


DESCRIPTION: 1W 3KVDC Isolated Regulated Single Output DC/DC Converters

The TPF 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 and 3KVDC isolation.

FEATURES

RoHS compliant, CE certification	Output regulation <1.5%	Regulated output
Power density 0.85W/cm ³	Single isolated output	SIP & DIP package styles
UL 94V-0 package material	Operating temperature: -40°C to 105°C	Footprint from 1.17cm ²
3KVDC isolation	Input voltage: 5V, 12V, 24V, 48V	Output voltage: 5V, 9V, 12V, 15V

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current (Max./Min)	Efficiency	Package Style
	V	V	mA	%	
TPF0505D	5	5	100/10	52	DIP
TPF0509D	5	9	100/10	60	DIP
TPF0512D	5	12	83/8.3	60	DIP
TPF0515D	5	15	67/6.7	60	DIP
TPF0505S	5	5	100/10	52	SIP
TPF0509S	5	9	100/10	60	SIP
TPF0512S	5	12	83/8.3	60	SIP
TPF0515S	5	15	67/6.7	60	SIP
TPF1205D	12	5	100/10	52	DIP
TPF1209D	12	9	100/10	60	DIP
TPF1212D	12	12	83/8.3	60	DIP
TPF1215D	12	15	67/6.7	60	DIP
TPF1205S	12	5	100/10	52	SIP
TPF1209S	12	9	100/10	60	SIP
TPF1212S	12	12	83/8.3	60	SIP
TPF1215S	12	15	67/6.7	60	SIP
TPF2405D	24	5	100/10	52	DIP
TPF2409D	24	9	100/10	60	DIP
TPF2412D	24	12	83/8.3	60	DIP
TPF2415D	24	15	67/6.7	60	DIP
TPF2405S	24	5	100/10	52	SIP
TPF2409S	24	9	100/10	60	SIP
TPF2412S	24	12	83/8.3	60	SIP
TPF2415S	24	15	67/6.7	60	SIP
TPF4805D	48	5	100/10	52	DIP
TPF4809D	48	9	100/10	60	DIP
TPF4812D	48	12	83/8.3	60	DIP
TPF4815D	48	15	67/6.7	60	DIP
TPF4805S	48	5	100/10	52	SIP
TPF4809S	48	9	100/10	60	SIP
TPF4812S	48	12	83/8.3	60	SIP
TPF4815S	48	15	67/6.7	60	SIP

Add suffix "P" for continuous short circuit protection, for example TPF0505SP.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	5V input types	4.7	5	5.3	V
Voltage range	12V input types	11.4	12	12.6	V
Voltage range	24V input types	23	24	25.4	V
Voltage range	48V input types	45.5	48	50.5	V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage set point accuracy	100% load			5	%
Rated power	TA= -40°C to 85°C			1	W
Line regulation	High Vin to low Vin			0.25	%/%
Load regulation	10% load to rated load		0.9	1.5	%

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	450mW
Input voltage Vin, TPF05	7V
Input voltage Vin, TPF12	14.5V
Input voltage Vin, TPF24	27V
Input voltage Vin, TPF48	53V

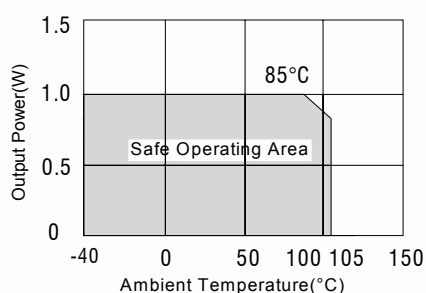
All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	All input types		100		kHz
Resistance	Viso= 1000VDC	1			GΩ

