



TecBoost

TB9816/9817/9818  
DC/DC Converter

## TB9816/9817/9818 DC/DC Converter

Compact DIP package 12.7 x 11.3 x 7.4 mm

Fully regulated outputs

Operating temperature range

–40°C to +85°C without derating

PowerGood indication

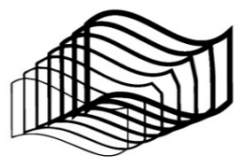
Remote On/Off

Designed for a up/down converting and  
minimum load is not required.



The TB 2W Series comprises 2 Watt fully regulated, high performance DC/DC converters. They come in a compact cubical package of only 0.52 cm<sup>3</sup>. Full load operation is reliable up to 60°C environment temperature. With I/O isolation, external On/Off, and PowerGood indication they cover a wide range of application when space is limited. The input of the converters is designed for a wide voltage range (4:1) and minimum load is not required.

Order Code	Input voltage	Out Voltage 1	Out Voltage 2	Out Voltage 3	Power
TB9816-50-90	4.5 – 5.5 VDC (5 VDC nominal)	9.0 VDC	Reserved	Reserved	2 W
TB9816-50-84		8.4 VDC	Reserved	Reserved	2 W
TB9816-50-72		7.2 VDC	Reserved	Reserved	2 W
TB9816-50-60		6.0 VDC	Reserved	Reserved	2 W
TB9816-50-50		5.0 VDC	Reserved	Reserved	2 W
TB9816-50-33		3.3 VDC	Reserved	Reserved	2 W
TB9817-50-90	4.5 – 5.5 VDC (5 VDC nominal)	9.0 VDC	4.5 VDC	Reserved	2.5 W
TB9817-50-84		8.4 VDC	4.2 VDC	Reserved	2.5 W
TB9817-50-72		7.2 VDC	3.6 VDC	Reserved	2.5 W
TB9817-50-60		6.0 VDC	3.3 VDC	Reserved	2.5 W
TB9817-50-50		5.0 VDC	2.5 VDC	Reserved	2.5 W
TB9817-50-33		3.3 VDC	1.8 VDC	Reserved	2.5 W
TB9818-50-90	4.5 – 5.5 VDC (5 VDC nominal)	9.0 VDC	4.5 VDC	3.6 VDC	3.0 W
TB9818-50-84		8.4 VDC	4.2 VDC	3.0 VDC	3.0 W
TB9818-50-72		7.2 VDC	3.6 VDC	2.5 VDC	3.0 W
TB9818-50-60		6.0 VDC	3.3 VDC	3.0 VDC	3.0 W
TB9818-50-50		5.0 VDC	2.5 VDC	1.8 VDC	3.0 W
TB9818-50-33		3.3 VDC	1.8 VDC	1.2 VDC	3.0 W



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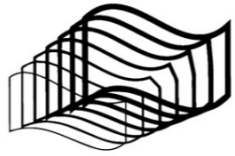
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Input Specifications		
Input current no load	5.0 VDC typ.	7 mA max.
Surge voltage (1 sec. max.)	5.0 VDC typ.	15 V max.
Reflected ripple current	5.0 VDC typ.	20 mA <sub>p-p</sub> typ.
ESD (electrostatic discharge)	EN 61000-4-2, air ±15 kV, contact ±8 kV, perf. criteria B	
Radiated immunity	EN 61000-4-3, 10 V/m, perf. criteria B	
Fast transient / surge (with external input capacitor)	EN 61000-4-4, ±1 kV, perf. criteria B	
–external input capacitor	EN 61000-4-5, ±1 kV perf. criteria B Capacitor 100uF/16V	
Conducted immunity	EN 61000-4-6, 3 V <sub>rms</sub> , perf. criteria B	
Logic voltage V <sub>dd</sub>	3.0 to 3.3 VDC	

Output Specifications		
Voltage set accuracy		±1 % max.
Start up time	– Power ON	10 ms max.
(constant resistive load)	– Remote ON	10 ms max.
Capacitive load	–Single output	820 µF max.
	–Dual output	470 µF max. (each output)
	–Triple output	270 µF max. (each output)

