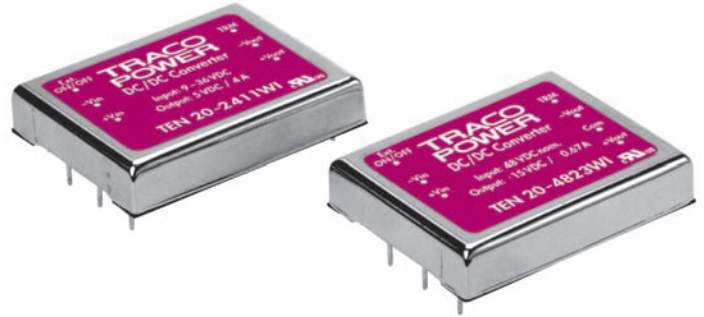


not recommended for new design in

Features

- ◆ Ultra wide 4 : 1 input range
- ◆ Extended operating temperature range
-40°C to +85°C
- ◆ I/O isolation 1500 VDC
- ◆ Input filter meets EN 55022, class A and FCC, Level A
- ◆ Remote On/Off
- ◆ Adjustable output
- ◆ Industry standard footprint
- ◆ Shielded metal case with insulated baseplate
- ◆ Optional heatsink
- ◆ Lead free design - RoHS compliant
- ◆ 3-year product warranty



The TEN 20WI series is a family of high performance 20W DC/DC converter modules featuring ultra wide 4:1 input voltage ranges in a compact 2" x 1.6" low profile package with industry-standard footprint. A very high efficiency allows an operating temperature range of -40°C to 85°C. A built-in EMI input filter complies with EN 55022, class A. Further standard features include remote On/Off, output voltage trimming, over voltage protection and short-circuit protection.

Typical applications for these converters are battery operated equipment and distributed power architectures in communication and industrial electronics, everywhere where isolated, tightly regulated voltages are required.

Models

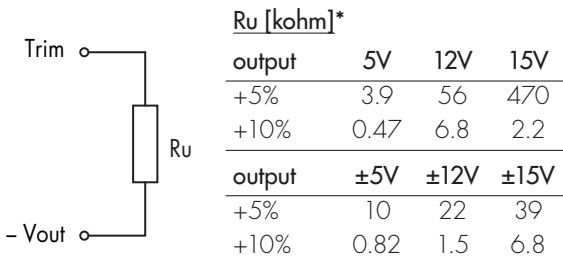
Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEN 20-2411WI	9 – 36 VDC (24 VDC nominal)	5 VDC	4'000 mA	79 %
TEN 20-2412WI		12 VDC	1'670 mA	81 %
TEN 20-2413WI		15 VDC	1'330 mA	81 %
TEN 20-2421WI		±5 VDC	±2'000 mA	79 %
TEN 20-2422WI		±12 VDC	±835 mA	81 %
TEN 20-2423WI		±15 VDC	±665 mA	82 %
TEN 20-4811WI	18 – 75 VDC (48 VDC nominal)	5 VDC	4'000 mA	80 %
TEN 20-4812WI		12 VDC	1'670 mA	81 %
TEN 20-4813WI		15 VDC	1'330 mA	81 %
TEN 20-4821WI		±5 VDC	±2'000 mA	79 %
TEN 20-4822WI		±12 VDC	±835 mA	83 %
TEN 20-4823WI		±15 VDC	±665 mA	84 %

