



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

The TPK-3W series are miniature, isolated 3W 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%	Input voltage: 3.3V, 5V, 12V, 15V, 24V
Operating temperature: -40°C to 105°C	UL 94V-0 package material	Output voltage: 3.3V, 5V, 9V, 12V, 15V, 24V / ±5V, ±9V, ±12V, ±15V, ±24V
Industry standard pinout	3KVDC isolation (1 minute)	CE certification

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Load Regulation (Max)	Efficiency (Typ.)	Package Style
	V	V	mA	%	%	
TPK0303SA-3W	3.3	3.3	909/90.9	7.2	82	SIP
TPK0305SA-2W	3.3	5	600/60	7.2	82	SIP
TPK0503SA-3W	5	3.3	909/90.9	7.2	82	SIP
TPK0505SA-3W	5	5	600/60	7.2	82	SIP
TPK0509SA-3W	5	9	333/33.3	5.8	86	SIP
TPK0512SA-3W	5	12	250/25	5.0	86	SIP
TPK0515SA-3W	5	15	200/20	4.6	87	SIP
TPK1205SA-3W	12	5	600/60	4.9	82	SIP
TPK1209SA-3W	12	9	333/33.3	3.0	87	SIP
TPK1212SA-3W	12	12	250/25	2.9	87	SIP
TPK1215SA-3W	12	15	200/20	2.5	89	SIP
TPK1515SA-3W	15	15	200/20	2.5	84	SIP
TPK2405SA-3W	24	5	600/60	4.9	82	SIP
TPK2412SA-3W	24	12	250/25	5.0	84	SIP
TPK2415SA-3W	24	15	200/20	2.5	89	SIP
TPK2424SA-3W	24	24	125/12.5	5.0	83	SIP
TPK0505S-3W	5	±5	±300/±30	6.3	82	SIP
TPK0509S-3W	5	±9	±166.5/±16.65	5.4	86	SIP
TPK0512S-3W	5	±12	±125/±12.5	4.8	86	SIP
TPK0515S-3W	5	±15	±100/±10	5.3	87	SIP
TPK0524S-3W	5	±24	±62.5/±6.25	5.0	83	SIP
TPK1205S-3W	12	±5	±300/±30	3.9	82	SIP
TPK1209S-3W	12	±9	±166.5/±16.65	2.9	86	SIP
TPK1212S-3W	12	±12	±125/±12.5	2.8	87	SIP
TPK1215S-3W	12	±15	±100/±10	2.5	87	SIP
TPK1515S-3W	15	±15	±100/±10	2.5	87	SIP
TPK2405S-3W	24	±5	±300/±30	3.9	82	SIP
TPK2412S-3W	24	±12	±125/±12.5	2.8	87	SIP
TPK2415S-3W	24	±15	±100/±10	2.5	87	SIP
TPK2424S-3W	24	±24	±62.5/±6.25	5.0	83	SIP
TPK0305DA-3W	3.3	5	600/60	7.2	82	DIP
TPK0505DA-3W	5	5	600/60	7.2	82	DIP
TPK0509DA-3W	5	9	333/33.3	5.8	86	DIP
TPK0512DA-3W	5	12	250/25	5.0	86	DIP
TPK0515DA-3W	5	15	200/20	4.6	87	DIP
TPK1205DA-3W	12	5	600/60	4.9	82	DIP
TPK1209DA-3W	12	9	333/33.3	3.0	87	DIP
TPK1212DA-3W	12	12	250/25	2.9	87	DIP
TPK1215DA-3W	12	15	200/20	2.5	89	DIP
TPK1515DA-3W	15	15	200/20	2.5	84	DIP
TPK2405DA-3W	24	5	600/60	4.9	82	DIP
TPK2412DA-3W	24	12	250/25	5.0	84	DIP
TPK2424DA-3W	24	24	125/12.5	5.0	83	DIP
TPK0505D-3W	5	±5	±300/±30	6.3	82	DIP
TPK0509D-3W	5	±9	±166.5/±16.65	5.4	86	DIP
TPK0512D-3W	5	±12	±125/±12.5	4.8	86	DIP
TPK0515D-3W	5	±15	±100/±10	5.3	87	DIP
TPK1205D-3W	12	±5	±300/±30	3.9	82	DIP
TPK1209D-3W	12	±9	±166.5/±16.65	2.9	86	DIP
TPK1212D-3W	12	±12	±125/±12.5	2.8	87	DIP
TPK1215D-3W	12	±15	±100/±10	2.5	87	DIP
TPK1515D-3W	15	±15	±100/±10	2.5	87	DIP
TPK2405D-3W	24	±5	±300/±30	3.9	82	DIP
TPK2412D-3W	24	±12	±125/±12.5	2.8	87	DIP
TPK2424D-3W	24	±24	±62.5/±6.25	5.0	83	DIP

Add suffix "P" for continuous short circuit protection, for example TPK0505SP-3W.

