TPE 3.3V, 5V & 12V Series

DESCRIPTION: **1W 1.5KVDC and 2KVDC Isolated Single Output DC/DC Converters**

The TPE series are miniature, isolated 1W DC/DC converters in a SIP and DIP 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.

FEATURES

RoHS compliant	Single isolated output	SIP:1.5KVDC isolation DIP: 2KVDC isolation
Efficiency up to 81%	Operating temperature :-40℃ to 105℃	Power density 1.53W/cm^3
UL 94V-0 package material	Footprint from 0.69cm^2	Industry standard pinout
Input voltage: 3.3V, 5V, 12V	Output voltage:3.3V,5V, 9V, 12V, 15V & 24V	CE certification

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TPE0303D	3.3	3.3	303/30.3	72	DIP
TPE0305D	3.3	5	200/20	74	DIP
TPE0303S	3.3	3.3	303/30.3	72	SIP
TPE0305S	3.3	5	200/20	74	SIP
TPE0503D	5	3.3	303/30.3	72	DIP
TPE0505D	5	5	200/20	68	DIP
TPE0509D	5	9	110/11	78	DIP
TPE0512D	5	12	83/8.3	77	DIP
TPE0515D	5	15	66/6.6	81	DIP
TPE0524D	5	24	42/4.2	80	DIP
TPE0503S	5	3.3	303/30.3	72	SIP
TPE0505S	5	5	200/20	70	SIP
TPE0509S	5	9	110/11	78	SIP
TPE0512S	5	12	83/8.3	78	SIP
TPE0515S	5	15	66/6.6	80	SIP
TPE0524S	5	24	42/4.2	79	SIP
TPE1203D	12	3.3	303/30.3	72	DIP
TPE1205D	12	5	200/20	69	DIP
TPE1209D	12	9	110/11	74	DIP
TPE1212D	12	12	83/8.3	76	DIP
TPE1215D	12	15	66/6.6	75	DIP
TPE1203S	12	3.3	303/30.3	72	SIP
TPE1205S	12	5	200/20	71	SIP
TPE1209S	12	9	110/11	73	SIP
TPE1212S	12	12	83/8.3	76	SIP
TPE1215S	12	15	66/6.6	74	SIP

Add suffix “P” for continuous short circuit protection, for example TPE0505SP.

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	5.0	5.5	V
Voltage range	12V input	10.8	12.0	13.2	V
Reflected ripple current			26	48	mA p-p

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage SIP package	Tested for 1 second	1500			VDC
Isolation test voltage DIP package	Tested for 1 second	2000			VDC
Resistance	Viso= 1000VDC	1			GΩ

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OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power	TA= - 40°C to 85°C			1.0	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High VIN to low VIN		1.0	1.2	%/%
Load Regulation（10%load to rated load）	3.3V output		14	15	%
Load Regulation（10%load to rated load）	5V output		14	15	%
Load Regulation（10%load to rated load）	9V output		9	10	%
Load Regulation（10%load to rated load）	12V output		7.5	9.5	%
Load Regulation（10%load to rated load）	15V output		7.0	8.5	%
Load Regulation（10%load to rated load）	24V output		5.5	7.5	%
All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.					

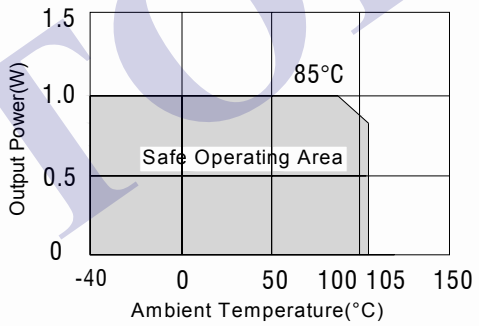
GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	3.3V input		95		kHz
Switching frequency	5V input		110		kHz
Switching frequency	12V input		145		kHz

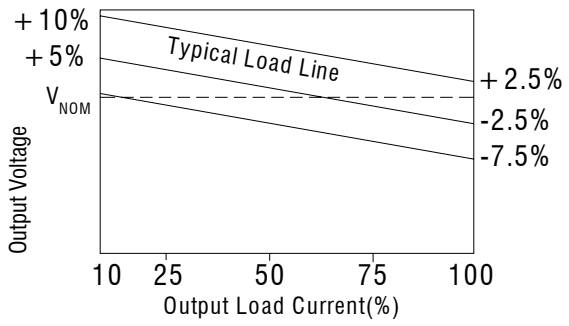
TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	℃
Storage		-55		150	℃
Case Temperature above ambient	5V output			41	℃
Case Temperature above ambient	All other output			32	℃
Cooling	Free air convection				

TEMPERATURE DERATING GRAPHS



TOLERANCE ENVELOPES



SOLDERING INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. Both types in this series are backward compatible with Sn/Pb soldering systems.

