



**DESCRIPTION: 2W 6KVDC Isolated Single and Dual Output DC/DC Converters**

The TPJ-2W series are miniature, 6KVDC isolated 2W DC-DC converters in a SIP package with single and dual output voltage. 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.

**FEATURES**

RoHS compliant	Single and dual outputs	UL 94V-0 package material
Operating temperature: -40°C to 105°C	Footprint 1.91cm <sup>2</sup>	SIP package style
No heatsink required	6KVDC isolation	Custom solutions available
Input voltage: 3.3V, 5V, 12V, 24V	Output voltage: 3.3V, 5V, 9V, 12V, 15V / ±5V, ±9V, ±12V, ±15V	CE certification

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency (Min.)
	V	V	mA	%
TPJ0505S-2W	5	±5	±200/±20	73
TPJ0509S-2W	5	±9	±110/±11	75
TPJ0512S-2W	5	±12	±84/±8.4	76
TPJ0515S-2W	5	±15	±68/±6.8	76
TPJ1205S-2W	12	±5	±200/±20	73
TPJ1209S-2W	12	±9	±110/±11	75
TPJ1212S-2W	12	±12	±84/±8.4	76
TPJ1215S-2W	12	±15	±68/±6.8	76
TPJ2405S-2W	24	±5	±200/±20	75
TPJ2412S-2W	24	±12	±84/±8.4	80
TPJ2415S-2W	24	±15	±68/±6.8	79
TPJ0303SA-2W	3.3	3.3	606/60.6	65
TPJ0503SA-2W	5	3.3	606/60.6	66
TPJ0505SA-2W	5	5	400/40	67
TPJ0509SA-2W	5	9	222/22.2	72
TPJ0512SA-2W	5	12	166/16.6	75
TPJ0515SA-2W	5	15	133/13.3	75
TPJ1205SA-2W	12	5	400/40	66
TPJ1209SA-2W	12	9	222/22.2	68
TPJ1212SA-2W	12	12	166/16.6	75
TPJ1215SA-2W	12	15	133/13.3	75
TPJ2405SA-2W	24	5	400/40	67
TPJ2409SA-2W	24	9	222/22.2	77
TPJ2412SA-2W	24	12	167/16.7	80
TPJ2415SA-2W	24	15	133/13.3	79

Add suffix "P" for continuous short circuit protection, for example TPJ0505SP-2W.

**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	V
Voltage range	24V input	21.6	24	26.4	V

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection	Ten minutes
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage Vin, TPJ03	5V
Input voltage Vin, TPJ05	7V
Input voltage Vin, TPJ12	15V
Input voltage Vin, TPJ24	28V

**OUTPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Units
Rated Power	TA= -40°C to 85°C		1	W
Voltage Set Point Accuracy	See tolerance envelopes			
Line regulation	High Vin to low Vin		1.2	%/%
Load regulation Single outputs	xx03		11	%
Load regulation Single outputs	0505		8.0	%
Load regulation Single outputs	0509, 0512, 0515		6.0	%
Load regulation Single outputs	12xx		6.0	%
Load regulation	5V output types		10.0	%
Load regulation	9V output types		6.4	%
Load regulation	12V output types		6.4	%
Load regulation	15V output types		6.4	%

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Flash tested for 1 second	6000			VDC
Resistance	Viso= 1000VDC	1			GΩ

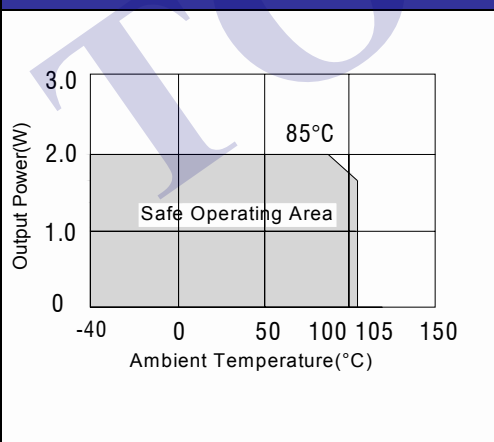
**GENERAL CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	Single output		45		kHz
Switching frequency	Dual output		70		kHz

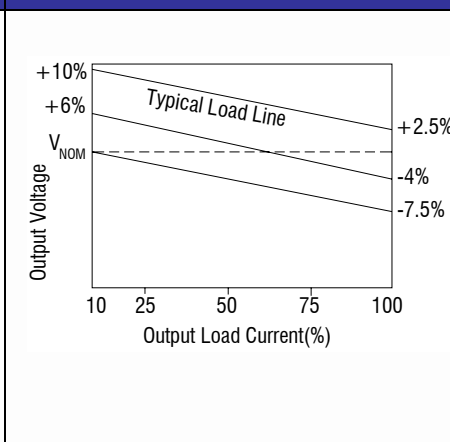
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-55		130	°C
Case Temperature above ambient	All output types			33	°C
Cooling	Free air convection				

