



DESCRIPTION : 0.5W 3KVDC Isolated Single & Dual Output DC/DC Converters

The TPV-W5 series are miniature, isolated 0.5W 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°C to 105°C

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current(Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TPV2405DA-W5	24	5	100/10	71	DIP
TPV2409DA-W5	24	9	55.5/5.55	79	DIP
TPV2412DA-W5	24	12	41.7/4.17	80	DIP
TPV2415DA-W5	24	15	33.3/3.33	81	DIP
TPV2403SA-W5	24	3.3	152/15.2	70	SIP
TPV2405SA-W5	24	5	100/10	71	SIP
TPV2409SA-W5	24	9	55.5/5.55	79	SIP
TPV2412SA-W5	24	12	41.7/4.17	80	SIP
TPV2415SA-W5	24	15	33.3/3.33	81	SIP
TPV2424SA-W5	24	24	20.84/2.084	77	SIP
TPV4805DA-W5	48	5	100/10	71	DIP
TPV4809DA-W5	48	9	55.5/5.55	79	DIP
TPV4812DA-W5	48	12	41.7/4.17	80	DIP
TPV4815DA-W5	48	15	33.3/3.33	81	DIP
TPV4803SA-W5	48	3.3	152/15.2	71	SIP
TPV4805SA-W5	48	5	100/10	71	SIP
TPV4809SA-W5	48	9	55.5/5.55	79	SIP
TPV4812SA-W5	48	12	41.7/4.17	80	SIP
TPV4815SA-W5	48	15	33.3/3.33	81	SIP
TPV2405D-W5	24	±5	±50/±5	71	DIP
TPV2409D-W5	24	±9	±27.75/±2.775	79	DIP
TPV2412D-W5	24	±12	±20.85/±2.085	80	DIP
TPV2415D-W5	24	±15	±16.65/±1.665	81	DIP
TPV2405S-W5	24	±5	±50/±5	71	SIP
TPV2409S-W5	24	±9	±27.75/±2.775	79	SIP
TPV2412S-W5	24	±12	±20.85/±2.085	80	SIP
TPV2415S-W5	24	±15	±16.65/±1.665	81	SIP
TPV4805D-W5	48	±5	±50/±5	71	DIP
TPV4809D-W5	48	±9	±27.75/±2.775	79	DIP
TPV4812D-W5	48	±12	±20.85/±2.085	80	DIP
TPV4815D-W5	48	±15	±16.65/±1.665	81	DIP
TPV4805S-W5	48	±5	±50/±5	71	SIP
TPV4809S-W5	48	±9	±27.75/±2.775	79	SIP
TPV4812S-W5	48	±12	±20.85/±2.085	80	SIP
TPV4815S-W5	48	±15	±16.65/±1.665	81	SIP

Add suffix "P" for continuous short circuit protection, for example TPV2405SAP-W5.

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 V_{in} , TPV24 variants	28V
Input voltage V_{in} , TPV48 variants	54V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	$T_A = -40^{\circ}\text{C}$ to 85°C			0.5	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High V_{IN} to low V_{IN} (voltage variation $\pm 5\%$)			1.32	%/%

ISOLATION CHARACTERISTICS

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

GENERAL CHARACTERISTICS

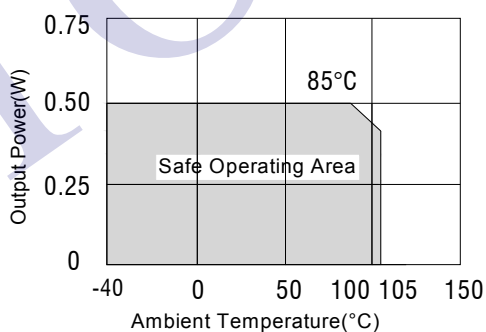
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All input variants		110		kHz

TEMPERATURE CHARACTERISTICS

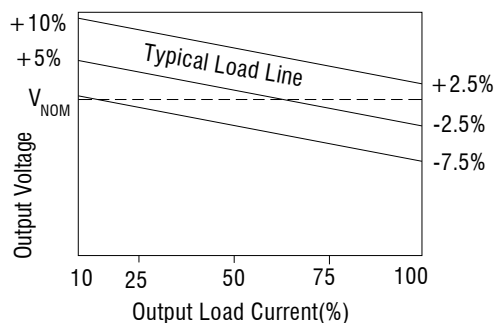
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature $\geq 85^{\circ}\text{C}$	-40		105	$^{\circ}\text{C}$
Storage		-55		130	$^{\circ}\text{C}$
Cooling	Free air convection				

All specifications typical at $T_A = 25^{\circ}\text{C}$, nominal input voltage and rated output current unless otherwise specified.