General Specifications		
Temperature ranges	– Operating	–40°C to +85°C
	– Case temperature	+95°C max.
	– Storage temperature	–55°C to +125°C
Derating		6.7%/K above 60°C
Humidity (non condensing)		5 – 95 % rel H max.
Isolation voltage	– I/O isolation voltage (60 sec.)	1500 VDC
Isolation capacitance		50 pF max.
Isolation resistance	(@ 500 VDC)	>1 Gohm
Reliability	calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)	8,400,000 h
Switching frequency		100 kHz min.
Thermal shock & vibration		MIL-STD-810F
Remote On/Off	–On:	'1' >2.5Vdc
	–Off:	'0' < 0.8Vdc
PowerGood indication	Good: Supply voltage and current in range	'1' >2.5Vdc
	Error: Under Voltage, Over Voltage, current limit reached	'0' < 0.8Vdc
Environmental compliance	– RoHS	RoHS directive 2011/65/EU

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



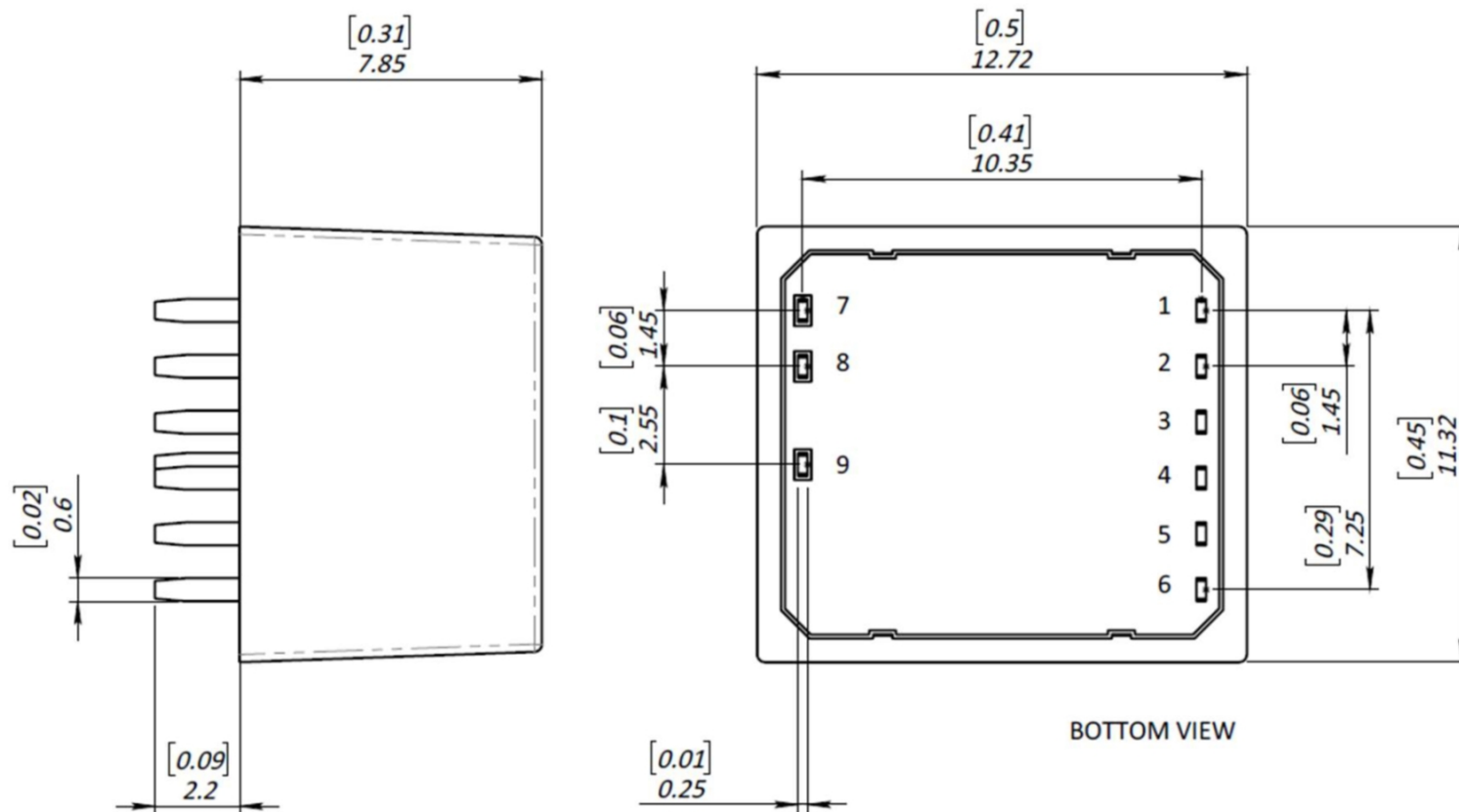
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**Physical Specifications**

