



**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: -40°C to 105°C	Power density 2.0W/cm <sup>3</sup>
UL 94V-0 package material	Footprint from 1.05cm <sup>2</sup>	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°C
Internal power dissipation	800mW
Input voltage Vin, TPL05XX types	7V
Input voltage Vin, TPL12XX types	15V

**ISOLATION CHARACTERISTICS**

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

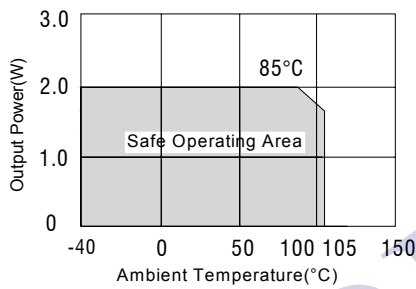
**GENERAL CHARACTERISTICS**

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

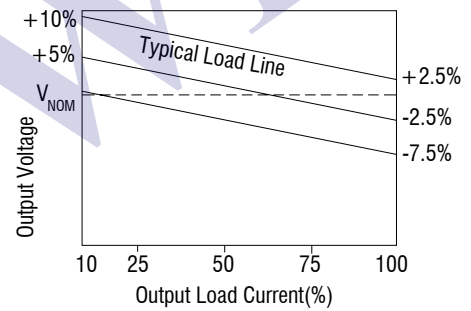
**TEMPERATURE CHARACTERISTICS**

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

**TEMPERATURE DERATING GRAPHS**

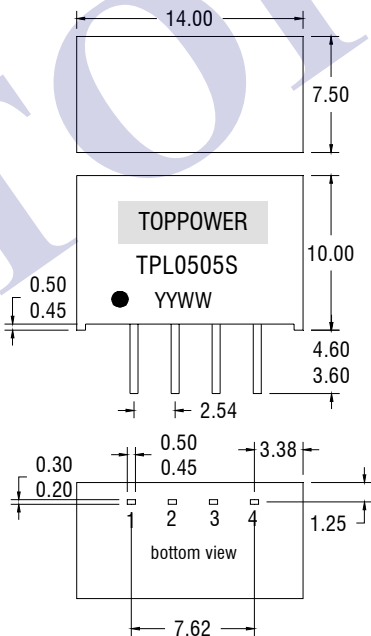


**TOLERANCE ENVELOPES**



**MECHANICAL DIMENSIONS**

**SIP Package**

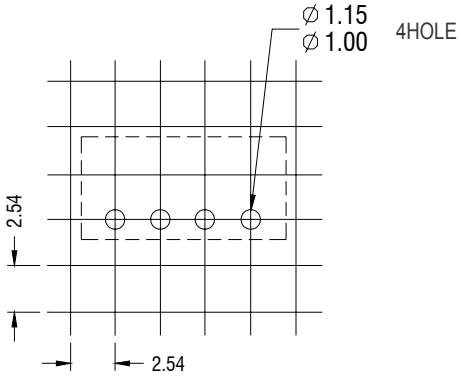
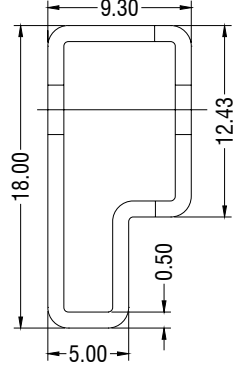


All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.

Weight: 2.0g

**PIN CONNECTIONS**

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

RECOMMENDED FOOTPRINT DETAILS	TUBE OUTLINE DIMENSIONS
 <p>Unless otherwise stated all dimensions in mm ±0.5mm.</p>	 <p>Unless otherwise stated all dimensions in mm ±0.5mm.            Tube length : 520mm ±2mm.      Tube Quantity : 35PCS</p>
SOLDERING INFORMATION	
<p>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</p>	

TOPPOWER