


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%	Input voltage: 3.3V, 5V,9V,12V, 15V,24V,48V
Operating temperature: -40℃to 105℃	UL 94V-0 package material	Output voltage: 3.3V,5V, 9V, 12V, 15V,18V, ,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	3.3	3.3	606/60.6	7.2	82	SIP
TPK0305SA	3.3	5	400/40	7.2	82	SIP
TPK0312SA	3.3	12	167/16.7	5.0	84	SIP
TPK0503SA	5	3.3	606/60.6	7.2	82	SIP
TPK0505SA	5	5	400/40	7.2	82	SIP
TPK0509SA	5	9	222/22.2	5.8	86	SIP
TPK0512SA	5	12	167/16.7	5.0	86	SIP
TPK0515SA	5	15	133/13.3	4.6	87	SIP
TPK0909SA	9	9	222/22.2	5.8	86	SIP
TPK1205SA	12	5	400/40	4.9	82	SIP
TPK1209SA	12	9	222/22.2	3.0	87	SIP
TPK1212SA	12	12	167/16.7	2.9	87	SIP
TPK1215SA	12	15	133/13.3	2.5	89	SIP
TPK1224SA	12	24	83.3/8.33	5.0	83	SIP
TPK1515SA	15	15	133/13.3	2.5	84	SIP
TPK2405SA	24	5	400/40	4.9	82	SIP
TPK2412SA	24	12	167/16.7	5.0	84	SIP
TPK2415SA	24	15	133/13.3	2.5	84	SIP
TPK2418SA	24	18	111/11.1	2.5	84	SIP
TPK2424SA	24	24	83.3/8.33	5.0	83	SIP
TPK0315S	3.3	±15	±67/±6.7	5.3	87	SIP
TPK0505S	5	±5	±200/±20	6.3	82	SIP
TPK0509S	5	±9	±111/±11.1	5.4	86	SIP
TPK0512S	5	±12	±83/±8.3	4.8	86	SIP
TPK0515S	5	±15	±67/±6.7	5.3	87	SIP
TPK0524S	5	±24	±41.65/±4.165	5.0	83	SIP
TPK1205S	12	±5	±200/±20	3.9	82	SIP
TPK1209S	12	±9	±111/±11.1	2.9	86	SIP
TPK1212S	12	±12	±83/±8.3	2.8	87	SIP
TPK1215S	12	±15	±67/±6.7	2.5	87	SIP
TPK1509S	15	±9	±111/±11.1	5.4	86	SIP
TPK1515S	15	±15	±67/±6.7	2.5	87	SIP
TPK2405S	24	±5	±200/±20	3.9	82	SIP
TPK2409S	24	±9	±111/±11.1	2.9	86	DIP
TPK2412S	24	±12	±83/±8.3	2.8	87	SIP
TPK2415S	24	±15	±67/±6.7	2.5	87	SIP
TPK2424S	24	±24	±41.65/±4.165	5.0	83	SIP
TPK0305DA	3.3	5	400/40	7.2	82	DIP
TPK0505DA	5	5	400/40	7.2	82	DIP
TPK0509DA	5	9	222/22.2	5.8	86	DIP
TPK0512DA	5	12	167/16.7	5.0	86	DIP
TPK0515DA	5	15	133/13.3	4.6	87	DIP
TPK1205DA	12	5	400/40	4.9	82	DIP
TPK1209DA	12	9	222/22.2	3.0	87	DIP
TPK1212DA	12	12	167/16.7	2.9	87	DIP
TPK1215DA	12	15	133/13.3	2.5	89	DIP
TPK1515DA	15	15	133/13.3	2.5	84	DIP
TPK2405DA	24	5	400/40	4.9	82	DIP
TPK2412DA	24	12	167/16.7	5.0	84	DIP
TPK2424DA	24	24	83.3/8.33	5.0	83	DIP
TPK0505D	5	±5	±200/±20	6.3	82	DIP
TPK0509D	5	±9	±111/±11.1	5.4	86	DIP
TPK0512D	5	±12	±83/±8.3	4.8	86	DIP
TPK0515D	5	±15	±67/±6.7	5.3	87	DIP
TPK1205D	12	±5	±200/±20	3.9	82	DIP
TPK1209D	12	±9	±111/±11.1	2.9	86	DIP
TPK1212D	12	±12	±83/±8.3	2.8	87	DIP
TPK1215D	12	±15	±67/±6.7	2.5	87	DIP
TPK1515D	15	±15	±67/±6.7	2.5	87	DIP
TPK2405D	24	±5	±200/±20	3.9	82	DIP
TPK2412D	24	±12	±83/±8.3	2.8	87	DIP
TPK2424D	24	±24	±41.65/±4.164	5.0	83	DIP
TPK4805SA	48	5	400/40	4.9	78	SIP
TPK4818SA	48	18	111/11.1	2.9	78	SIP