General Specifications

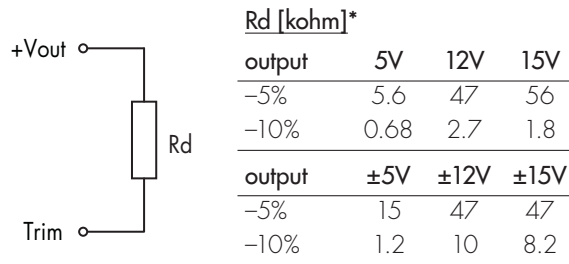
Isolation voltage (60 sec)	- Input/Output	1'500 VDC
Isolation capacity	- Input/Output	300 pF typ.
Isolation resistance	- Input/Output (500 VDC)	>1'000 M Ohm
Switching frequency (fixed)		300 kHz typ. (Pulse width modulation PWM)
Vibration		10–55Hz, 2G, 30 minutes along X,Y,Z
Remote On/Off	- ON: - OFF: - OFF idle current:	3.5 ... 12 VDC or open circuit. 0 ... 1.2 VDC or short circuit pin 3 and pin 2 20 mA typ.
Safety standards		UL 1950, EN 60950-1, IEC 60950-1 compliance up to 60 VDC input voltage (SELV limit)
Safety approvals	- UL/cUL	www.ul.com > UL File no.: E188913

Output Voltage Adjustment

Trim up

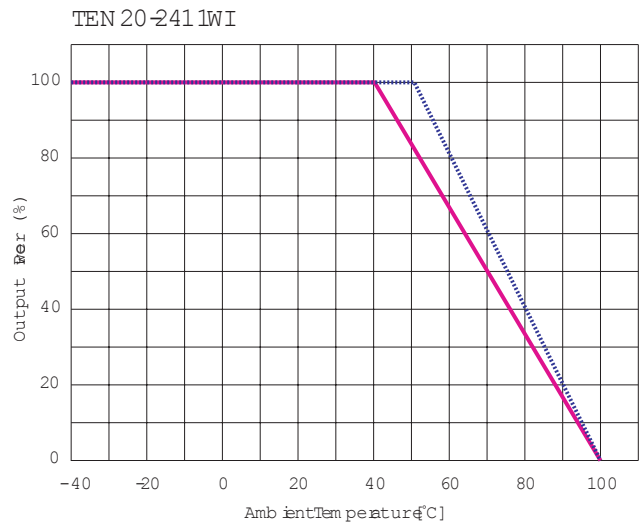
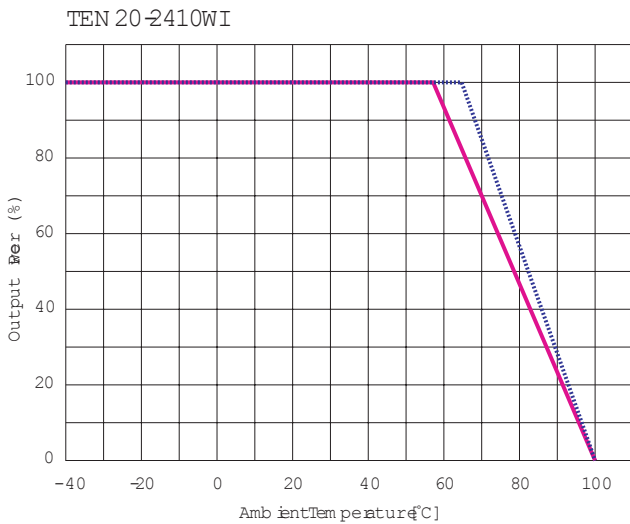
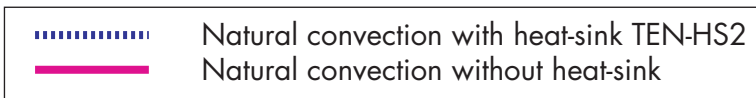


