



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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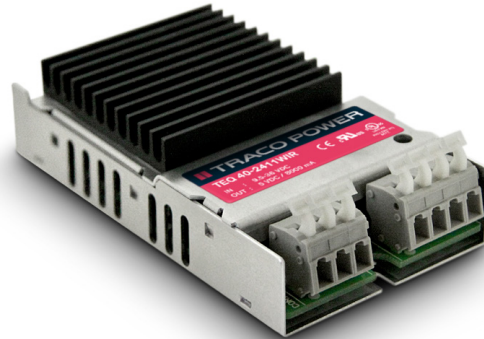
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



- High power block with excellent thermal convection
- Operating temperature -40°C to +92°C
- Ultra wide 4:1 input voltage range
- EN 50155 approval for railway applications
- Excellent efficiency up to 91%
- Input filter meet EN 55032 class B
- I/O isolation up to 3000 VDC
- Under voltage lock-out circuit
- Protection against overvoltage, over-temperature and short circuit
- Output LED indicator



The TEQ-40WIR Series is a family of isolated high performance dc-dc converter modules with ultra-wide 4:1 input voltage ranges which come in a rugged metal case. These converters are suitable for a wide range of applications, but the product is designed particularly also for industrial applications where often no PCB mounting is possible but the module has to be mounted on a chassis. A very high efficiency and the heatsink construction allows an operating temperature up to +83°C with natural convection cooling without power derating and up to +92°C with power derating. Further features include under voltage lockout, over temperature protection and short circuit protection.

Models				
Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TEQ 40-2411WIR	9.5 - 36 VDC (nominal 24 VDC)	5 VDC	8.0 A	90 %
TEQ 40-2412WIR		12 VDC	3.33 A	91 %
TEQ 40-2413WIR		15 VDC	2.67 A	91 %
TEQ 40-2415WIR		24 VDC	1.67 A	90 %
TEQ 40-4811WIR	18 - 75 VDC (nominal 48 VDC)	5 VDC	8.0 A	90 %
TEQ 40-4812WIR		12 VDC	3.33 A	91 %
TEQ 40-4813WIR		15 VDC	2.67 A	91 %
TEQ 40-4815WIR		24 VDC	1.67 A	90 %
TEQ 40-7211WIR	43 - 160 VDC (nominal 110 VDC)	5 VDC	8.0 A	88 %
TEQ 40-7212WIR		12 VDC	3.33 A	89.5 %
TEQ 40-7213WIR		15 VDC	2.67 A	90 %
TEQ 40-7215WIR		24 VDC	1.67 A	89 %

Input Specifications

Input current no load	24 Vin models: 19 mA typ. 48 Vin models: 14 mA typ. 110 Vin models: 10 mA typ.
Surge voltage (1 s max.)	24 Vin models: 50 VDC max 48 Vin models: 100 VDC max. 110 Vin models: 170 VDC max.
Start-up voltage	24 Vin models: 9.5 VDC (or lower) 48 Vin models: 18 VDC (or lower) 110 Vin models: 43 VDC (or lower)
Under voltage shut down	24 Vin models: 8 VDC typ. 48 Vin models: 16 VDC typ 110 Vin models: 40 VDC typ.
Inrush current	15 A typ.
Input fuse	24 Vin models: 8 A (fast acting) 48 Vin models: 4 A (slow blow) 110 Vin models: 2 A (slow blow)
EMC emissions	– Conducted and radiated input suppression EN 55032 class B (internal filter)
EMC immunity	– Electrostatic discharge ESD EN 61000-4-2, air ± 8 kV, contact ± 6 kV, perf. criteria A – Radiated immunity EN 61000-4-3, 20 V/m, perf. criteria A – Fast transient EN 61000-4-4, ± 2 kV, perf. criteria A – Surge EN 61000-4-5, ± 1 kV perf. criteria A – Conducted immunity EN 61000-4-6, 10 Vrms, perf. criteria A – Magnetic field immunity EN 61000-4-8, 100 A/m, perf. criteria A

Output Specifications

Voltage set accuracy	± 1 %
Regulation	– Input variation (Vin min. to Vin max.) – Load variation (0 to 100 %) 5 Vout models: 0.5 % max. 1.5 % max. other models: 1.0% max.
Temperature coefficient	± 0.02 %/K typ.
Start up time (constant resistive load)	100 ms typ.
Hold up time	10 ms min. (acc. EN50155 class S2)
Minimum load	not required
Ripple and noise (20 MHz Bandwidth)	5 Vout models: 75 mVp-p max. 12 & 15 Vout models: 100 mVp-p max. 24 Vout models: 150 mVp-p max.
Transient response (25% load step change)	250 μ s typ.
Over voltage protection	5 Vout models: at 6.2 VDC typ. 12 Vout models: at 15 VDC typ. 15 Vout models: at 20 VDC typ. 24 Vout models: at 30 VDC typ.
Output indicator	green LED
Current limitation	at 150 % of rated lout max., hiccup mode
Short circuit protection	continuous, automatic recovery
Capacitive load	5 Vout models: 20'000 μ F 12 Vout models: 3'900 μ F 15 Vout models: 2'600 μ F 24 Vout models: 1'300 μ F