**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			3	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	650mW
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

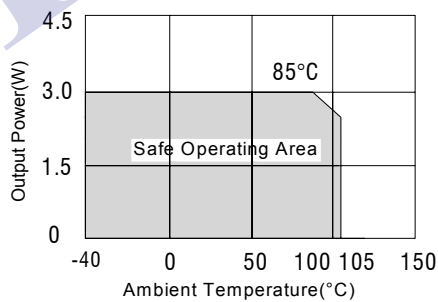
**GENERAL CHARACTERISTICS**

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

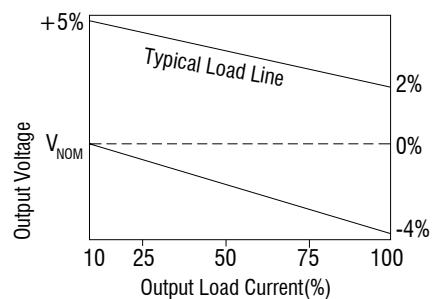
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-50		150	°C
Case Temperature above ambient	5V output			30	°C
Case Temperature above ambient	All other output			30	°C
Cooling	Free air convection				

**TEMPERATURE DERATING GRAPHS**

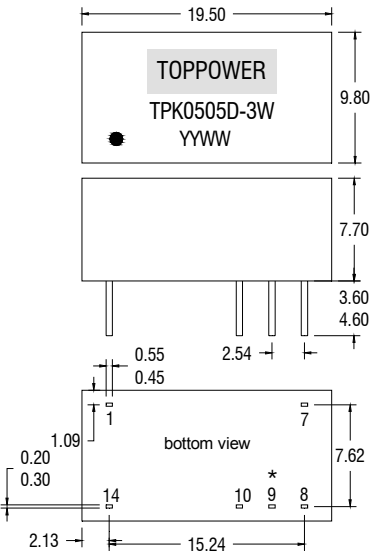


**TOLERANCE ENVELOPES**

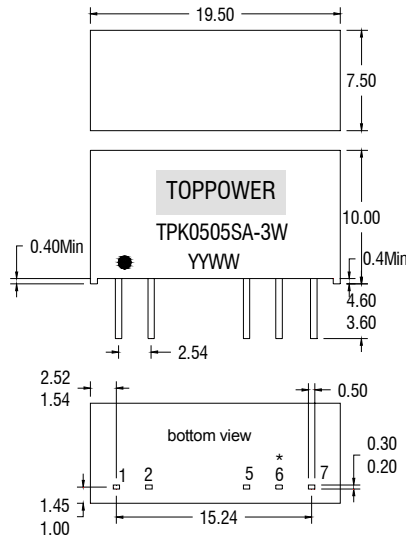


**MECHANICAL DIMENSIONS**

**DIP Package**



**SIP Package**



All dimensions in mm  $\pm 0.25$ mm .  
 All pins on a 2.54mm pitch and within  $\pm 0.25$ mm of true position. Weight: 2.8g  
 \* Pin not fitted on single output variants

**PIN CONNECTIONS**

**Dual Output Variants**  
**14 PIN DIP**

Pin	Function
1	-Vin
7	NC
8	+Vout
9	0V
10	-Vout
14	+Vin

**Single output variants**  
**14 PIN DIP**

Pin	Function
1	-Vin
7	NC
8	+Vout
10	-Vout
14	+Vin

**7 PIN SIP**

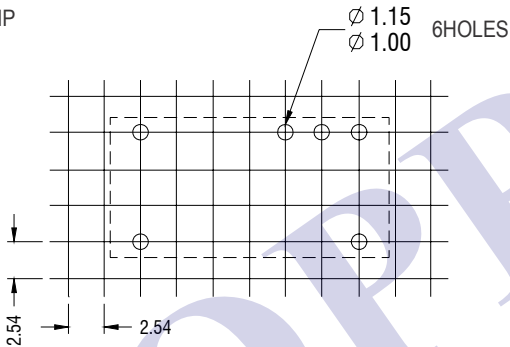
Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	0V
7	+Vout

**7 PIN SIP**

Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

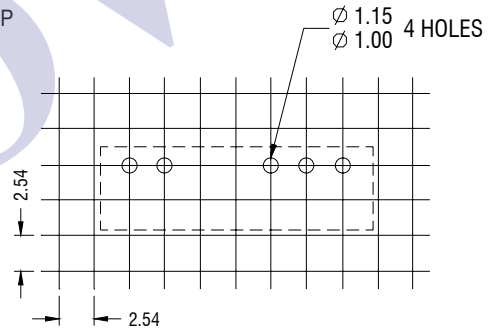
**RECOMMENDED FOOTPRINT DETAILS**

**14Pin DIP**



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.

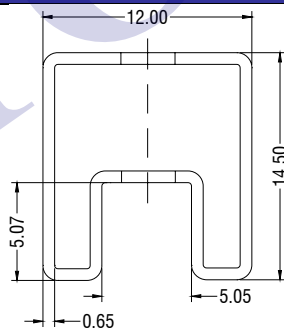
**7Pin SIP**



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.

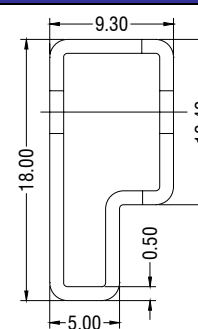
**TUBE OUTLINE DIMENSIONS**

**14Pin DIP**



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.  
 Tube length : 520mm  $\pm 2$ mm. Tube Quantity : 25PCS

**7Pin SIP**



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.  
 Tube length : 520mm  $\pm 2$ mm. Tube Quantity : 25PCS

**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