Trim down



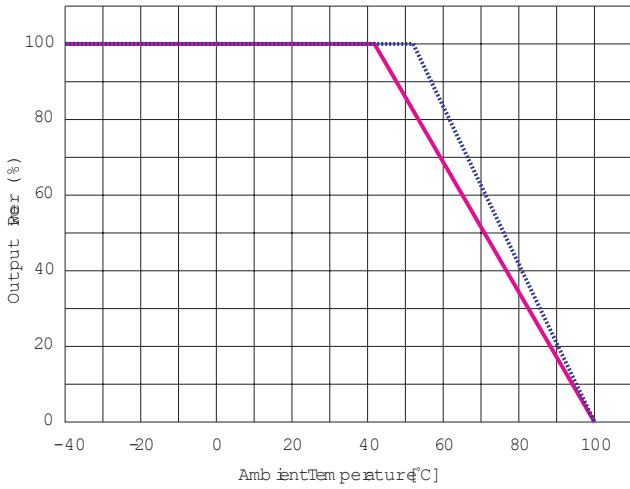
*approximate values

Power De-rating

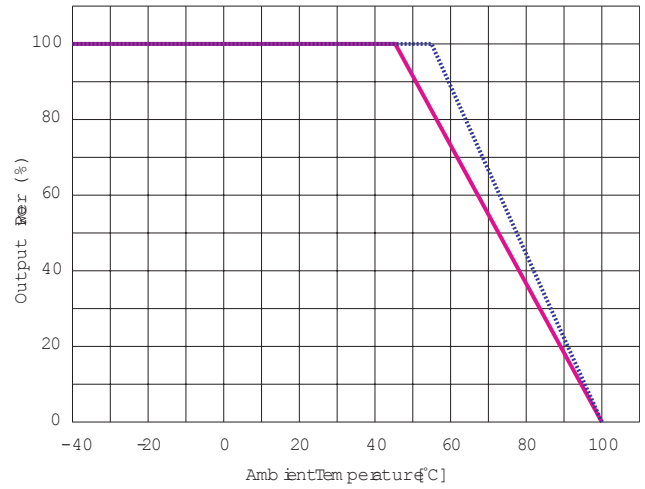


Power De-rating

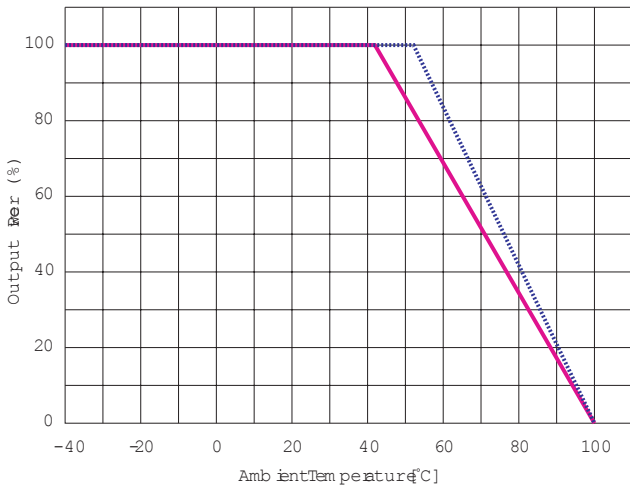
TEN 20-2412WI



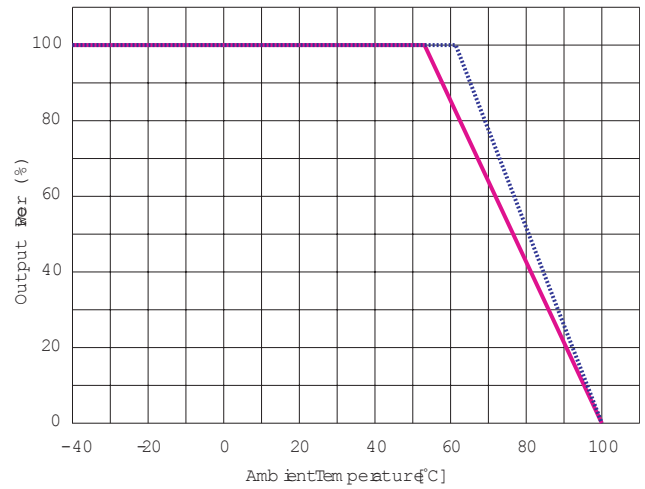
TEN 20-2413WI