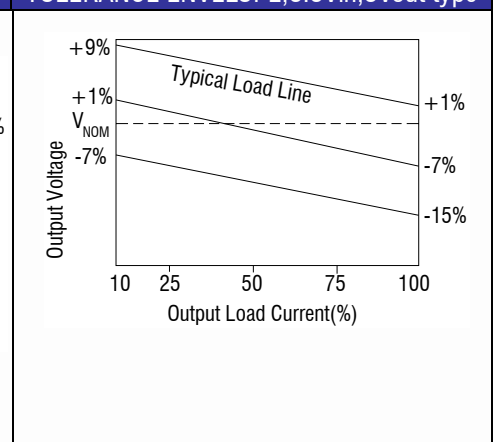
**TEMPERATURE DERATING GRAPHS**



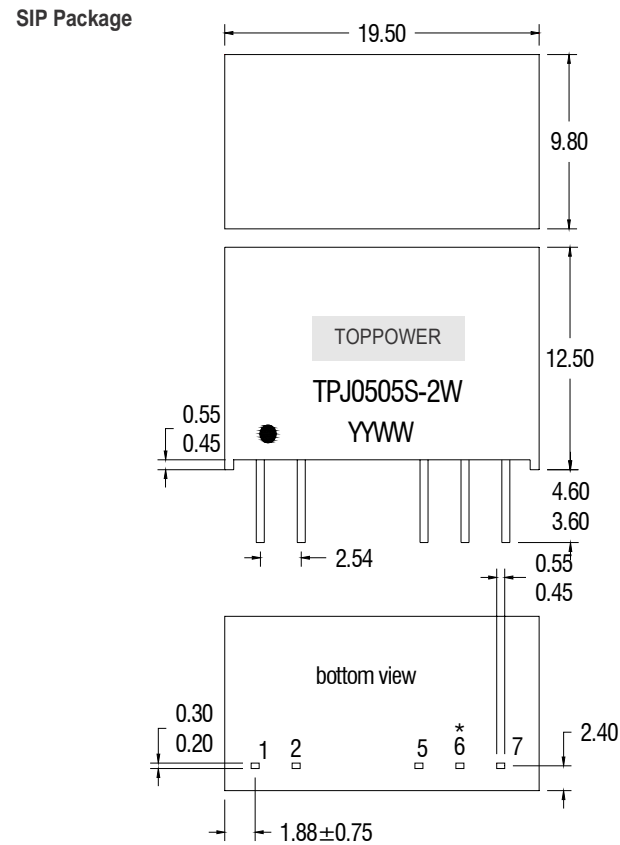
**TOLERANCE ENVELOPE**



**TOLERANCE ENVELOPE, 3.3Vin, 3Vout type**



**MECHANICAL DIMENSIONS**



Weight: 4.3g

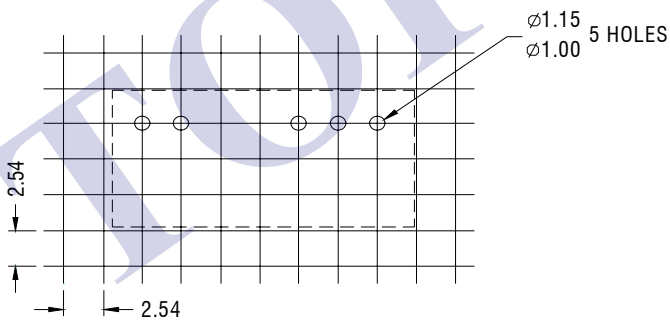
All dimensions in mm  $\pm 0.25$ mm. All pins on a 2.54mm pitch and within  $\pm 0.25$ mm of true position. \* Pin not fitted on single output variants.

**PIN CONNECTIONS**

7 PIN SIP Dual Output	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	OV
7	+Vout

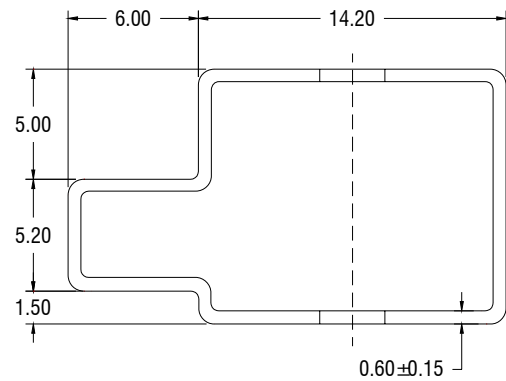
7 PIN SIP Single Output	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

**RECOMMENDED FOOTPRINT DETAILS**



All dimensions in mm  $\pm 0.25$ mm

**TUBE OUTLINE DIMENSIONS**



Unless otherwise stated all dimensions in  $\pm$ mm  $\pm 0.5$ mm.  
 Tube length : 25mm  $\pm 2$ mm. Tube Quantity : 25PCS