



**DESCRIPTION: 2W 3KVDC Isolated Single Output DC/DC Converters**

The TPG 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, CE certification	Efficiency from 81% to 88%	Operating temperature :-40°C to 105°C
UL 94V-0 package material	Industry standard pinout	3KVDC isolation
Input voltage: 3.3V, 5V, 12V,15V,24V,48V	Output voltage: 3.3V,5V, 9V, 12V, 15V, 24V	Internal SMD construction

**SELECTION GUIDE**

Part Number	Nominal Input Voltage	Output Voltage	Output Current(Max./Min)	Load Regulation (Max)	Efficiency (Typ.)
	V	V	mA	%	%
TPG0305S	3.3	5	400/40	7.4	73
TPG0503S	5	3.3	606/60.6	8.0	75
TPG0505S	5	5	400/40	7.4	77
TPG0509S	5	9	222/22.2	6.1	81
TPG0512S	5	12	167/16.7	5.1	82
TPG0515S	5	15	133/13.3	4.5	82
TPG0524S	5	24	83/8.3	4.5	82
TPG1203S	12	3.3	606/60.6	8.0	75
TPG1205S	12	5	400/40	4.8	77
TPG1209S	12	9	222/22.2	3.2	82
TPG1212S	12	12	167/16.7	2.9	83
TPG1215S	12	15	133/13.3	2.5	83
TPG1224S	12	24	83/8.3	4.5	82
TPG1505S	15	5	400/40	7.4	75
TPG1515S	15	15	133/13.3	2.5	75
TPG2403S	24	3.3	400/40	7.4	71
TPG2405S	24	5	400/40	6.5	77
TPG2409S	24	9	222/22.2	3.2	77
TPG2412S	24	12	167/16.7	2.9	79
TPG2415S	24	15	133/13.3	2.5	79
TPG2424S	24	24	83/8.3	4.5	82
TPG4805S	48	5	400/40	6.5	77
TPG4812S	48	12	167/16.7	2.9	79

Add suffix "P" for continuous short circuit protection, for exampleTPG0505SP.

**GENERAL CHARACTERISTICS**

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

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	3.3V input types	2.9	3.3	3.6	V
Voltage range	5V input types	4.5	5	5.5	V
Voltage range	12V input types	11	12	13.2	V
Voltage range	15V input types	13.4	15	16.4	V
Voltage range	24V input types	21.6	24	26.4	V
Voltage range	48V input types	43	48	53	V
Reflected ripple current			8	15	mA p-p

**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		1.0	1.2	%/%

**ISOLATION CHARACTERISTICS**

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

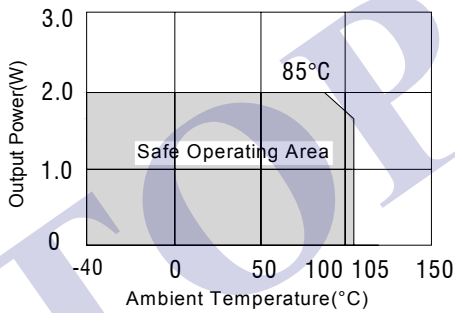
**ABSOLUTE MAXIMUM RATINGS**

Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	700mW
Input voltage Vin, TPG03	5.5V
Input voltage Vin, TPG05	7V
Input voltage Vin, TPG12	15V
Input voltage Vin, TPG15	18V
Input voltage Vin, TPG24	28V
Input voltage Vin, TPG48	54V

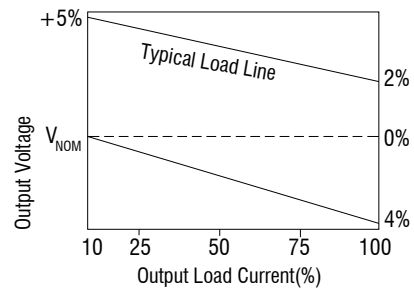
**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	Derating if the temperature ≥85°C	-40		105	°C
Storage		-50		150	°C
Case Temperature above ambient	TPG05XX			32	°C
Case Temperature above ambient	TPG12XX			27	°C
Case Temperature above ambient	All other output types			25	°C
Cooling	Free air convection				

