



BD10019

6.4W TRIPLE DC/DC CONVERTER

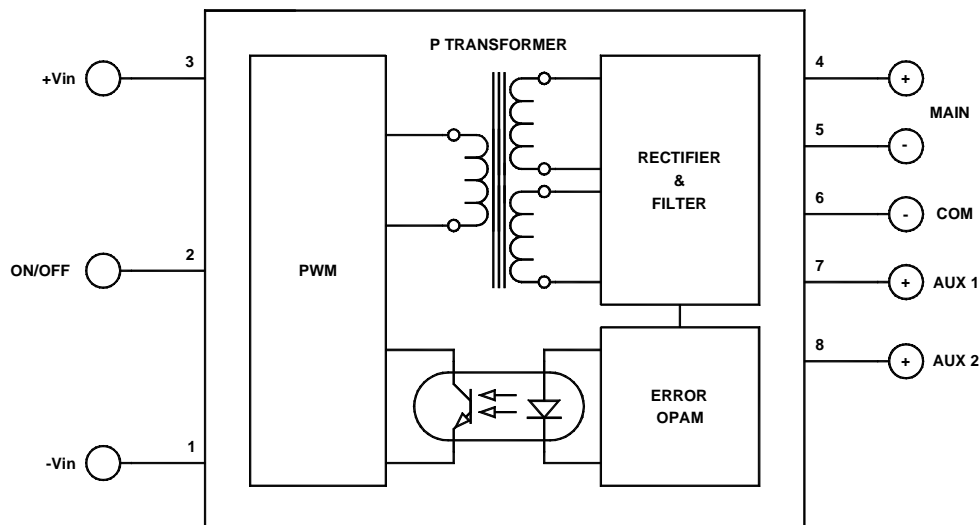
Key Features

- Input-to-output isolation
- Soft start
- Hot pluggable
- Input Pi filter
- Short circuit and thermal protection
- 50 μ A off state current
- Wide input voltage range (30–75Vdc)
- EMI six-sided shielding



Functional Description

The BD10019 is a 6.4W Triple DC/DC Converter in a 2x1x0.395-inch package that provides 2.2V_{OUT}@1100mA, 3.3V_{OUT}@840mA and 12V_{OUT}@100mA with an operating temperature range from -40°C to +70°C. The 2.2V_{OUT} is isolated from input to output and from the other two outputs.



Typical Block Diagram

Electrical Specifications

Unless otherwise specified, all parameters are given under typical +25°C with nominal input voltage and under full output load conditions.

INPUT SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Input Voltage Range		30	48	75	Vdc
No Load Input Current			5		mA
Full Load Input Current	$V_{IN} = 48V$, All outputs fully loaded		160		mA
Input Filter	π (Pi)				
Reflected Ripple Current			100		mA _{PP}
Reverse Voltage Protection	Parallel diode		5		A
On/Off	Reference to $-V_{IN}$				
Voltage	Open		10		Vdc
Unit On	Open				
Unit Off	Short to $-V_{IN}$				
Off State Current	Pin 2 short to Pin 3		75	150	μ A
Turn On Delay	Including soft start		5	8	mS
Startup Input Voltage		11	16		Vdc

OUTPUT SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
2.2V OUTPUT (MAIN)					
Output Voltage Accuracy			1		%
Output Current		400	840	1100	mA
Ripple & Noise (20MHz BW)			1	3	% of V_{OUTPP}
Line Regulation	Outputs fully loaded		200		mV
Load Regulation	See Figure 1		1		%
OVP			2.7		Vdc
3.3V OUTPUT (AUX1)					
Output Voltage Accuracy			5		%
Output Current		350	550	840	mA
Ripple & Noise (20MHz BW)					% of V_{OUTPP}
Line Regulation	Outputs fully loaded		200		mV
Load Regulation	See Figure 1		5		%
OVP			5.1		Vdc
12V OUTPUT (AUX2)					
Output Voltage Accuracy			5		%
Output Current		10	40	100	mA
Ripple & Noise (20MHz BW)			200		mV
Line Regulation	Outputs fully loaded				%
Load Regulation	See Figure 1				%
OVP			15		Vdc
Temperature Coefficient @ FL			± 0.02		%/°C
Short Circuit Protection	Continuous, Current limit				
Short Circuit Restart	Automatic				
Transient Response (to within 1% of V_{OUT})	50% FL to 100% FL to 50% FL		100	200	μ S

