

Features

- ◆ Highest power density in SIP package
- ◆ Ultra wide 4:1 input range
- ◆ Small footprint: 21.8 x 9.2 mm
- ◆ Temperature range -40° to $+85^{\circ}\text{C}$
- ◆ High efficiency
- ◆ Excellent load and line regulation
- ◆ Short-circuit protection
- ◆ I/O-isolation 1500 VDC
- ◆ Remote On/Off control
- ◆ 3 Year product warranty



The TMR-3WI series is a new family of isolated 3W DC/DC converters with regulated output, featuring ultra-wide 4:1 input voltage range. The product comes in an ultra-compact SIP plastic package with a small footprint occupying only 2.0 cm² (0.3 square in.) of board space. An excellent efficiency allows -40° to $+85^{\circ}\text{C}$ operation temperatures.

Further features include remote On/Off control and continuous short circuit protection. The very compact dimensions of these converters make them an ideal solution for many space critical applications in battery-powered equipment and instrumentation.

Models				
Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TMR 3-2410WI	9 – 36 VDC (24 VDC nominal)	3.3 VDC	700 mA	75 %
TMR 3-2411WI		5 VDC	600 mA	80 %
TMR 3-2412WI		12 VDC	250 mA	79 %
TMR 3-2413WI		15 VDC	200 mA	79 %
TMR 3-2421WI		± 5 VDC	± 300 mA	78 %
TMR 3-2422WI		± 12 VDC	± 125 mA	80 %
TMR 3-2423WI		± 15 VDC	± 100 mA	82 %
TMR 3-4810WI	18 – 75 VDC (48 VDC nominal)	3.3 VDC	700 mA	74 %
TMR 3-4811WI		5 VDC	600 mA	78 %
TMR 3-4812WI		12 VDC	250 mA	78 %
TMR 3-4813WI		15 VDC	200 mA	79 %
TMR 3-4821WI		± 5 VDC	± 300 mA	78 %
TMR 3-4822WI		± 12 VDC	± 125 mA	79 %
TMR 3-4823WI		± 15 VDC	± 100 mA	80 %

Input Specifications

Input current at full load	24 Vin models: 170 mA max. 48 Vin models: 85 mA max.
Input current at no load	24 Vin models: 25 mA typ. 48 Vin models: 15 mA typ.
Surge voltage (100 msec. max.)	24 Vin models: 50 V max. 48 Vin models: 100 V max.
Input filter	EN 55022 level A, FCC part 15, level A with external capacitor

Output Specifications

Voltage set accuracy	±1 % max
Regulation	<ul style="list-style-type: none"> - Input variation Vin min. to Vin max. 0.2 % max. - Load variation 0 – 100% <ul style="list-style-type: none"> single output models: 1.0 % max. dual output models: 1.0 % max. balanced load - Load cross regulation 25/100% 5.0 % max. (dual output models)
Minimum load	not required
Temperature coefficient	0.1 %/K
Ripple and noise (20 MHz Bandwidth)	30 mVpk-pk max.
Start up time	<ul style="list-style-type: none"> - Power On 30 ms typ. - Remote On 30 ms typ.
Transient response setting time (25% load step change)	500 µs typ.
Temperature coefficient	± 0.1 %/°C
Short circuit protection	continuous, automatic recovery
Capacitive load	<ul style="list-style-type: none"> 3.3 VDC output models: 1'760 µF max. 5 VDC output models: 1'000 µF max. 12 VDC output models: 170 µF max. 15 VDC output models: 110 µF max. ±5 VDC output models: ± 470 µF max. ±12 VDC output models: ± 100 µF max. ±15 VDC output models: ± 47 µF max.

General Specifications

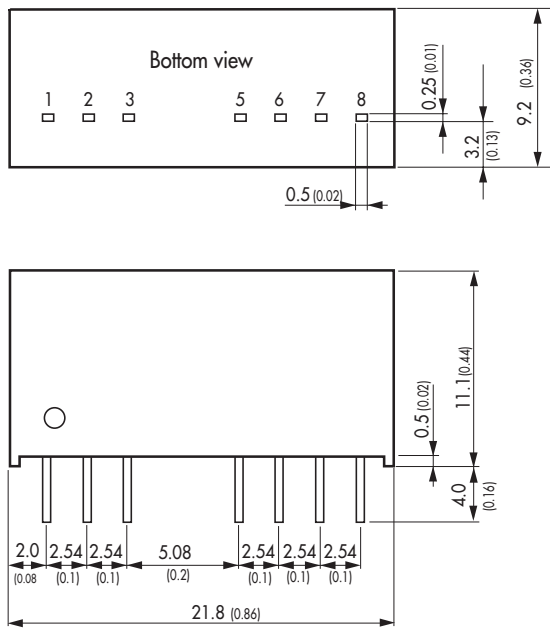
Temperature ranges	<ul style="list-style-type: none"> - Operating -40 °C to +85 °C - Case temperature +100 °C max. - Storage -55 °C to +125 °C
Load derating	3.5 %/K above 70°C
Humidity (non condensing)	95 % rel. H max.
Reliability, calculated MTBF (MIL-HDBK-217F ground benign)	>1.7 Mio h @ 25°C
Isolation voltage (60 sec)	<ul style="list-style-type: none"> - Input/Output 1'500 VDC
Isolation capacity	<ul style="list-style-type: none"> - Input/Output 200 pF max.
Isolation resistance	<ul style="list-style-type: none"> - Input/Output (500 VDC) >1 GOhm
Switching frequency	100 kHz (PWM)
Remote On/Off	<ul style="list-style-type: none"> - On: open or high impedance - Off: 2...4 mA to applied via 1 KOhm resistor - Off stand by input current 2.5 mA max.
Vibration and thermal shock	MIL-STD-810E
Safety standards	UL /cUL 60950-1, EN 60950-1, IEC 60950-1
Safety approvals	<ul style="list-style-type: none"> - UL/cUL pending

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

Physical Specifications

Case material	non-conductive plastic
Potting material	silicon, UL 94V-0 rated
Weight	4.8g (0.17oz)

Outline Dimensions



Pin-Out		
Pin	Single	Dual
1	-Vin (GND)	-Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote On/Off	Remote On/Off
5	No con.	No con.
6	+Vout	+Vout
7	-Vout	Common
8	No con.	-Vout

Dimensions in [mm], () = Inch
 Pin dimension tolerances 0.1 (0.004)
 Pin pitch tolerances: ±0.25 (0.01)
 Tolerances: ±0.5 (0.02)

Specifications can be changed any time without notice.