

DESCRIPTION: **1W 6KVDC Isolated Single and Dual Output DC/DC Converters**

The TPJ series are miniature, 6KVDC isolated 1 W 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、CE certification	Single and dual outputs	Power density 0.42w/cm^3
Operating temperature: -40ºC to 105ºC	Footprint 1.91cm^2	UL 94V-0 package material
No heatsink required	6KVDC isolation	SIP package style
Input voltage: 3.3V,5V,12V,15V,24V	Output voltage:±5V, ±9V,±12V,±15V / 3.3V, 5V,9V,12V,15V,24V	Custom solutions available

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency (Min.)
	V	V	mA	%
TPJ0505S	5	±5	±100/±10	61
TPJ0509S	5	±9	±55/±5.5	66
TPJ0512S	5	±12	±42/±4.2	66
TPJ0515S	5	±15	±33/±3.3	66
TPJ1205S	12	±5	±100/±10	61
TPJ1209S	12	±9	±55/±5.5	66
TPJ1212S	12	±12	±42/±4.2	66
TPJ1215S	12	±15	±33/±3.3	65
TPJ1505S	15	±5	±100/±10	80
TPJ1515S	15	±15	±33/±3.3	81
TPJ2412S	24	±12	±42/±4.2	80
TPJ2415S	24	±15	±33/±3.3	81
TPJ0303SA	3.3	3.3	303/30.3	66
TPJ0503SA	5	3.3	303/30.3	65
TPJ0505SA	5	5	200/20	68
TPJ0509SA	5	9	111/11.1	72
TPJ0512SA	5	12	83/8.3	70
TPJ0515SA	5	15	66/6.6	70
TPJ0524SA	5	24	42/4.2	80
TPJ1205SA	12	5	200/20	69
TPJ1209SA	12	9	111/11.1	74
TPJ1212SA	12	12	83/8.3	74
TPJ1215SA	12	15	66/6.6	74
TPJ1505SA	15	5	200/20	80
TPJ1509SA	15	9	111/11.1	80
TPJ2403SA	24	3.3	303/30.3	72
TPJ2405SA	24	5	200/20	80
TPJ2412SA	24	12	84/8.4	80
TPJ2415SA	24	15	676.7	80
TPJ2424SA	24	24	42/4.2	80

Add suffix “P” for continuous short circuit protection, for example TPJ0505SP.

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	15V input	13.4	15	16.4	V
Voltage range	24V input	21.6	24	26.4	V

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ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
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, TPJ15	18V
Input voltage Vin, TPJ24	28V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Units
Rated Power	TA= -40ºC to 85ºC		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 & 24V 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

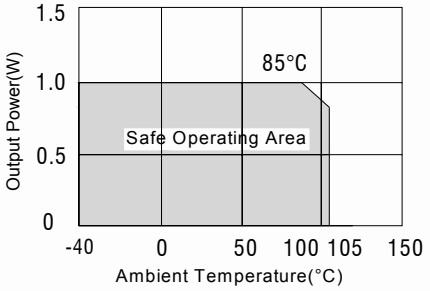
GENERAL CHARACTERISTICS

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

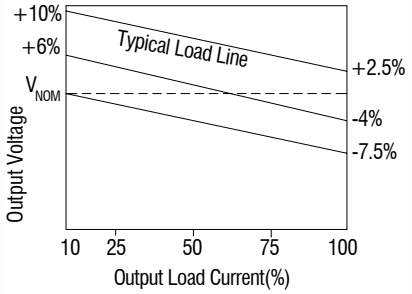
TEMPERATURE CHARACTERISTICS

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

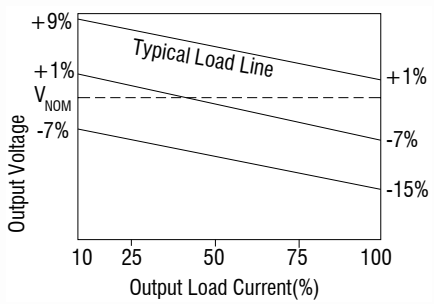
TEMPERATURE DERATING GRAPHS



TOLERANCE ENVELOPE



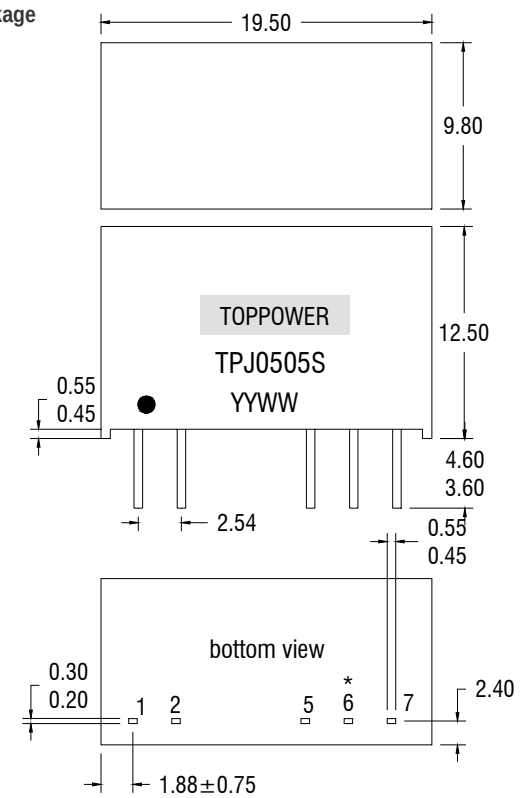
TOLERANCE ENVELOPE,3.3Vin,3Vout type



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MECHANICAL DIMENSIONS

SIP Package



Weight: 4.3g

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

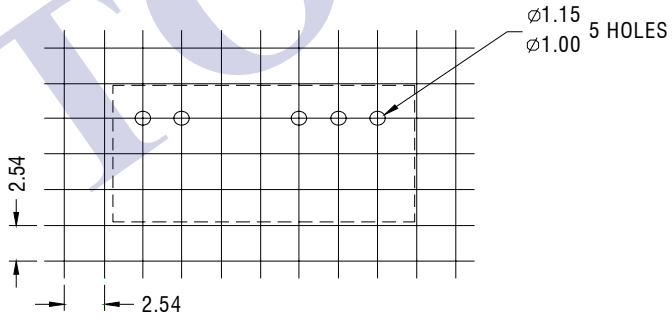
* Pin not fitted on single output variants.

PIN CONNECTIONS

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

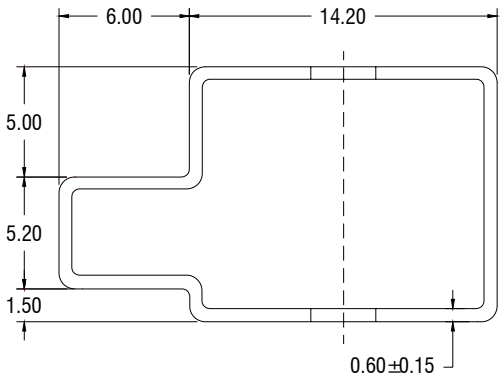
7 PIN SIP Single Output	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

RECOMMENDED FOOTPRINT DETAILS



All dimensions in mm±0.25mm

TUBE OUTLINE DIMENSIONS



Unless otherwise stated all dimensions in ±mm ±0.5mm.

Tube length : 25mm±2mm. Tube Quantity : 25PCS

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