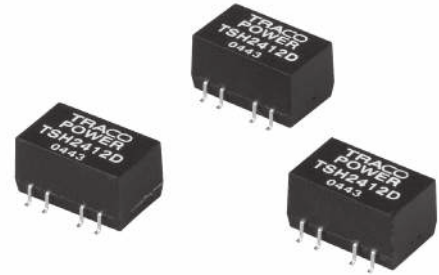


### Features

- ◆ Ultra compact SMD package (SOIC-14/18)
- ◆ Isolated single and dual output models
- ◆ I/O isolation 1'000 VDC
- ◆ High efficiency up to 82%
- ◆ Operating temperature  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- ◆ Reflow solder temperature up to  $245^{\circ}\text{C}$
- ◆ High accuracy of pin Co-planarity
- ◆ Available in tape and reel package
- ◆ Lead free design, RoHS compliant
- ◆ 3-year product warranty



The TSH series are ultra miniature, isolated 2 Watt DC/DC-converters in SMD package. The devices can be soldered without any problems in a high temperature lead free solder process. Requiring only  $1.5\text{ cm}^2$  board space they offer the ideal solution in many space critical applications. These converters are the ideal solution for point of load power conversion, ground loop elimination, noise reduction and digital interface applications.

### Models

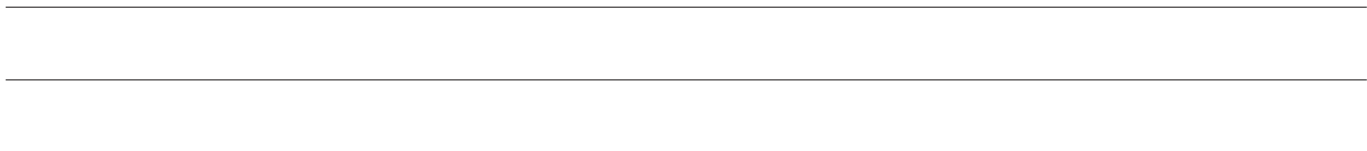
Ordercode	Input voltage	Output voltage	Output current max.	Efficiency typ.
TSH 0505S	5 VDC $\pm 10\%$	5 VDC	400 mA	77 %
TSH 0512S		12 VDC	165 mA	81 %
TSH 0505D		$\pm 5$ VDC	$\pm 200$ mA	77 %
TSH 0512D		$\pm 12$ VDC	$\pm 80$ mA	79 %
TSH 0515D		$\pm 15$ VDC	$\pm 65$ mA	79 %
TSH 1205S	12 VDC $\pm 10\%$	5 VDC	400 mA	78 %
TSH 1212S		12 VDC	165 mA	82 %
TSH 1212D		$\pm 12$ VDC	$\pm 80$ mA	82 %
TSH 1215D		$\pm 15$ VDC	$\pm 65$ mA	82 %
TSH 2405S	24 VDC $\pm 10\%$	5 VDC	400 mA	78 %
TSH 2412S		12 VDC	165 mA	81 %
TSH 2412D		$\pm 12$ VDC	$\pm 80$ mA	81 %
TSH 2415D		$\pm 15$ VDC	$\pm 65$ mA	82 %

**Input Specifications**

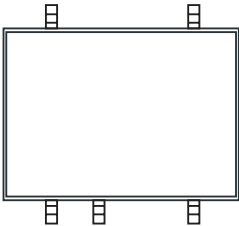
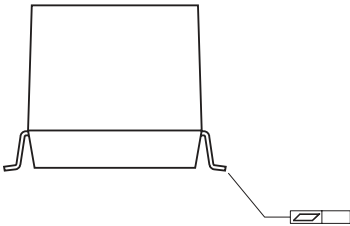
Input current no load / full load	5 Vin models: 60 mA / 500 mA typ. 12 Vin models: 30 mA / 200 mA typ. 24 Vin models: 15 mA / 100 mA typ.
Surge voltage (1 sec. max.)	5 Vin models: 9 V max. 12 Vin models: 18 V max. 24 Vin models: 30 V max.
Reflected input ripple current	can be reduced by ext. 1–3.3 μF polyester film capacitor
Input filter	internal capacitors

**Output Specifications**

Voltage set accuracy	±4 % max.
Voltage balance	



**Outline Dimensions**



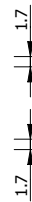
Pin-Out	
Pin	Single
1	-Vin (GND)
3	+Vin (Vcc)
7	-Vout
8	+Vout
14	Ntc.

**Packaging: Single Output N**



◀ Packaging: Dual Output Models

Optional Packaging - Tape & Reel



Specifications can be changed any time without notice.

Dimensions in [mm], Tolerance  $\pm 0.1$ mm