



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

The TPR-W5 series are miniature, isolated 0.5W DC/DC converters in a SIP 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, lower output ripple noise and 3KVDC isolation.

**FEATURES**

RoHS compliant	3KVDC isolation	Efficiency up to 80%
Operating temperature: -40°C to 105°C	Power density up to 0.90W/cm <sup>3</sup>	UL 94V-0 package material
Footprint from 1.17cm <sup>2</sup>	Industry standard pinout	Input voltage: 5V, 12V, 15V, 24V
Output voltage: 5V, 12V, 15V	Custom solutions available	CE certification

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency
	V	V	mA	%
TPR0505S-W5	5	5	100/10	68
TPR0512S-W5	5	12	41.7/4.17	76
TPR0515S-W5	5	15	33.3/3.33	79
TPR1205S-W5	12	5	100/10	69
TPR1212S-W5	12	12	41.7/4.17	77
TPR1215S-W5	12	15	33.3/3.33	76
TPR1505S-W5	15	5	100/10	69
TPR2405S-W5	24	5	100/10	71
TPR2412S-W5	24	12	41.7/4.17	78
TPR2415S-W5	24	15	33.3/3.33	80

Add suffix "P" for continuous short circuit protection, for example TPR0505SP-W5.

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	5V input	4.5	5	5.5	V
Voltage range	12V input	11	12	13.3	V
Voltage range	15V input	13.4	15	16.4	V
Voltage range	24V input	22	24	26.6	V

**ISOLATION CHARACTERISTICS**

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

**OUTPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40°C to 85°C			0.5	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN		1.2		%/%
Load Regulation(10% load to rated load)	TPR0505S-W5/1205S-W5		13		%
Load Regulation(10% load to rated load)	TPR0512S-W5/1212S-W5		7		%
Load Regulation(10% load to rated load)	TPR0515S-W5/1215S-W5		7		%
Load Regulation(10% load to rated load)	24V input variants		7		%
Load Regulation(10% load to rated load)	24V input variants		3		%
Load Regulation(10% load to rated load)	24V input variants		3		%

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	540mW
Input voltage $V_{in}$ , TPR05 variants	7V
Input voltage $V_{in}$ , TPR12 variants	15V
Input voltage $V_{in}$ , TPR15 variants	18V
Input voltage $V_{in}$ , TPR24 variants	28V

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

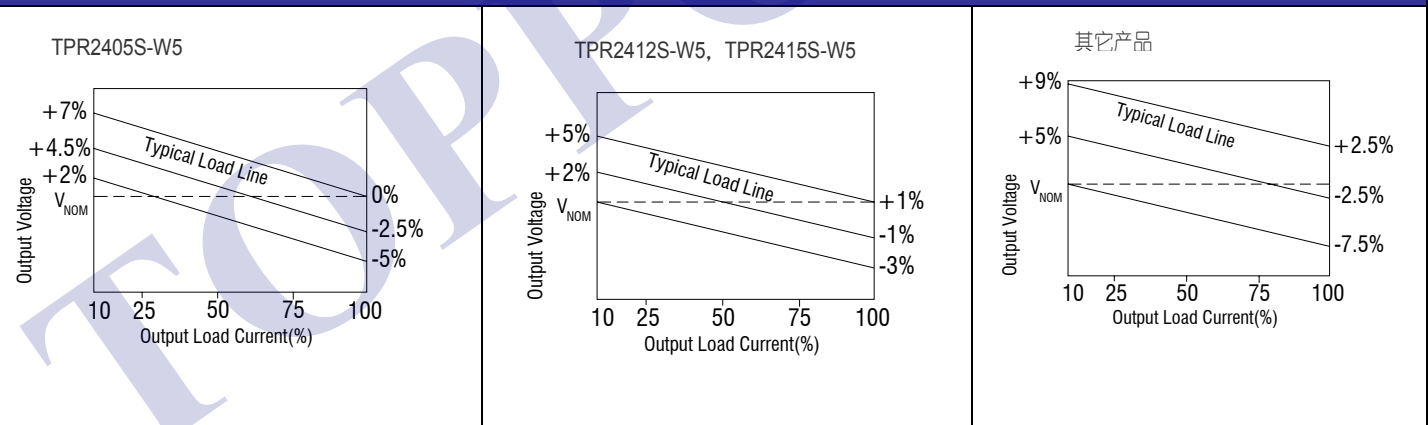
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Typ.	Max.	Units
Switching frequency	5V input	120		kHz
Switching frequency	12V input	160		kHz
Switching frequency	15V input	90		kHz
Switching frequency	24V input	90		kHz