TEMPERATURE DERATING GRAPHS



TOLERANCE ENVELOPES

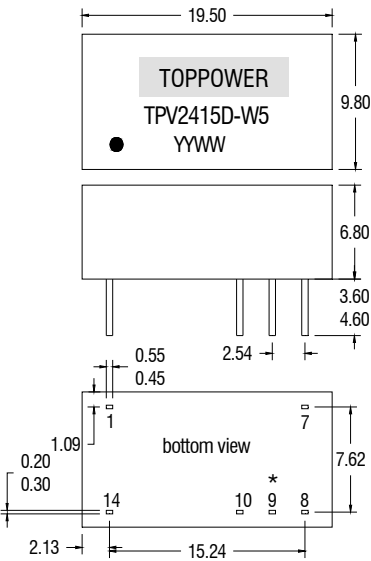


SOLDERING INFORMATION

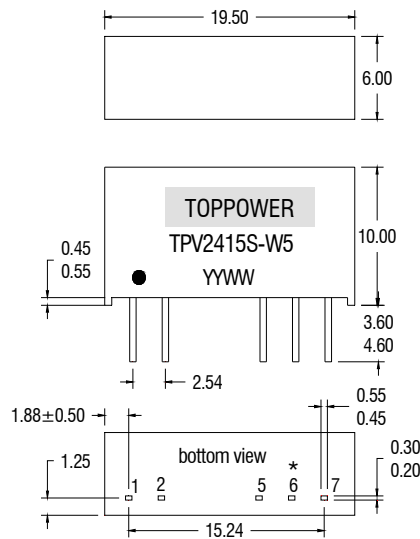
This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. Both SIP and DIP types in this series are backward compatible with Sn/Pb soldering systems.

MECHANICAL DIMENSIONS

DIP Package



SIP Package



Pin not fitted on single output variants. All dimensions in mm ± 0.25 mm.
 *7.70 for 48V variants **7.50 for 48V variants
 All pins on a 2.54mm pitch and within ± 0.25 mm 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

Single output variants

14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
10	-Vout
14	+Vin

7 PIN SIP

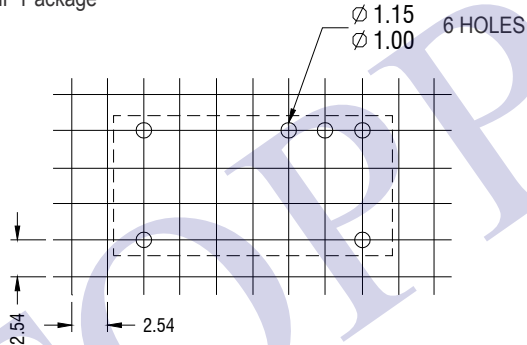
Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	0V
7	+Vout

7 PIN SIP

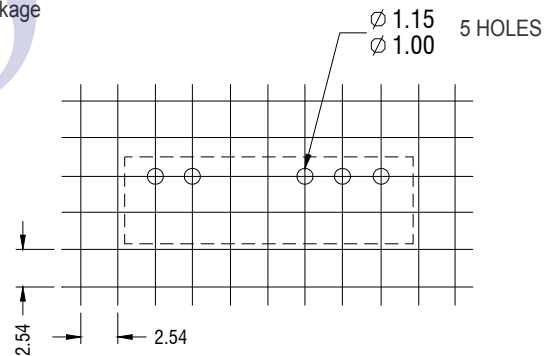
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

RECOMMENDED FOOTPRINT DETAILS

14Pin DIP Package

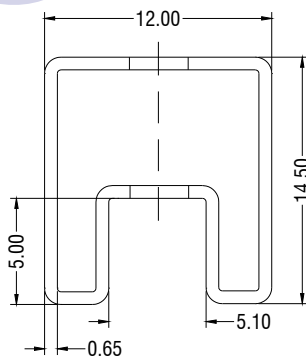


7Pin SIP Package

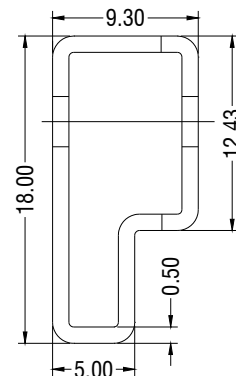


TUBE OUTLINE DIMENSIONS

14Pin DIP Tube



7Pin SIP Tube



Unless otherwise stated all dimensions in mm ± 0.5 mm.

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

Tube length (7 Pin DIP) : 520mm ± 2 mm.

Tube Quantity : 25PCS