48	15	67/6.7	81	SIP
TPV2405D	24	±5	±100/±10	71	DIP
TPV2409D	24	±9	±56/±5.6	79	DIP
TPV2412D	24	±12	±41/±4.1	80	DIP
TPV2415D	24	±15	±33/±3.3	81	DIP
TPV2405S	24	±5	±100/±10	71	SIP
TPV2409S	24	±9	±56/±5.6	79	SIP
TPV2412S	24	±12	±41/±4.1	80	SIP
TPV2415S	24	±15	±33/±3.3	81	SIP
TPV4805D	48	±5	±100/±10	71	DIP
TPV4809D	48	±9	±56/±5.6	79	DIP
TPV4812D	48	±12	±41/±4.1	80	DIP
TPV4815D	48	±15	±33/±3.3	81	DIP
TPV4805S	48	±5	±100/±10	71	SIP
TPV4809S	48	±9	±56/±5.6	79	SIP
TPV4812S	48	±12	±41/±4.1	80	SIP
TPV4815S	48	±15	±33/±3.3	81	SIP

Add suffix “P” for continuous short circuit protection, for example TPV2405SAP.

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INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	24V input variants	22	24	26.5	V
Voltage range	48V input variants	43	48	53	V

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage Vin, TPV24 variants	28V
Input voltage Vin, TPV48 variants	54V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40℃ to 85℃			1	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High Vin to low Vin			1.32	%/%

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 minute	3000			VDC
Resistance	Viso= 1000VDC	1			GΩ

GENERAL CHARACTERISTICS

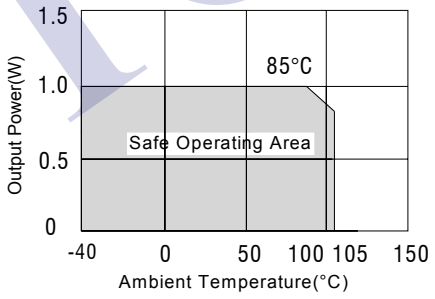
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All input variants		110		kHz

TEMPERATURE CHARACTERISTICS

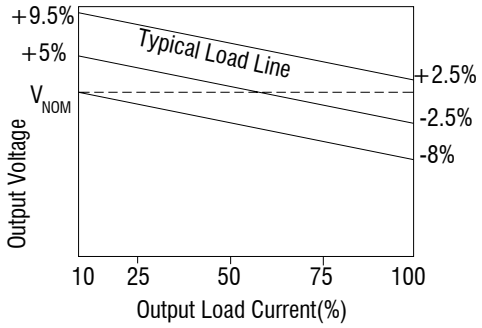
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	℃
Storage		-55		130	℃
Cooling	Free air convection				

All specifications typical at TA=25℃, nominal input voltage and rated output current unless otherwise specified.

TEMPERATURE DERATING GRAPHS



TOLERANCE ENVELOPES



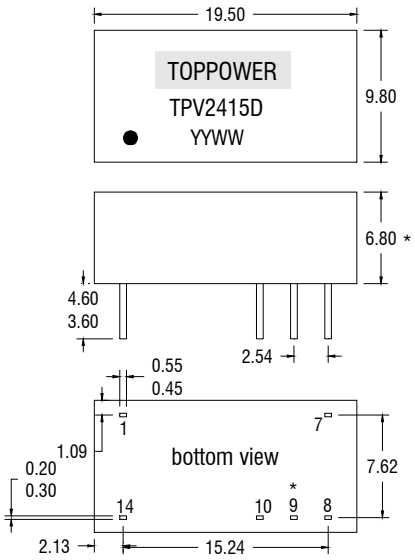
SOLDERING INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300℃ for 10 seconds. Both SIP and DIP types in this series are backward compatible with Sn/Pb soldering systems.

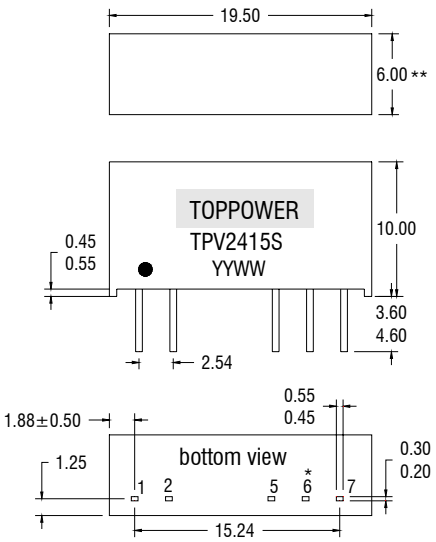
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MECHANICAL DIMENSIONS

DIP Package



SIP Package



Pin not fitted on single output variants.All dimensions in mm ±0.25mm.
*7.70for 48V variants **7.50 for 48V variants
All pins on a 2.54mm pitch and within ±0.25mm of true position.
Weight:2.11g(DIP and SIP)

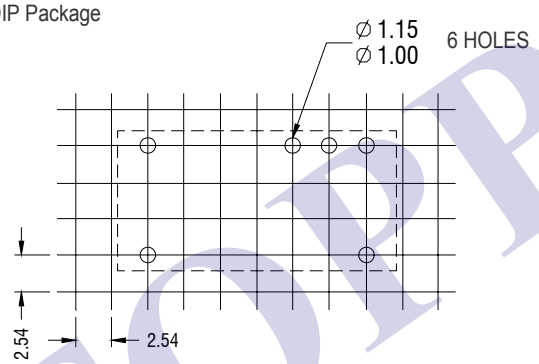
PIN CONNECTIONS

Dual output variants	
14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
9	0V
10	-Vout
14	+Vin
7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	0V
7	+Vout

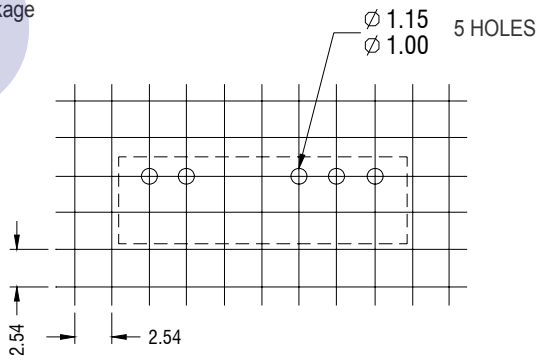
Single output variants	
14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
10	-Vout
14	+Vin
7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

RECOMMENDED FOOTPRINT DETAILS

14Pin DIP Package

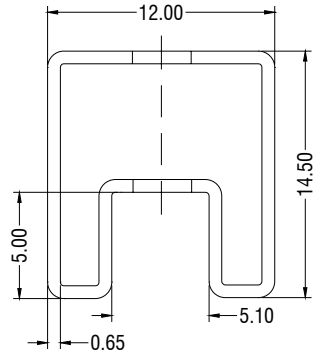


7Pin SIP Package

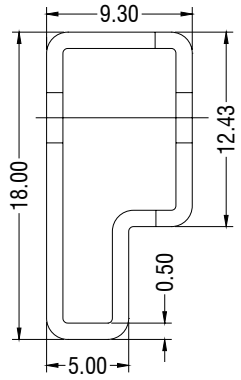


TUBE OUTLINE DIMENSIONS

14Pin DIP Tube



7Pin SIP Tube



Unless otherwise stated all dimensions in mm ±0.5mm.

Tube length (14 Pin DIP) : 520mm ±2mm.

Tube length (7 Pin DIP) : 520mm ±2mm.

Tube Quantity : 25PCS

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