DESCRIPTION : **0.25W 3KVDC Isolated Single & Dual Output DC/DC Converters**

The TPV-W25 series are miniature, isolated 0.25W 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: 3.3V,5V,12V,15V	Output voltage: 3.3V,5V,9V,12V,15V,24V /±5V,±9V,±12V,±15V	Operating temperature: -40ºC to 105ºC

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TPV0303DA-W25	3.3	3.3	75.8/7.58	72	DIP
TPV0305DA-W25	3.3	5	50/5	72	DIP
TPV0505DA-W25	5	5	50/5	72	DIP
TPV0509DA-W25	5	9	27.8/2.78	75	DIP
TPV0512DA-W25	5	12	21/2.1	76	DIP
TPV0515DA-W25	5	15	16.7/1.67	78	DIP
TPV0303SA-W25	3.3	3.3	75.8/7.58	72	SIP
TPV0305SA-W25	3.3	5	50/5	72	SIP
TPV0505SA-W25	5	5	50/5	83	SIP
TPV0509SA-W25	5	9	27.8/2.78	75	SIP
TPV0512SA-W25	5	12	21/2.1	76	SIP
TPV0515SA-W25	5	15	16.7/1.67	78	SIP
TPV0524SA-W25	5	24	10.4/1.04	79	SIP
TPV1205DA-W25	12	5	50/5	72	DIP
TPV1209DA-W25	12	9	27.8/2.78	75	DIP
TPV1212DA-W25	12	12	21/2.1	77	DIP
TPV1215DA-W25	12	15	16.7/1.67	78	DIP
TPV1203SA-W25	12	3.3	75.8/7.58	72	SIP
TPV1205SA-W25	12	5	50/5	72	SIP
TPV1209SA-W25	12	9	27.8/2.78	75	SIP
TPV1212SA-W25	12	12	21/2.1	77	SIP
TPV1215SA-W25	12	15	16.7/1.67	78	SIP
TPV1505SA-W25	15	5	50/5	72	SIP
TPV1512SA-W25	15	12	21/2.1	74	SIP
TPV1515SA-W25	15	15	16.7/1.67	78	SIP
TPV0505D-W25	5	±5	±25/±2.5	72	DIP
TPV0509D-W25	5	±9	±13.9/±1.39	77	DIP
TPV0512D-W25	5	±12	±10.5/±1.05	78	DIP
TPV0515D-W25	5	±15	±8.35/±0.84	80	DIP
TPV0505S-W25	5	±5	±25/±2.5	72	SIP
TPV0509S-W25	5	±9	±13.9/±1.39	77	SIP
TPV0512S-W25	5	±12	±10.5/±1.05	78	SIP
TPV0515S-W25	5	±15	±8.35/±0.84	80	SIP
TPV1205D-W25	12	±5	±25/±2.5	72	DIP
TPV1209D-W25	12	±9	±13.9/±1.39	74	DIP
TPV1212D-W25	12	±12	±10.5/±1.05	76	DIP
TPV1215D-W25	12	±15	±8.35/±0.84	77	DIP
TPV1205S-W25	12	±5	±25/±2.5	72	SIP
TPV1209S-W25	12	±9	±13.9/±1.39	74	SIP
TPV1212S-W25	12	±12	±10.5/±1.05	76	SIP
TPV1215S-W25	12	±15	±8.35/±0.84	77	SIP
TPV1505S-W25	15	±5	±25/±2.5	72	SIP
TPV1512S-W25	15	±12	±10.5/±1.05	74	SIP
TPV1515S-W25	15	±15	±8.35/±0.84	78	SIP

Add suffix “P” for continuous short circuit protection, for example TPV0505SAP-W25.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input variants	2.9	3.3	3.6	V
Voltage range	5V input variants	4.4	5	5.6	V
Voltage range	12V input variants	11	12	13.3	V
Voltage range	15V input variants	13.4	15	16.4	V

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage Vin, TPV03 variants	5.5V
Input voltage Vin, TPV05 variants	6.6V
Input voltage Vin, TPV12 variants	14.5V
Input voltage Vin, TPV15 variants	18V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40℃ to 85℃			0.25	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN (voltage variation +/-5%)			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

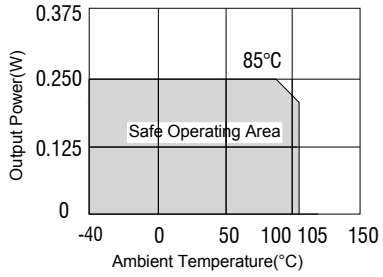
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	3.3V input variants		95		kHz
Switching frequency	5V input variants		120	140	kHz
Switching frequency	12V input variants		145	180	kHz
Switching frequency	15V input variants		90	180	kHz

