

FEATURES

- 53.5 x 34 mm package size
- Wide input voltage range 4 – 38 VDC
- Up to 98% efficiency
- Adjustable output voltage
- No minimum load required
- Operating temperature range
-40°C to +85 °C
- 400 kHz switching frequency
- Power Good output voltage monitor
- Under voltage lockout



APPLICATIONS

- Power management
- High power battery-operated devices
- Measurement equipment

DESCRIPTION

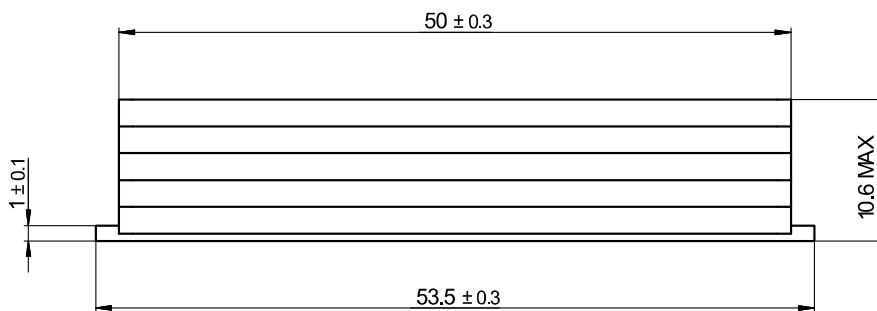
The TL-BBC01 is a high performance up to 200 W DC/DC buck-boost converter modules featuring wide input voltage ranges in a shielded metal package. Standard features include over voltage protection, under voltage lockout, short circuit protection and power good output. High efficiency across load range and low input current characteristics at no load make these converters the ideal solution for battery-operated systems.

SPECIFICATIONS

Input		
Voltage range		4 – 38 V
Max input current		10 A
Efficiency (typ.)		95%
Idle current		150 mA
Output		
Nominal output voltage		33 V
Voltage range		0.8 – 38 V
Current range		0 – 10 A
Rated power		200 W
Voltage set accuracy		±1 %
Minimum load		not required
General		
Environment	Operating temp.	-40°C to 85°C
	Storage temp.	-55°C to 125°C
	Operating humidity	10-95% RH (Non-Condensing)
Casing material		anodized aluminum
Dimensions		53.5x34 x10.6mm (L x W x H)
Weight		60 g

OUTLINE DIMENSIONS

Dimensions in mm.



PIN DESCRIPTIONS

Pin	Name	Description
1	V_{IN}	Supply input
2, 5	GND	Ground
3	V_{FB}	Error Amplifier Feedback Pin. Receives the feedback voltage from an external resistive divider across the output.
4	V_{OUT}	Output voltage
6	PGOOD	Power Good pin. When V_{FB} is not within $\pm 10\%$ of the 0.8V reference

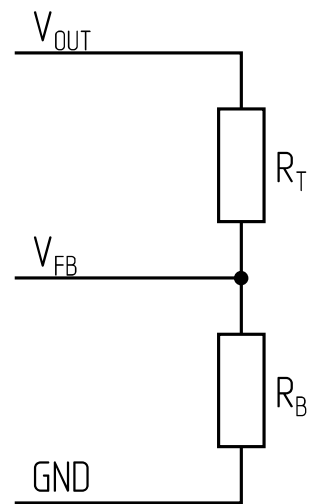
voltage, the PGOOD pin is pulled low. There is an internal 20µs power good or bad mask when V_{FB} goes in or out of the $\pm 10\%$ window.

OUTPUT VOLTAGE ADJUSTMENT

Output voltage set point adjustment allows the user to increase or decrease the output voltage set point of a module. This is accomplished by connecting an external resistor between the VFB pin and either the VOUT or GND pins. With an external resistor between the VFB and GND pin, the output voltage set point increases. With an external resistor between the VFB and VOUT pin, the output voltage set point decreases.

$$R_T = \frac{330 (V_{OUT} - 0.8)}{33 - V_{OUT}} (k\Omega)$$

$$R_B = \frac{264}{V_{OUT} - 33} (k\Omega)$$



$V_{OUT} < 33 \text{ V} (R_B = 0)$										
V_{OUT}, V	1	1,5	1,8	3	3,3	4,5	5	6	9	12
$R_T, \text{k}\Omega$	2,06	7,33	10,58	24,20	27,78	42,84	49,50	63,56	112,75	176,00
V_{OUT}, B	15	17	20	21	22	24	26	28	30	32
$R_T, \text{k}\Omega$	260,33	334,13	487,38	555,50	636,00	850,67	1188,00	1795,20	3212,00	10296,00
$V_{OUT} > 33 \text{ V} (R_T = 0)$										
V_{OUT}, B	33,5	34	34,5	35	35,5	36	36,5	37	37,5	38
$R_B, \text{k}\Omega$	528,00	264,00	176,00	132,00	105,60	88,00	75,43	66,00	58,67	52,80

RECOMMENDED FOOTPRINT

Dimensions in mm.