Add Suffix "P" for Continuous Short Circuit Protection, for example TPK0505SAP.

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	9V input	8.03	9	10	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
Voltage range	48V input	43	48	53	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 (voltage variation +/-5%)		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, TPK09	11.5V
Input voltage Vin, TPK12	15V
Input voltage Vin, TPK15	18V
Input voltage Vin, TPK24	28V
Input voltage Vin, TPK48	54V

ISOLATION CHARACTERISTICS

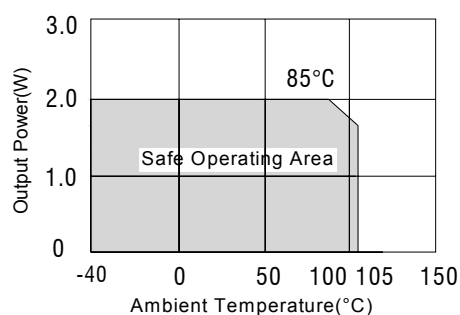
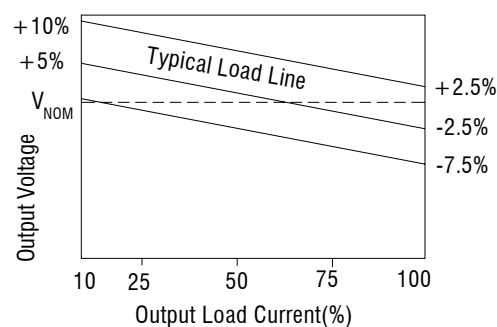
Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 minute	3000			VDC
Resistance	Viso= 1000VDC	1			GΩ

GENERAL CHARACTERISTICS

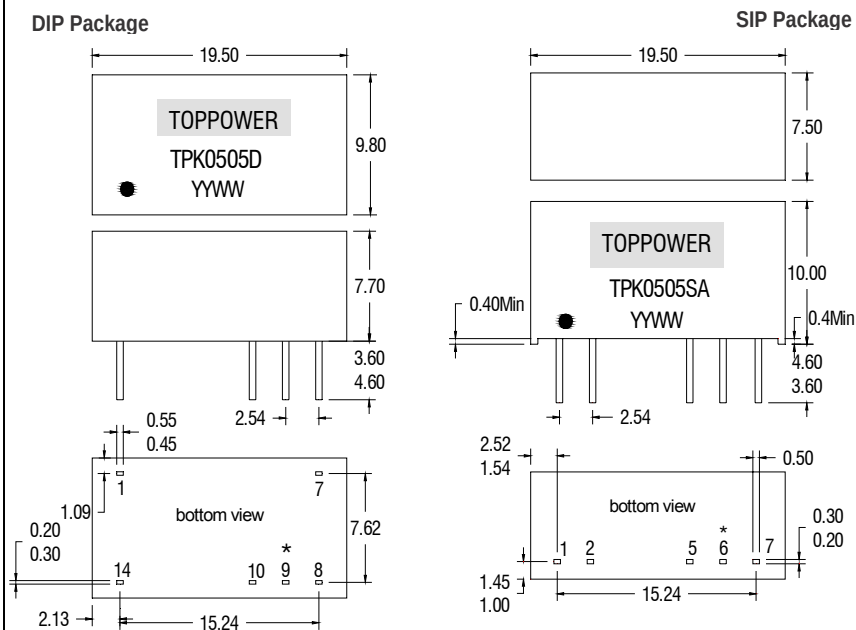
Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency			65		kHz