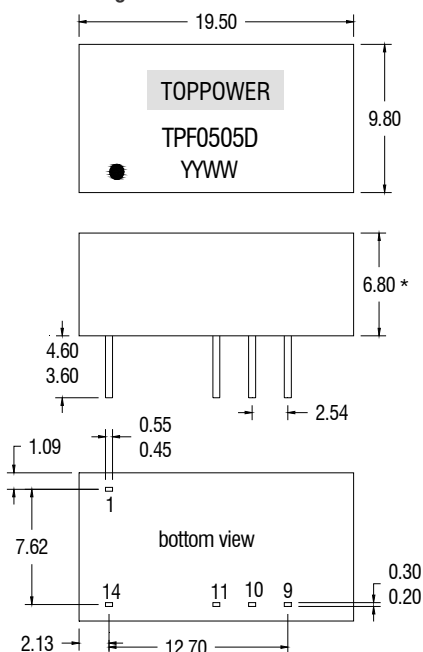
TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Case temperature above ambient			38		°C
Storage		-55		150	°C
Cooling	Free air convection				

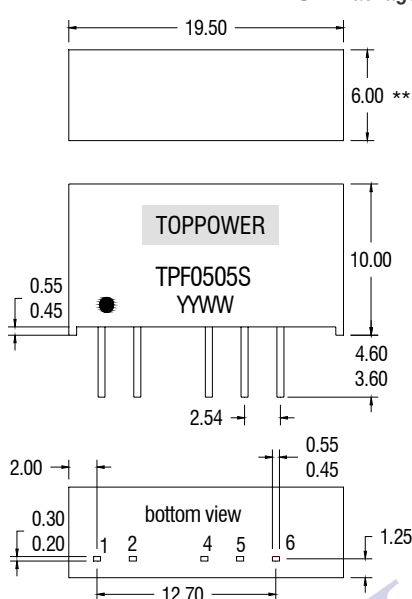
TEMPERATURE DERATING GRAPH


MECHANICAL DIMENSIONS

DIP Package



SIP Package



PIN CONNECTIONS

14 PIN DIP	
Pin	Function
1	-Vin
9	Vout
10	TRIM
11	-Vout
14	+Vin

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

* 7.70 for 48V variants

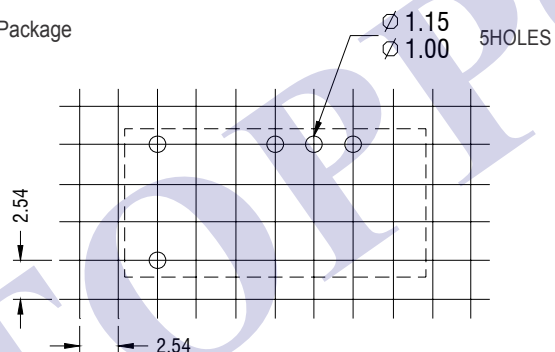
** 7.50 for 48V variants

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

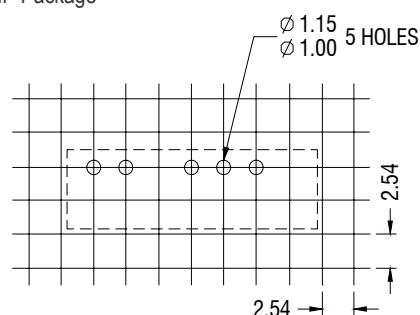
Weight: 2.4g (DIP), 2.1g (SIP), TPF24XX and TPF48XX DIP&SIP : 2.9g

RECOMMENDED FOOTPRINT DETAILS

14Pin DIP Package

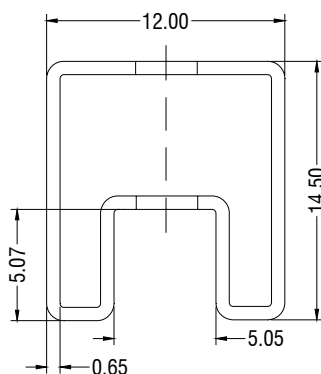


7 Pin SIP Package

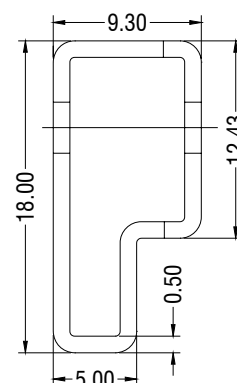


TUBE OUTLINE DIMENSIONS

14 Pin DIP Tube



7 Pin SIP Tube



All dimensions in mm ± 0.25 mm.

Tube length (14 Pin DIP) : 520mm ± 2 mm.

Tube length (7 Pin SIP) : 520mm ± 2 mm.

Tube Quantity : 25PCS