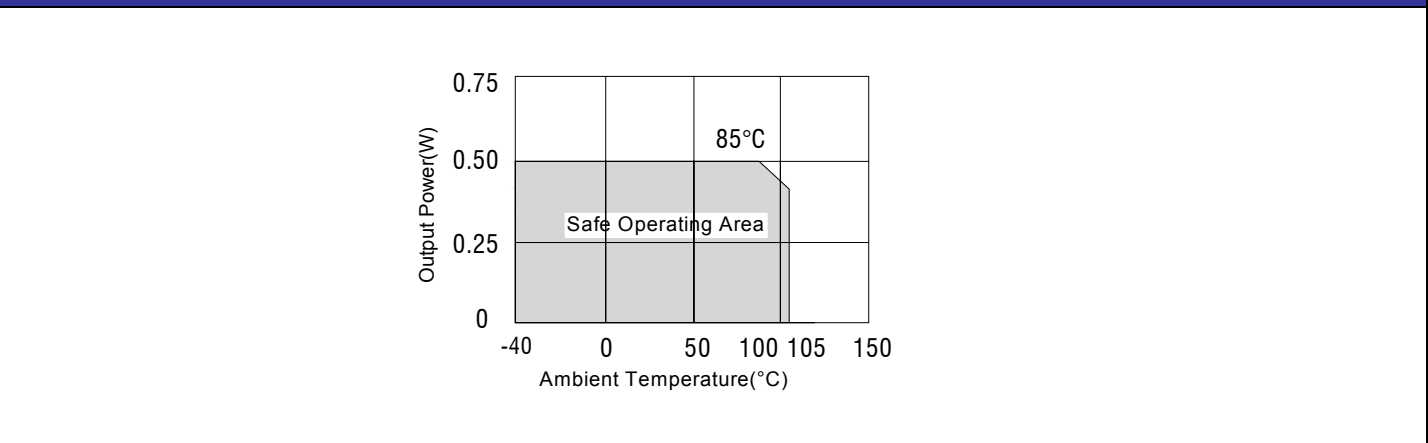
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature $\geq 85^\circ\text{C}$	-40		105	$^\circ\text{C}$
Storage		-50		130	$^\circ\text{C}$
Case Temperature above ambient	5V output types		35		$^\circ\text{C}$
Case Temperature above ambient	All other output types		30		$^\circ\text{C}$
Cooling	Free air convection				

**TOLERANCE ENVELOPES**

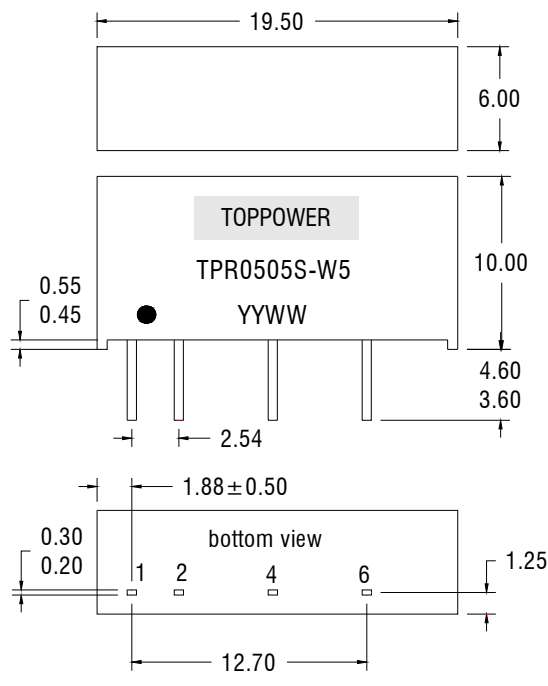


**TEMPERATURE DERATING GRAPHS**



**MECHANICAL DIMENSIONS** **PIN CONNECTIONS**

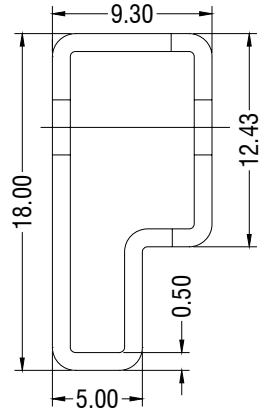
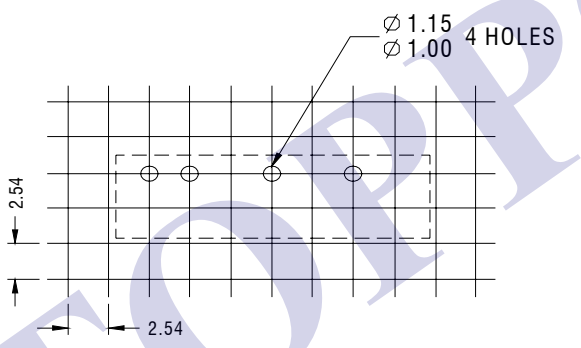
SIP Package



7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
4	-Vout
6	+Vout

All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.

**RECOMMENDED FOOTPRINT DETAILS** **TUBE OUTLINE DIMENSIONS**



All dimensions in mm±0.25mm

All dimensions in mm±0.25mm

Tube Quantity : 25PCS