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



PIN CONNECTIONS

Dual Output Variants	
14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
9	0V
10	-Vout
14	+Vin

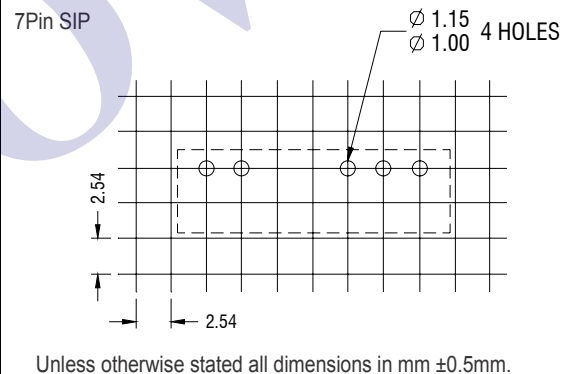
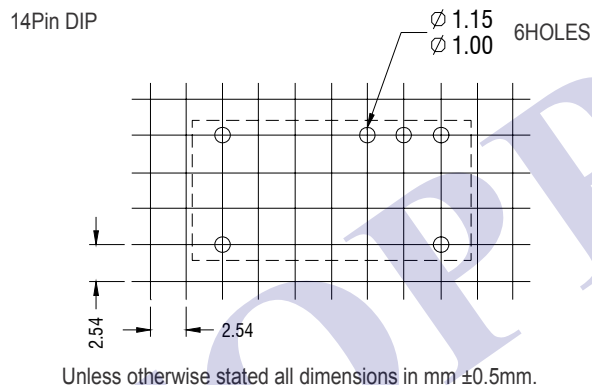
7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	0V
7	+Vout

Single output variants	
14 PIN DIP	
Pin	Function
1	-Vin
7	NC
8	+Vout
10	-Vout
14	+Vin

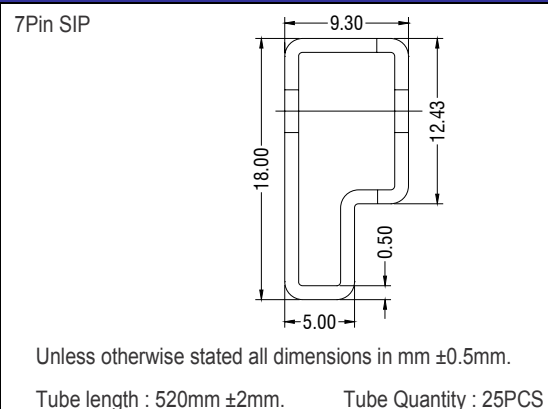
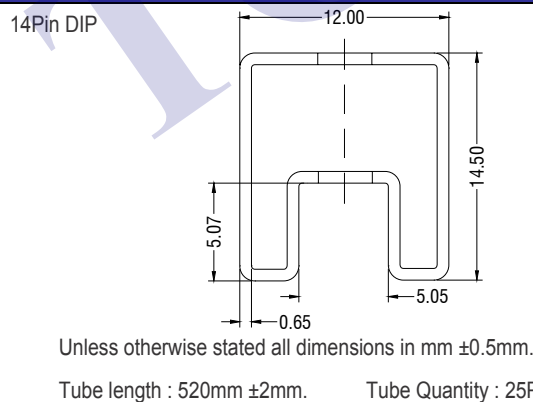
7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

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

RECOMMENDED FOOTPRINT DETAILS



TUBE OUTLINE DIMENSIONS



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