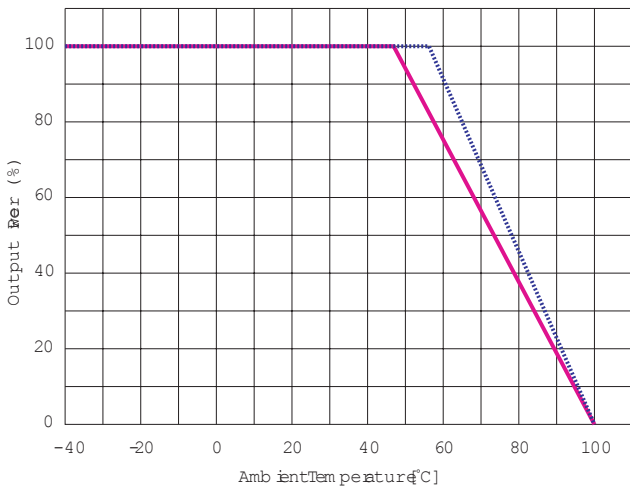
TEN 20-2421WI



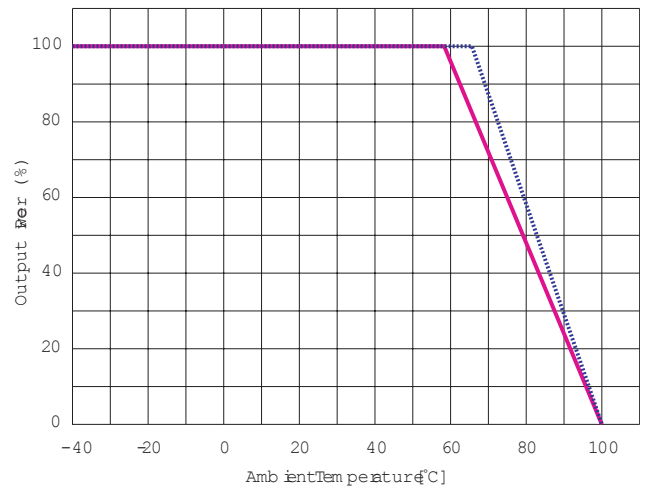
TEN 20-2422WI



TEN 20-2423WI

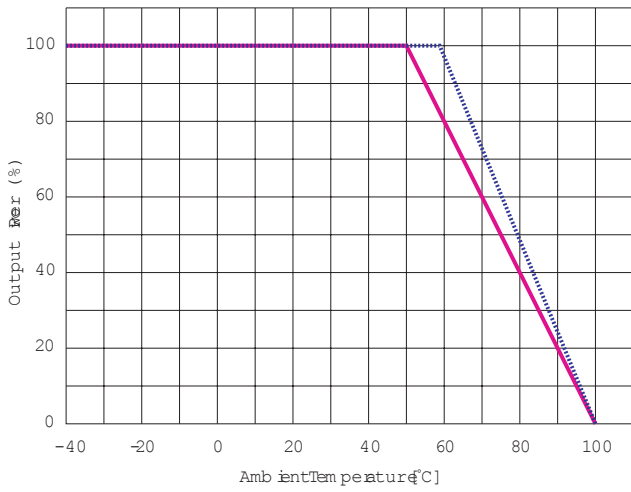


TEN 20-2410WI

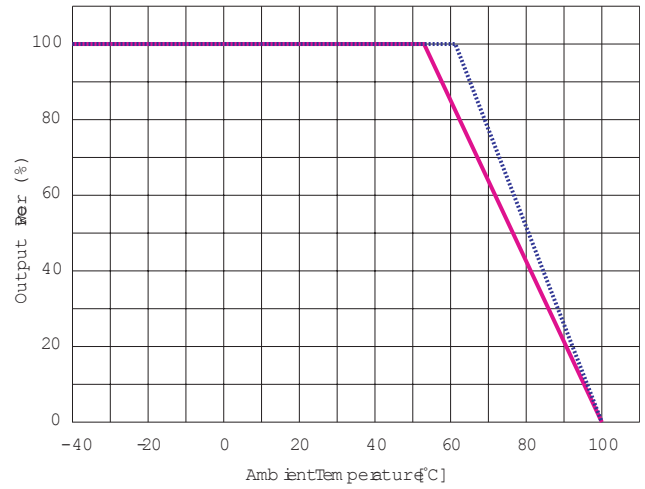


Power De-rating

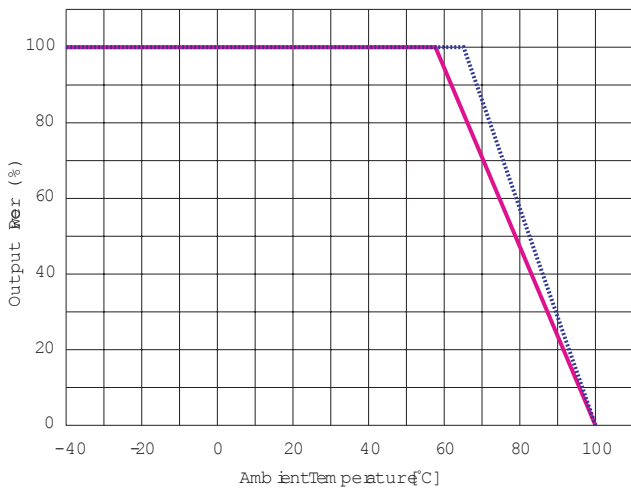
