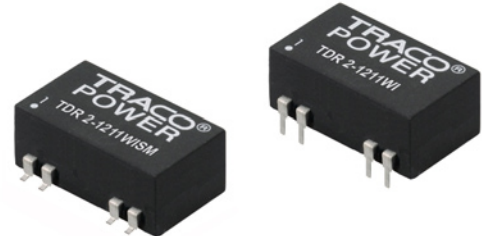


### Features

- ◆ Compact design in SMD or DIP package
- ◆ Ultra wide 4:1 input voltage range
- ◆ Fully regulated outputs
- ◆ Low ripple and noise
- ◆ No minimum load required
- ◆ Temperature range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  without derating
- ◆ I/O isolation 1500 VDC
- ◆ Continuous short-circuit protection
- ◆ Remote On/Off control
- ◆ Fully RoHS compliant
- ◆ 3-year product warranty



The TDR-2WI series is a family of compact 2 W dc/dc-converters with 4:1 input voltage ranges and tightly regulated output voltages even under no load conditions. The product is available in SMD-package or in DIP-package. They work with high efficiency over the full load range and come with a remote On/Off input. The usability in temperature ranges of up to  $85^{\circ}\text{C}$  without power derating, continuous short circuit protection and excellent immunity against environmental influences make these converters very reliable.

A TDR-2WI converter is the ideal solution for space critical high end applications in communication equipment, instrumentation and industrial electronics.

### Models

Order code DIP models	Order code SMD models	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TDR 2-1211WI	TDR 2-1211WISM	4.5 – 18 VDC (12 VDC nominal)	5.0 VDC	400 mA	79 %
TDR 2-1212WI	TDR 2-1212WISM		12 VDC	167 mA	80 %
TDR 2-1213WI	TDR 2-1213WISM		15 VDC	134 mA	81 %
TDR 2-1222WI	TDR 2-1222WISM		$\pm 12$ VDC	$\pm 83$ mA	81 %
TDR 2-1223WI	TDR 2-1223WISM		$\pm 15$ VDC	$\pm 67$ mA	81 %
TDR 2-2411WI	TDR 2-2411WISM	9 – 36 VDC (24 VDC nominal)	5.0 VDC	400 mA	79 %
TDR 2-2412WI	TDR 2-2412WISM		12 VDC	167 mA	80 %
TDR 2-2413WI	TDR 2-2413WISM		15 VDC	134 mA	82 %
TDR 2-2422WI	TDR 2-2422WISM		$\pm 12$ VDC	$\pm 83$ mA	80 %
TDR 2-2423WI	TDR 2-2423WISM		$\pm 15$ VDC	$\pm 67$ mA	81 %
TDR 2-4811WI	TDR 2-4811WISM	18 – 75 VDC (48 VDC nominal)	5.0 VDC	400 mA	78 %
TDR 2-4812WI	TDR 2-4812WISM		12 VDC	167 mA	81 %
TDR 2-4813WI	TDR 2-4813WISM		15 VDC	134 mA	82 %
TDR 2-4822WI	TDR 2-4822WISM		$\pm 12$ VDC	$\pm 83$ mA	81 %
TDR 2-4823WI	TDR 2-4823WISM		$\pm 15$ VDC	$\pm 67$ mA	81 %

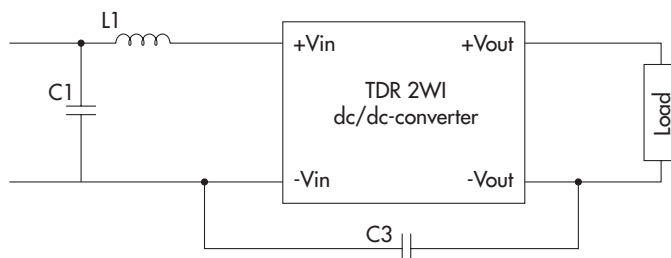


**General Specifications**

Temperature ranges	- Operating - Storage	-40°C to +85°C (with no derating) -55°C to +125°C
Humidity (non condensing)		5 % to 90 % rel. H max.
Thermal shock		acc. MIL-STD-810F
Vibration		acc. MIL-STD-810F
Reliability, calculated MTTF (MIL-HDBK-217F, @ +25°C, ground benign)		>2.0 Mio h
Isolation voltage (60 sec)	- Input/Output	1'500 VDC
Isolation capacity	- Input/Output	50 pF max.
Isolation resistance	- Input/Output (500 VDC)	>10 GOhm
Safety standard (designed to meet)		IEC/EN 60950-1, UL 60950-1
Switching frequency		100 kHz (PWM)
Remote On/Off	- On: - Off: - Off stand by input current	open or high impedance 2...4 mA current applied via 1KOhm resistor 2.5 mA max.

