



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

The TPR-1W series are miniature, isolated 1W 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 85°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:3.3V,5V, 12V, 15V, 24V
Output voltage: 3.3V,5V, 9V,12V, 15V, 24V	Custom solutions available	CE certification

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency
	V	V	mA	%
TPR0303S-1W	3.3	3.3	303/30.3	72
TPR0305S-1W	3.3	5	200/20	74
TPR0503S-1W	5	3.3	303/30.3	72
TPR0505S-1W	5	5	200/20	68
TPR0509S-1W	5	9	111/11.1	78
TPR0512S-1W	5	12	84/8.1	76
TPR0515S-1W	5	15	68/6.8	79
TPR0524S-1W	5	24	42/4.2	81
TPR1203S-1W	12	3.3	303/30.3	74
TPR1205S-1W	12	5	200/20	69
TPR1209S-1W	12	9	111/11.1	76
TPR1212S-1W	12	12	84/8.4	77
TPR1215S-1W	12	15	68/6.8	76
TPR1224S-1W	12	24	42/4.2	84
TPR1505S-1W	15	5	200/20	69
TPR1512S-1W	15	12	83/8.3	76
TPR1515S-1W	15	15	67/6.7	75
TPR2405S-1W	24	5	200/20	71
TPR2409S-1W	24	9	111/11.1	78
TPR2412S-1W	24	12	84/8.4	78
TPR2415S-1W	24	15	68/6.8	80
TPR2424S-1W	24	24	42/4.2	80

Add suffix "P" for continuous short circuit protection, for example TPR0505SP-1W.

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input	2.9	3.3	3.6	V
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			1	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN		1.2		%/%
Load Regulation(10% load to rated load)	TPRXX03S-1W ,TPRXX05S-1W,TPRXX09S-1W		13		%
Load Regulation(10% load to rated load)	TPR0512S-1W/1212S-1W		7		%
Load Regulation(10% load to rated load)	TPR0515S-1W/1215S-1W		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 Vin, TPR03 variants	5.5V
Input voltage Vin, TPR05 variants	7V
Input voltage Vin, TPR12 variants	15V
Input voltage Vin, TPR15 variants	18V
Input voltage Vin, TPR24 variants	28V

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

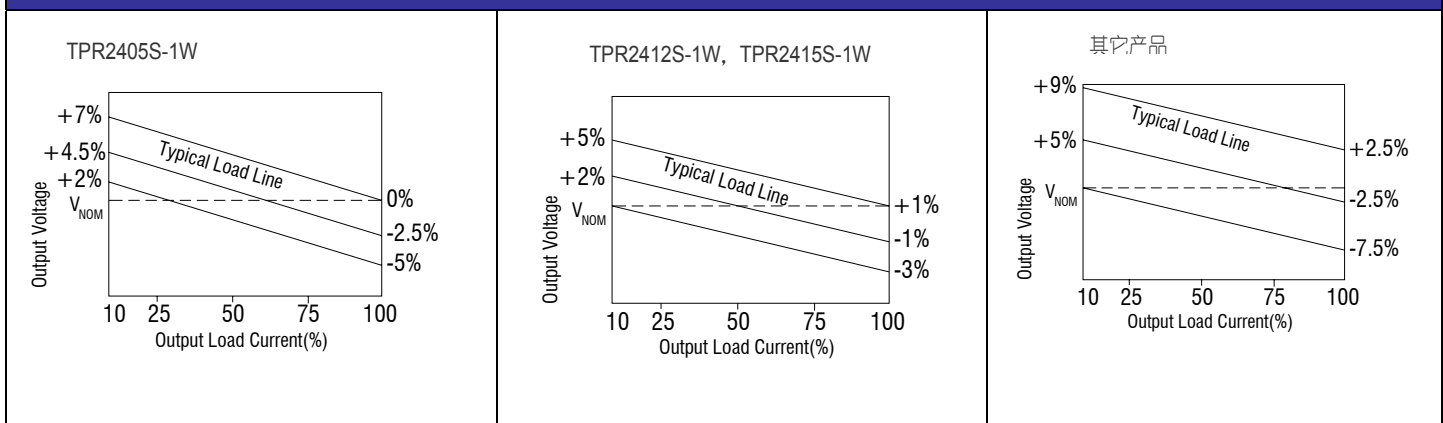
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Typ.	Max.	Units
Switching frequency	3.3V input	120		kHz
Switching frequency	5V input	120		kHz
Switching frequency	12V input	160		kHz
Switching frequency	15V input	90		kHz
Switching frequency	24V input	90		kHz

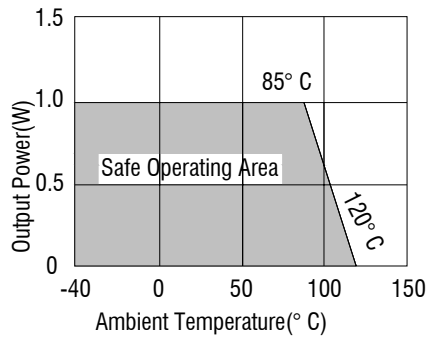
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	All output types	-40		85	°C
Storage		-50		130	°C
Case Temperature above ambient	5V output types		35		°C
Case Temperature above ambient	All other output types		30		°C
Cooling	Free air convection				

**TOLERANCE ENVELOPES**



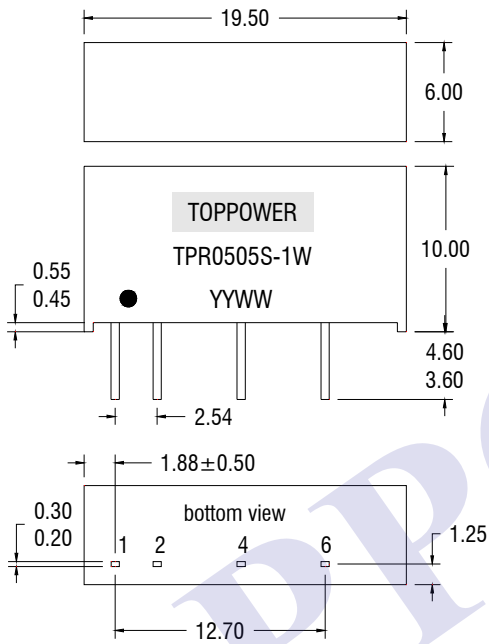
**TEMPERATURE DERATING GRAPHS**



**MECHANICAL DIMENSIONS**

**PIN CONNECTIONS**

SIP Package

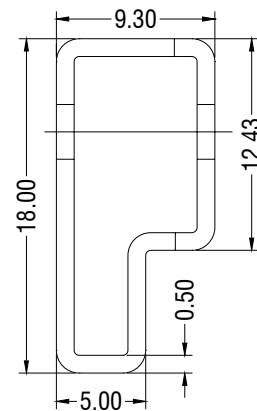
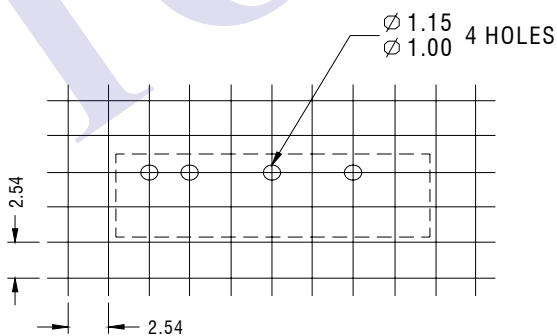


7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
4	-Vout
6	+Vout

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