TEN 20-~~11~~1WI



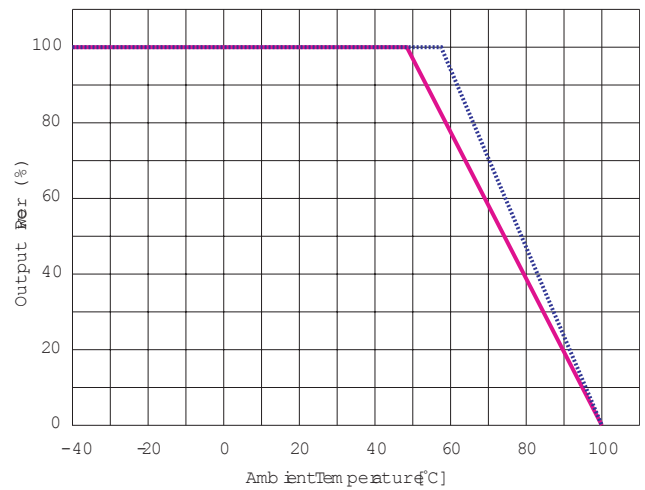
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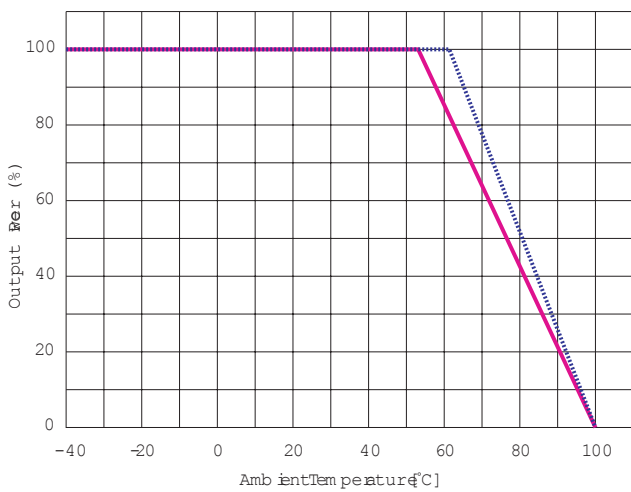
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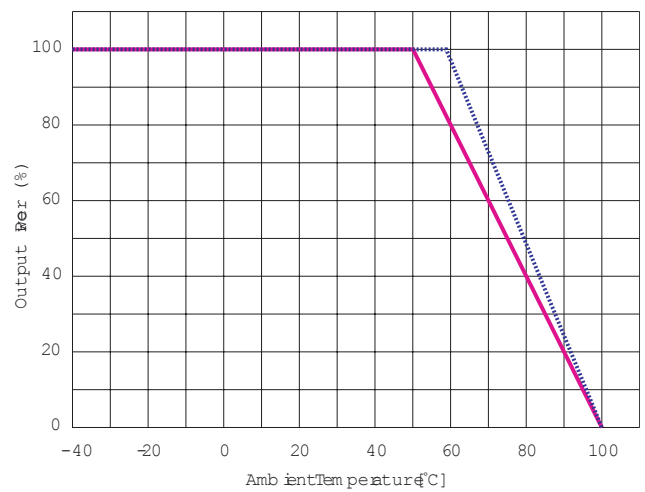
TEN 20-~~21~~1WI