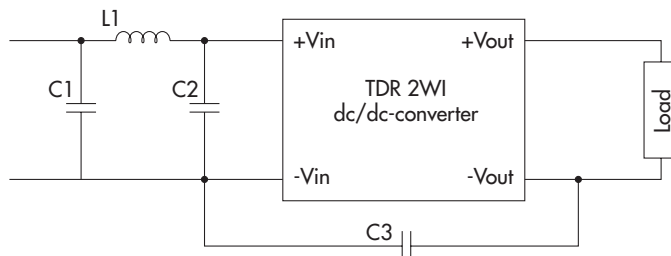
**EMC Consideration**

Recommended filter for  
**EN 55022 class A** compliance



Input models	C1	C3	L1 value	order code (SMD type)	datasheet:
12 VDC	10 µF / 25 V 1812 MLCC	220pF / 3 kV 1808 MLCC	2.2 µH	<b>TCK-059</b>	<a href="http://www.tracopower.com/products/tck059.pdf">www.tracopower.com/products/tck059.pdf</a>
24 VDC	6.8 µF / 50 V 1812 MLCC		18 µH	<b>TCK-046</b>	<a href="http://www.tracopower.com/products/tck046.pdf">www.tracopower.com/products/tck046.pdf</a>
48 VDC	4.7 µF / 100 V 1812 MLCC				

Recommended filter for  
**EN 55022 class B** compliance



Input models	C1 & C2	C3	L1 value	order code (SMD type)	datasheet
12 VDC	10 µF / 25 V 1812 MLCC	220pF / 3 kV 1808 MLCC	2.2 µH	<b>TCK-059</b>	<a href="http://www.tracopower.com/products/tck059.pdf">www.tracopower.com/products/tck059.pdf</a>
24 VDC	2.2 µF / 50 V 1812 MLCC		18 µH	<b>TCK-046</b>	<a href="http://www.tracopower.com/products/tck046.pdf">www.tracopower.com/products/tck046.pdf</a>
48 VDC	2.2 µF / 100 V 1812 MLCC		27 µH	<b>TCK-063</b>	<a href="http://www.tracopower.com/products/tck063.pdf">www.tracopower.com/products/tck063.pdf</a>

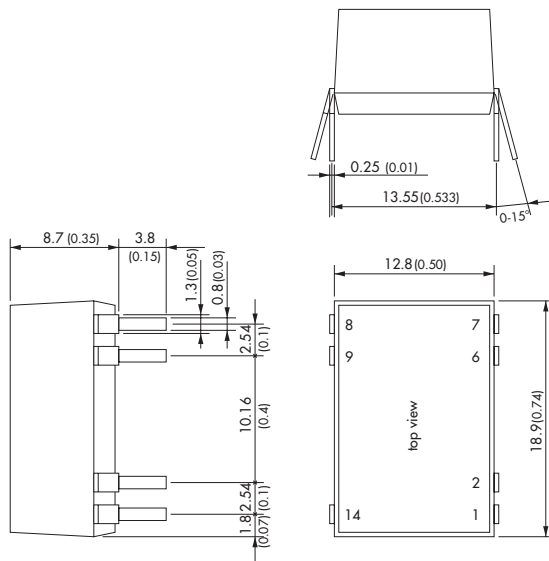
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**Physical Specifications**

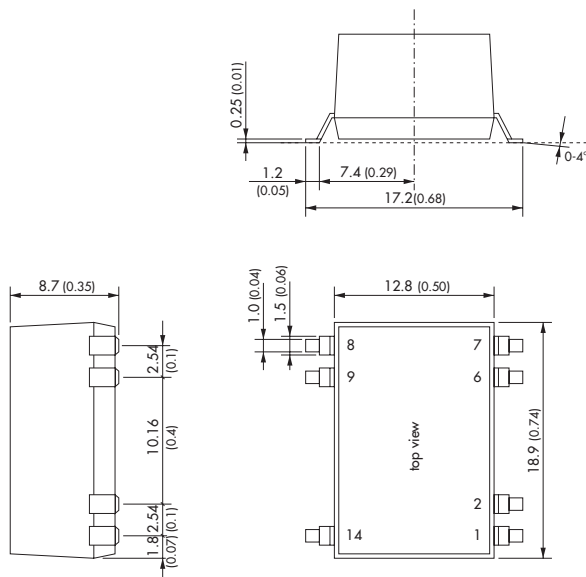
Casing material	non-conductive plastic (UL94V-0 rated)
Package weight	4.5 g (0.16 oz)
Soldering profile for DIP-package models	max. 265°C / 10 sec. (wave soldering)
Lead-free reflow solder process for SMD-package models	as per J-STD-020D.01 (to find at: <a href="http://www.jedec.org">www.jedec.org</a> - free registration required)
Moisture sensitivity level (for SMD-package models)	level 2a as per J-STD-033B.01 (to find at: <a href="http://www.jedec.org">www.jedec.org</a> - free registration required)

**Outline Dimensions**

**DIP-Models**



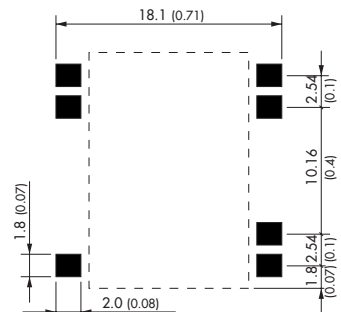
**SMD-Models**



Pin-Out		
Pin	Single	Dual
1	-Vin (GND)	-Vin (GND)
2	Remote On/Off	Remote On/Off
6	NC	Common
7	NC	-Vout
8	+Vout	+Vout
9	-Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

NC = not to connect

**Recommended Solder Pad Dimension:**



Dimensions in [mm], ( ) = Inch  
Tolerances: ±0.5 (±0.02)  
Pin pitch tolerances: ±0.25 (±0.01)

Specifications can be changed any time without notice.