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

General Specifications

Temperature ranges	<ul style="list-style-type: none"> – Operating (natural convection: 20 LFM, 0.1 m/s) – Storage temperature 	–40°C to +83°C (without derating) –40°C to +92°C (with derating) –40°C to +105°C
Derating	<ul style="list-style-type: none"> – Natural convection – Natural convection, with 2U base plate* 	5.0 %/K above 80°C (depending on model) 6.7 %/K above 85°C (depending on model)
Over temperature protection		at 115°C typ.
Mechanical shock		acc. EN61373, MIL-STD-810F
Thermal shock		acc. MIL-STD-810F
Vibration		acc. EN61373, MIL-STD-810F
Humidity (non condensing)		5 – 95 % rel H max.
Isolation voltage (60 s)	<ul style="list-style-type: none"> – Input/Output to Case – Input to Output 	1'600 VDC 110 Vin models: 3'000 VDC other models: 1'600 VDC
Isolation capacitance (input/output)		5'000 pF typ.
Isolation resistance (input/output)		>1 GOhm
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)		1'000'000 h
Switching frequency		225 – 275 kHz (PWM)
Safety standards & approvals	<ul style="list-style-type: none"> – CB test certificate – UL online certification E188913, OQGO2 – Railway immunity – Certification documents 	IEC/EN 60950-1 UL 60950-1 EN 50155 www.tracopower.com/overview/teq40wir
Environmental compliance	<ul style="list-style-type: none"> – Reach – RoHS – Flamability identified acc. EN 45545-2 	www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU www.tracopower.com/info/en45545-declaration.pdf

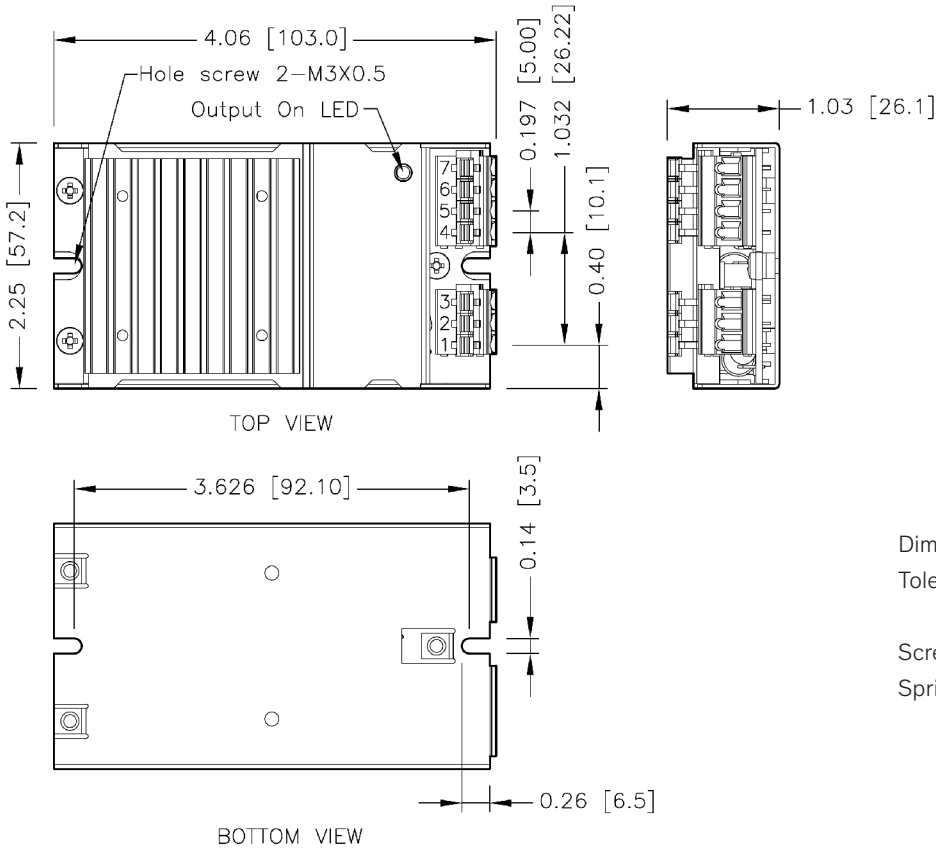
Physical Specifications

Casing material	aluminium
Package weight	129 g (4.55 oz)

* The 2U iron base-plate dimension is 19" x 3.5" x 0.063" (48.26 × 8.89 × 0.16 mm)

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

Outline Dimensions



Terminal connection	
Terminal	
1	+Vin
2	-Vin (GND)
3	NC
4	NC
5	-Vout
6	+Vout
7	NC

Dimensions in Inch [mm]
 Tolerances: x.x ±0.02 [±0.5]
 x.xx ±0.01 [±0.25]
 Screw max. torque: 5.0 kgf - cm (0.49 Nm)
 Spring terminals: 12 - 18 AWG