TEN 20-~~22~~1WI



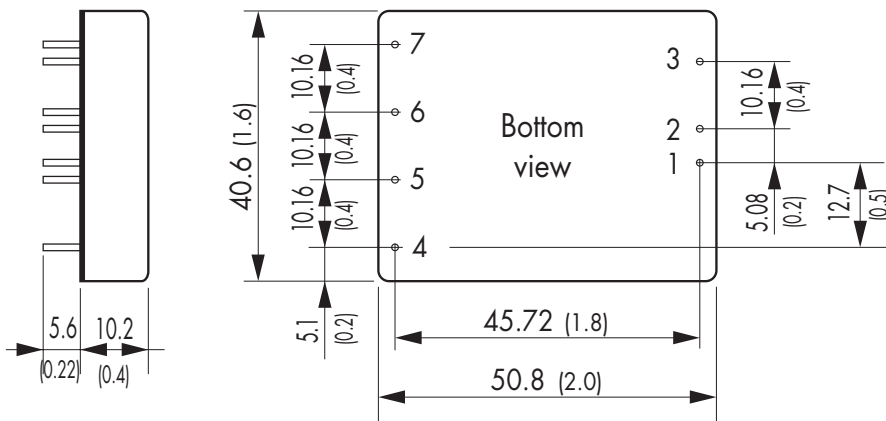
TEN 20-~~23~~1WI



Physical Specifications

Casing material	copper, nickel plated
Baseplate material	non conductive FR4
Potting material	epoxy (UL 94V-0 rated)
Weight	50 g (1.2 oz)
Soldering temperature	max. 265°C / 10 sec.

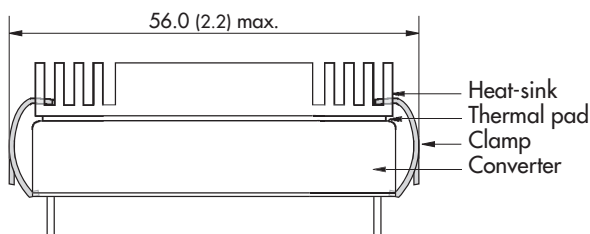
Outline Dimensions



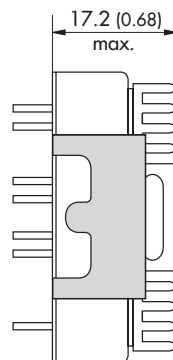
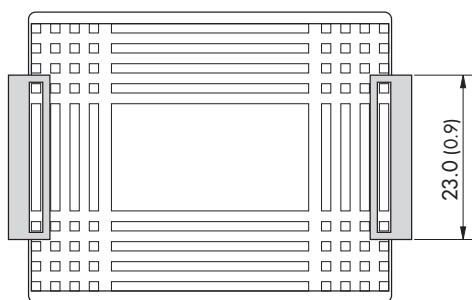
Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
3	Remote On/Off	
4	No pin	+Vout
5	+Vout	Common
6	-Vout	-Vout
7	Trim	

Dimensions in [mm], () = Inch
 Pin diameter: 1.0 ±0.05 (0.02 ±0.002)
 Pin pitch tolerances: ±0.35 (±0.014)
 Casing tolerances: ±0.5 (±0.02)

Heat-sink TEN-HS2



Order code: TEN-HS2
 (cont.: heat-sink, thermal pad, 2 clamps)
Material: Aluminum
Finish: Anodic treatment (black)
Weight: 19 g (0.67oz) (without converter)



Note:
 The product label on converter has to be removed before mounting the heat-sink.
 For volume orders converters will be supplied with heat-sinks already mounted.
 Please contact factory for quotation.
 Separate heat-sinks are only available for prototypes and small quantity orders.

Specifications can be changed any time without notice.