
DESCRIPTION: 2W 3KVDC Isolated Single And Dual Output DC/DC Converters

The TPK series are miniature, isolated 2W 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	Efficiency from 80%	Power density 1.33W/cm ³
Operating temperature: -40°C to 85°C	UL 94V-0 package material	Input voltage: 3.3V, 5V, 12V, 15V, 24V
Industry standard pinout	3KVDC isolation (1 minute)	Output voltage: 5V, 9V, 12V, 15V, 24V / $\pm 5V$, $\pm 9V$, $\pm 12V$, $\pm 15V$

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current	Load Regulation (Max)	Efficiency (Typ.)
	V	V	mA	%	%
TPK0305SA	3.3	5	400	7.2	82
TPK0505SA	5	5	400	7.2	82
TPK0509SA	5	9	222	5.8	86
TPK0512SA	5	12	167	5.0	86
TPK0515SA	5	15	133	4.6	87
TPK1205SA	12	5	400	4.9	84
TPK1209SA	12	9	222	3.0	87
TPK1212SA	12	12	167	2.9	87
TPK1215SA	12	15	133	2.5	89
TPK1515SA	15	15	133	2.5	84
TPK2412SA	24	12	167	5.0	84
TPK2424SA	24	24	83.3	5.0	83
TPK0505S	5	± 5	± 200	6.3	83
TPK0509S	5	± 9	± 111	5.4	86
TPK0512S	5	± 12	± 83	4.8	86
TPK0515S	5	± 15	± 67	5.3	87
TPK1205S	12	± 5	± 200	3.9	84
TPK1209S	12	± 9	± 111	2.9	86
TPK1212S	12	± 12	± 83	2.8	87
TPK1215S	12	± 15	± 67	2.5	87
TPK1515S	15	± 15	± 67	2.5	87

add Suffix "P" for Continuous Short Circuit Protection

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	22	24	26	V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA=-40°C to 85°C			2	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High Vin to low Vin		1.0	1.2	%/%

ABSOLUTE MAXIMUM RATINGS

Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	540mW
Input voltage Vin, TPK03	5.5V
Input voltage Vin, TPK05	7V
Input voltage Vin, TPK12	15V
Input voltage Vin, TPK15	18V
Input voltage Vin, TPK24	28V

ISOLATION CHARACTERISTICS

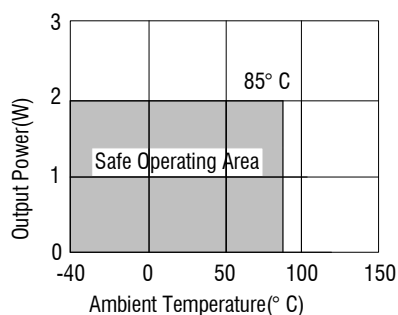
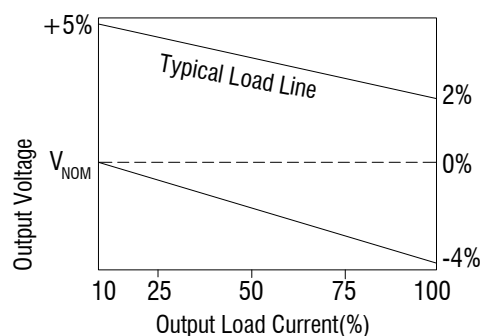
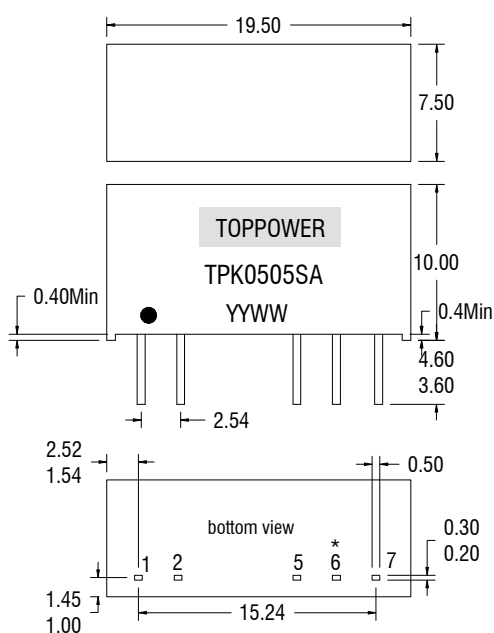
Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 minute	3000			VDC
Resistance	Viso= 1000VDC	1			GΩ

GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency			65		kHz

TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	All output	-40		85	℃
Storage		-50		150	℃
Case Temperature above ambient	5V output			30	℃
Case Temperature above ambient	All other output			30	℃
Cooling	Free air convection				

TEMPERATURE DERATING GRAPHS

TOLERANCE ENVELOPES

MECHANICAL DIMENSIONS


All dimensions in mm ± 0.25 mm .

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

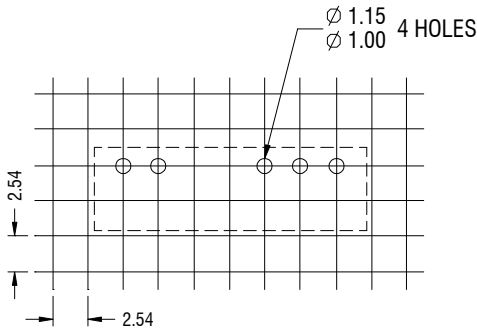
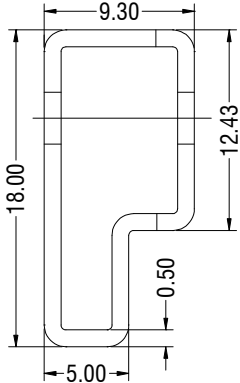
Weight: 2.8g

* Pin not fitted on single output variants

PIN CONNECTIONS

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

Dual Output Variants	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	0V
7	+Vout

RECOMMENDED FOOTPRINT DETAILS	TUBE OUTLINE DIMENSIONS
 Unless otherwise stated all dimensions in mm ± 0.5mm.	 Unless otherwise stated all dimensions in mm ± 0.5mm. Tube length : 520mm ± 2mm. Tube Quantity : 25
SOLDERING INFORMATION	
This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. The series is backward compatible with Sn/Pb soldering systems	