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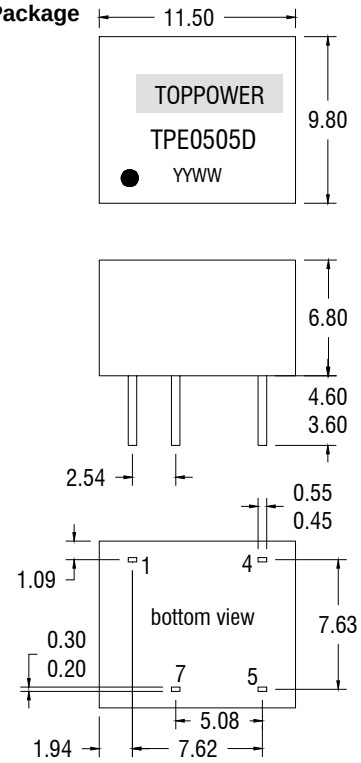
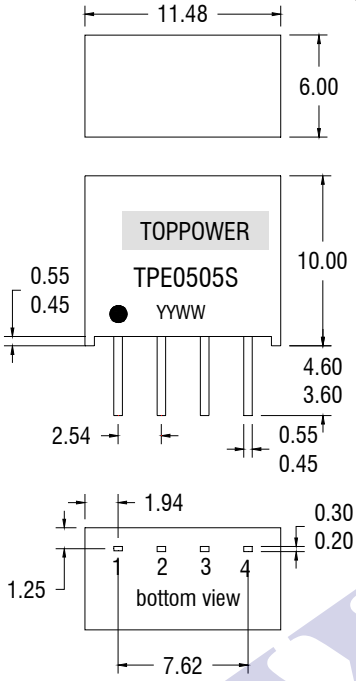
MECHANICAL DIMENSIONS

DIP Package



SIP Package



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

Weight: 1.30g (SIP) 1.48g (DIP)

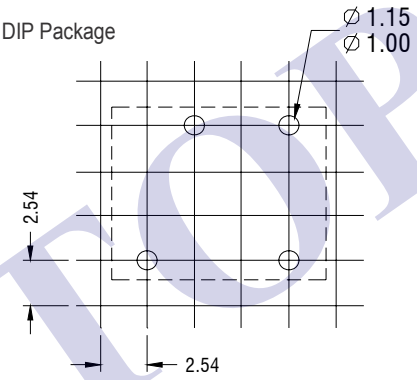
PIN CONNECTIONS

8 PIN DIP	
Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout

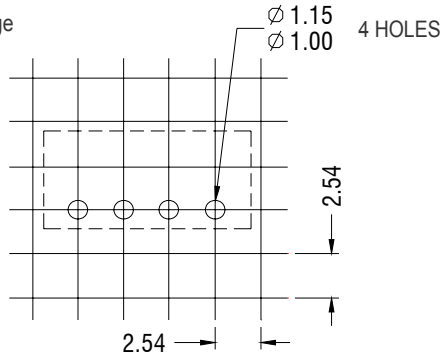
4 PIN SIP	
Pin	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

RECOMMENDED FOOTPRINT DETAILS

8Pin DIP Package

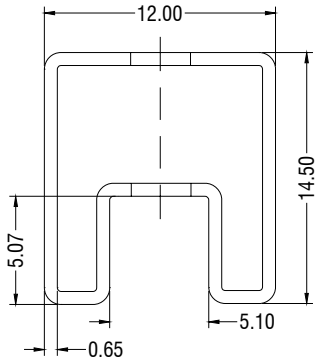


4Pin SIP Package

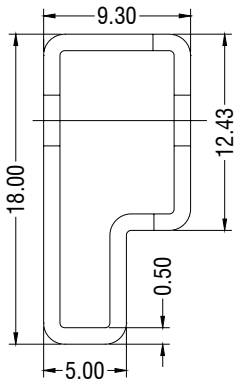


TUBE OUTLINE DIMENSIONS

8Pin DIP Tube



4Pin SIP Tube



Unless otherwise stated all dimensions in mm ±0.5mm.

Tube length (8 Pin DIP) : 520mm ±2mm.

Tube length (4 Pin SIP) : 520mm ±2mm.

Tube Quantity : 35PCS

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