TEMPERATURE CHARACTERISTICS

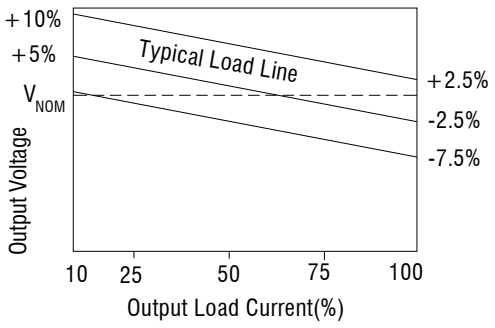
Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	℃
Storage		-55		130	℃
Cooling	Free air convection				

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

TEMPERATURE DERATING GRAPHS

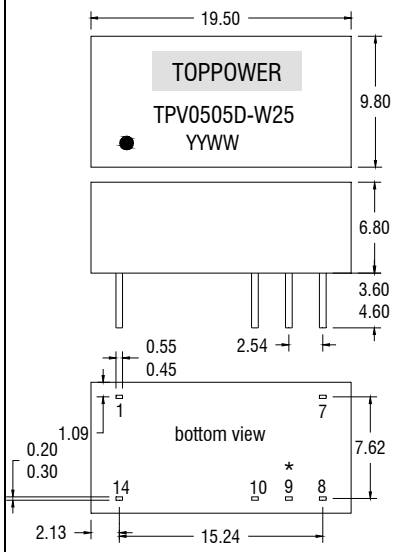


TOLERANCE ENVELOPES

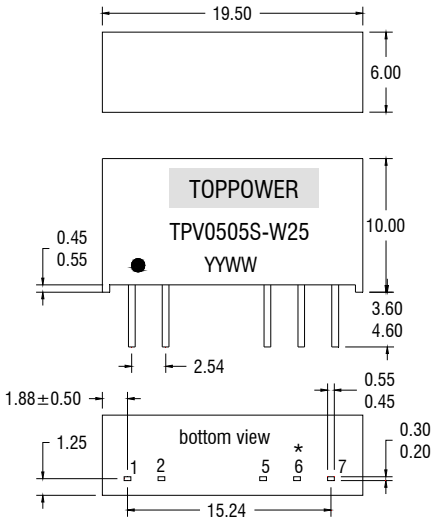


MECHANICAL DIMENSIONS

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)

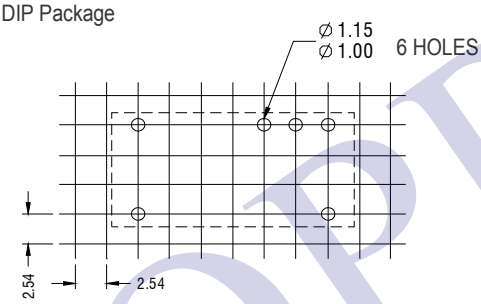
PIN CONNECTIONS

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

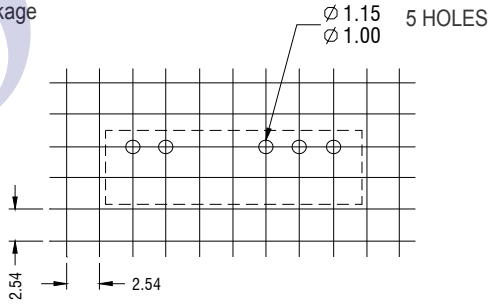
Single output variants	
14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
10	-Vout
14	+Vin
7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

RECOMMENDED FOOTPRINT DETAILS

14Pin DIP Package

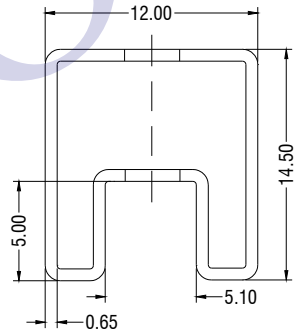


7Pin SIP Package

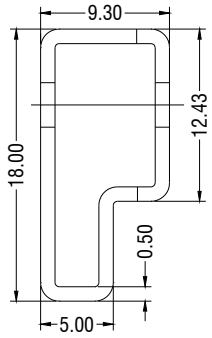


TUBE OUTLINE DIMENSIONS

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

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.