

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

The TPL 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 1.5KVDC isolation.

FEATURES

RoHS compliant、CE certification	Single isolated output	1.5KVDC isolation
Efficiency up to 86%	Operating temperature: -40ºC to 105ºC	Power density 2.0W/cm^3
UL 94V-0 package material	Footprint from 1.05cm^2	Industry standard pinout
Input voltage: 5V, 12V	Output voltage: 3.3V,5V, 9V, 12V,15V	Custom solutions available

SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current（Max./Min）	Efficiency
	V	V	mA	%
TPL0503S	5	3.3	606/60.6	80
TPL0505S	5	5	400/40	77
TPL0509S	5	9	221/22.1	80
TPL0512S	5	12	168/16.8	83
TPL0515S	5	15	132/13.2	82
TPL1203S	12	3.3	606/60.6	80
TPL1205S	12	5	400/40	80
TPL1209S	12	9	221/22.1	84
TPL1212S	12	12	168/16.8	86
TPL1215S	12	15	132/13.2	85

Add suffix “P” for continuous short circuit protection, for example TPL0505SP.

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	5V input variants	4.5	5.0	5.5	V
Voltage range	12V input variants	11	12.0	13.3	V
Reflected ripple current	5V input variants		35		mA p-p
Reflected ripple current	12V input variants		40		mA p-p

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Max.	Units
Rated Power	TA= -40°C to 85°C		2.0	W
Voltage Set Point Accuracy	See tolerance envelope			
Line regulation	High VIN to low VIN		1.2	%/%
Load Regulation(10% load to rated load)	3.3V & 5V output variants		9	%
Load Regulation(10% load to rated load)	9V output variants		5	%
Load Regulation(10% load to rated load)	12V output variants		6	%
Load Regulation(10% load to rated load)	15V output variants		9	%

ABSOLUTE MAXIMUM RATINGS

Lead temperature 1.5mm from case for 10 seconds	300℃
Internal power dissipation	800mW
Input voltage Vin, TPL05XX types	7V
Input voltage Vin, TPL12XX types	15V

TOPPOWER

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Tested for 1 second	1500			VDC
Resistance	Viso= 500VDC	1			GΩ

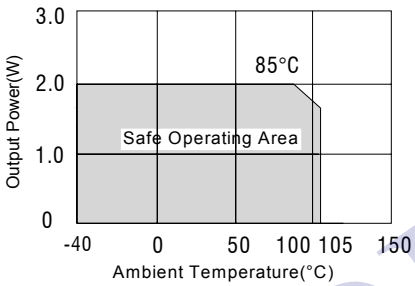
GENERAL CHARACTERISTICS

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

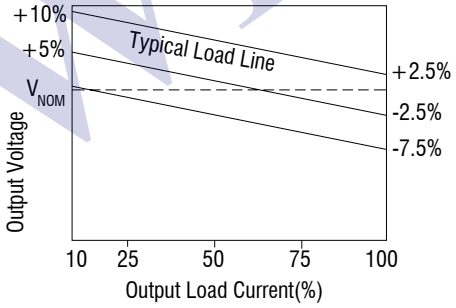
TEMPER ATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	℃
Storage		-50		130	℃
Case Temperature above ambient	5V output types			46	℃
	All other output types			38	℃
Cooling	Free air convection				

TEMPERATURE DERATING GRAPHS

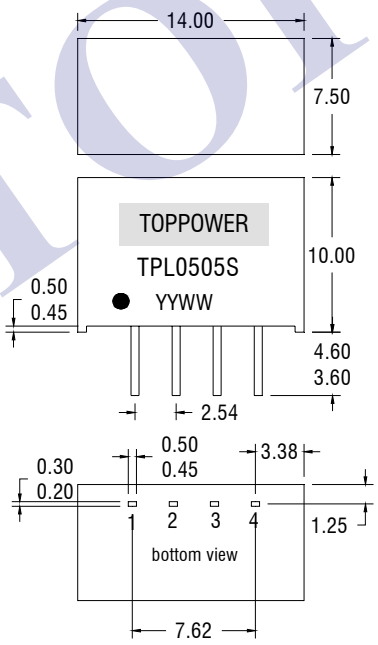


TOLERANCE ENVELOPES



MECHANICAL DIMENSIONS

SIP Package



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

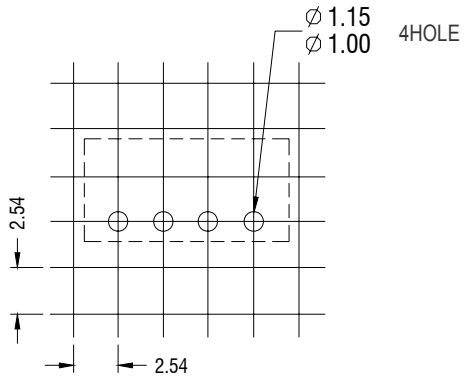
Weight: 2.0g

PIN CONNECTIONS

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

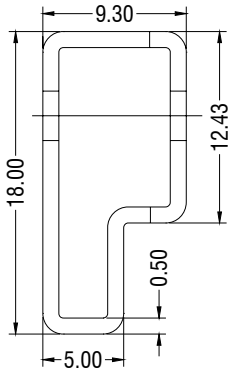
TOPPOWER

RECOMMENDED FOOTPRINT DETAILS



Unless otherwise stated all dimensionsmm ±0.5mm.

TUBE OUTLINE DIMENSIONS



Unless otherwise stated all dimensions in mm±0.5mm.

Tube length : 520mm ±2mm. Tube Quantity : 35PCS

SOLDERING INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300℃for 10 seconds. The series is backward compatible with Sn/Pb soldering systems

TOPPOWER