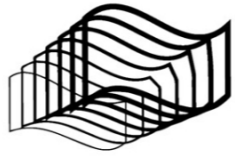
Casing material	non-conducting plastic	
Potting material	epoxy (UL 94V-0 rated)	
Package weight	2.7g (0.10oz)	
Soldering temperature	wave soldering	max. 260°C / 6 sec

**Outline Dimensions**



Dimensions in mm [inch]  
 Tolerances: x.x±0.25 [±0.01]  
 Pin pitch tolerances: ±0.25 [±0.01]  
 Pin dimension tolerance ±0.1 [±0.004]

Pin-out			
	TB9816	TB9817	TB9818
Pin	Single	Dual	Triple
1	Vout-common		
2	PowerGood ind.		
3	Vinput-positive		
4	Vinput-common		
5	Remote on/off		
6	Vout1	Vout1	Vout1
7	Reserved	Vout2	Vout2
8	Vdd		
9	Reserved	Reserved	Vout3

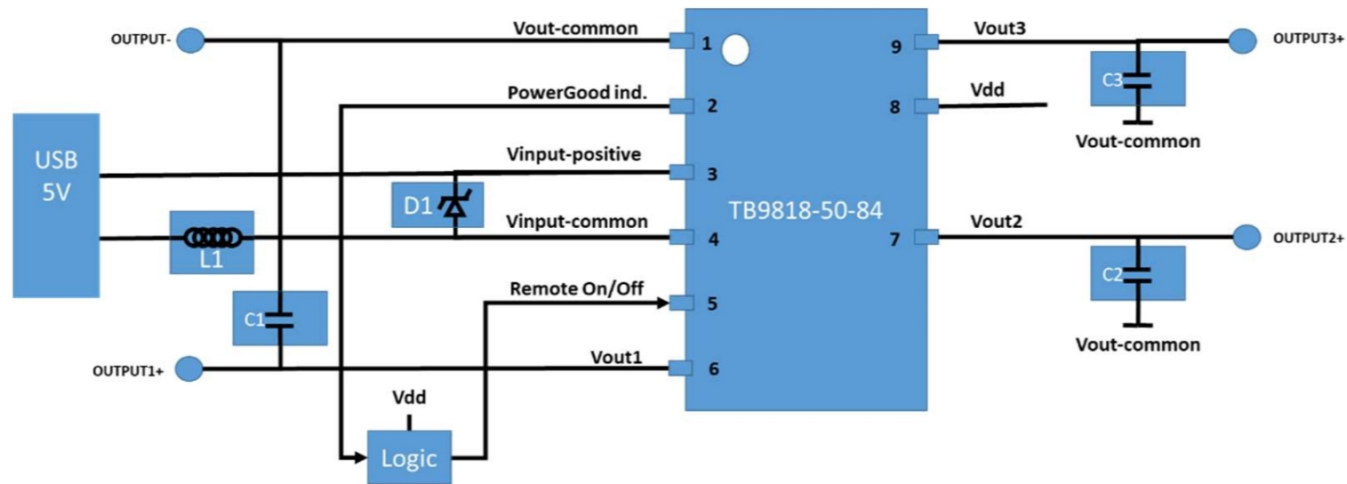


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Application note

Typical application triple output:



Recommended values

Vin	C1, C2, C3	L1	D1
5VDC	100uF/16V X7R	4.7uH/200mA/DCR 0.320hm	30pF 30kV bidirectional Discrete TVS

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