**TEMPERATURE DERATING GRAPHS**

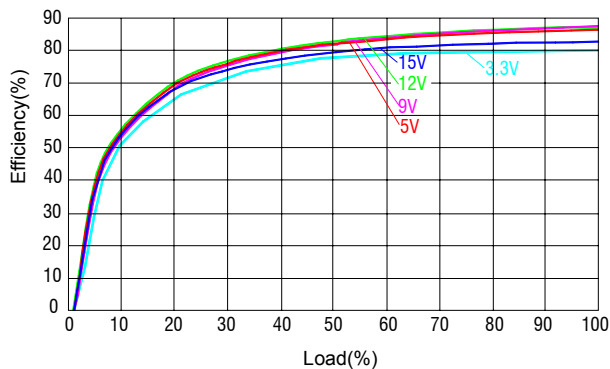


**TOLERANCE ENVELOPES**

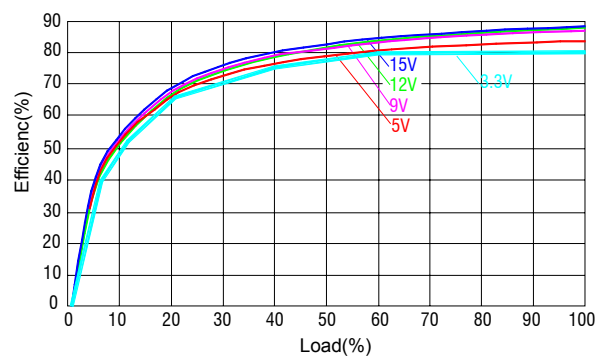


**EFFICIENCY VS LOAD**

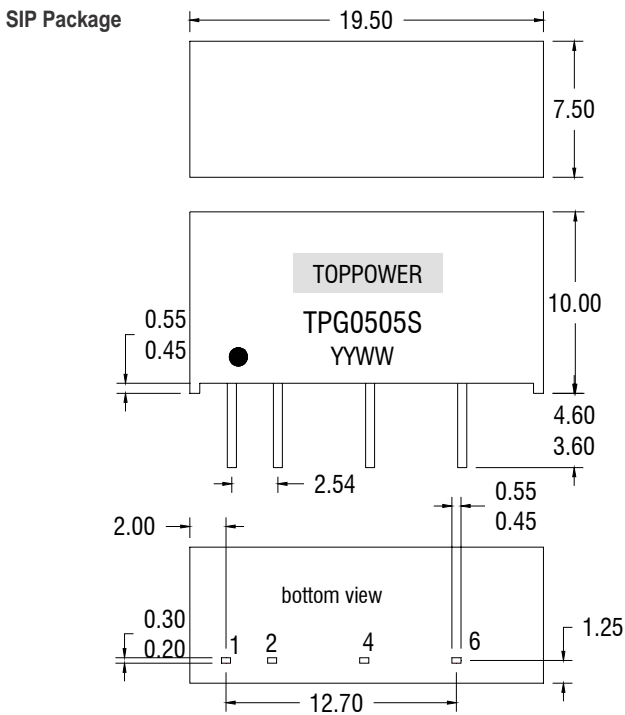
TPG 5V Input Voltage



TPG 12V Input Voltage



**MECHANICAL DIMENSIONS**

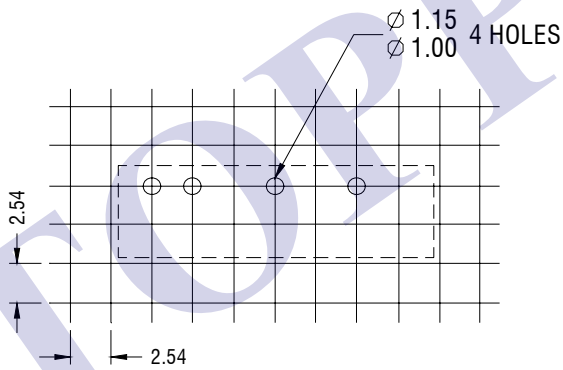


All dimensions in mm  $\pm 0.25$ mm . All pins on a 2.54mm pitch and within  $\pm 0.25$ mm of true position. Weight: 2.8g

**PIN CONNECTIONS**

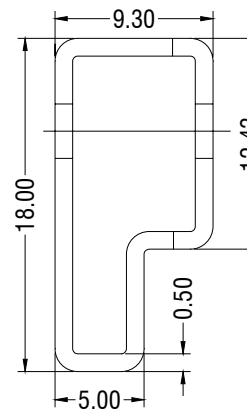
7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
4	-Vout
6	+Vout

**RECOMMENDED FOOTPRINT DETAILS**



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.

**TUBE OUTLINE DIMENSIONS**



Unless otherwise stated all dimensions in mm  $\pm 0.5$ mm.  
 Tube length : 520mm  $\pm 2$ mm. Tube Quantity : 25PCS

**SOLDERING INFORMATION**

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