GENERAL SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Efficiency		78	81		%
Isolation Voltage (1 min.)		500	1000		Vdc
Isolation Resistance			10^9		Ω
Isolation Capacitance			300		pF
Switching Frequency		108	125	130	kHz

ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Operating Temperature Range (Ambient)		-40		+70	°C
Storage Temperature Range		-55		+125	°C
Derating	None required				
Thermal Protection, Turn Off*	Junction temperature		145		°C
Thermal Hysteresis			30		°C
Humidity	Up to 95% non-condensing				
Cooling	Free air convection				
MTBF**			1,245		years

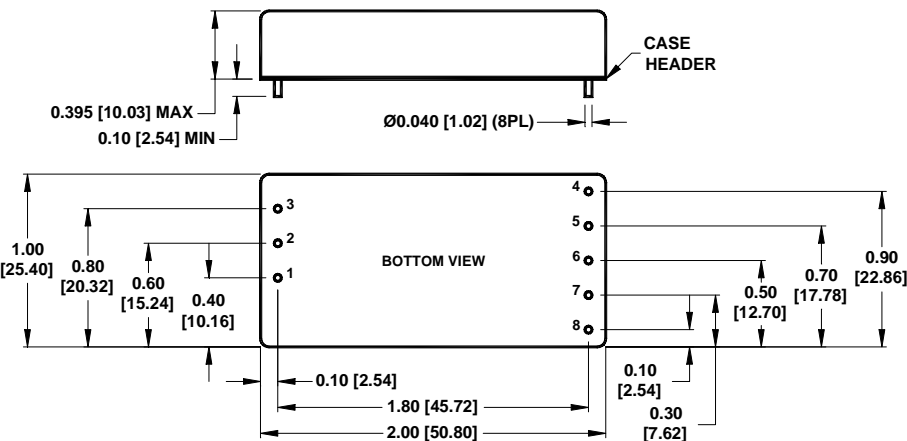
* Input power must be recycled after thermal turn off.

** Based on manufacturer's reliability data. Measured at 70°C, confidence = 60% and activation energy = 0.7eV.

PHYSICAL CHARACTERISTICS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Dimensions (LxWxH)	2.00x1.00x0.395 in. (50.80x25.40x10.03mm)				
Weight	1.04 oz. (30g)				
Case Material	Coated metal				
Shielding	Six-sided continuous				
Case Connection	+V _{IN} (Pin 3)				

MECHANICAL SPECIFICATIONS



Pin	Function
1	-V _{IN}
2	ON/OFF
3	+V _{IN}
TRIPLE	
4	+2.2V _{OUT}
5	-2.2V _{OUT}
6	GND (for +3.3V _{OUT} & +12V _{OUT})
7	+3.3V _{OUT}
8	+12V _{OUT}

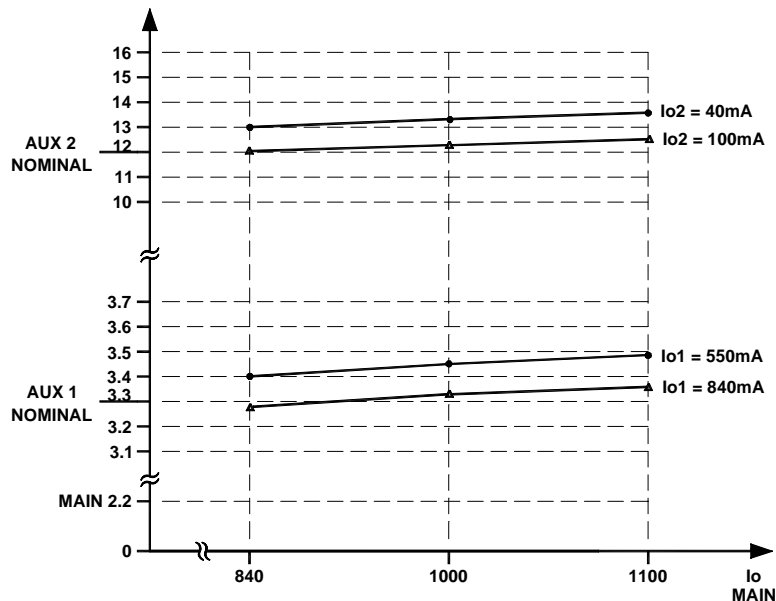


FIGURE 1. Load regulation of BD10019