



BD36000

36W DUAL DC/DC CONVERTER

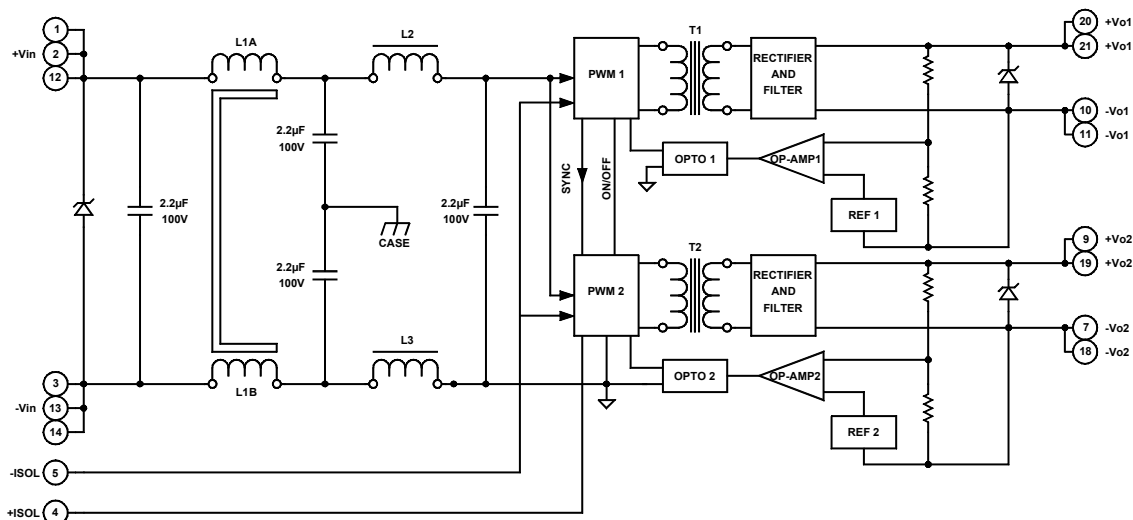
Key Features

- Input-to-output isolation
- Output-to-output isolation
- Soft start
- Common-mode and π filter
- Short circuit protection
- 1mA off state current
- Wide input voltage range (36–75Vdc)
- EMI six-sided shielding
- ON/OFF control



Functional Description

The BD36000 is a dual output DC/DC converter that operates from 36–75V_{IN} and provides 36W of output power. The BD36000 has two outputs: 3.3V_{OUT}@1A for V_{O1} and 35V_{OUT}@0.93A for V_{O2}. The converter is packaged in a 1.49×1.465×1.50-inch nickel-plated aluminum case. Input and output connections are established through a 21-pin AirBorn Micro series connector.



Typical Block Diagram of BD36000-35

Electrical Specifications

INPUT SPECIFICATIONS

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

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Input Voltage Range (2:1)		36	48	75	Vdc
Input Filter	Common-mode or π filter				
Input Overvoltage Protection	Parallel zener		80		Vdc
Undervoltage Shutdown			10		Vdc
Startup Input Voltage		28	32		Vdc
Reflected Ripple Current	See Figure 3		4		mA _{PP}
Reverse Voltage Protection	Parallel Diode		10		A
On/Off	Reference to Pin 5				
Logic Compatibility	TTL Open Collector or CMOS Open Drain				
Voltage (At Pin 4)	Open, See Figure 1		10		Vdc
Unit On	Open		10		Vdc
Unit Off	Pin 4 short to Pin 5 (GND)		0	0.8	Vdc
Off State Current	Pin 4 short to Pin 5 (GND)		500	1000	μ A
Turn On Delay	Including soft start		3	10	mS

OUTPUT SPECIFICATIONS, BD36000-35

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
3.3V_{OUT}					
Output Voltage Accuracy			1	2	%
Output Current			1		A
Ripple & Noise (20MHz BW)	See Figure 2		1	3	% of V _{OUTPP}
Line Regulation	Outputs fully loaded		1	2	%
Load Regulation	0 FL to FL		1	3	%
OVP			3.9		Vdc
35V_{OUT}					
Output Voltage Accuracy			1	2	%
Output Current			930		mA
Ripple & Noise (20MHz BW)			1	2	% of V _{OUTPP}
Line Regulation	Outputs fully loaded		1		%
Load Regulation	10% FL to FL		1		%
OVP			39		Vdc
Temperature Coefficient @ FL			\pm 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, BD36000-35	V _{O1} = 3.3V, V _{O2} = 35V		82		%
Isolation Voltage (1 min.), Input to Output		500	1000		Vdc
Isolation Voltage (1 min.), Output to Output			500		Vdc
Isolation Resistance			10 ⁹		Ω
Isolation Capacitance	External		4700		pF
Switching Frequency			330		kHz

ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Operating Temperature Range (Ambient)	With heat sink	-55		+85	°C
Storage Temperature Range		-60		+125	°C
Derating	None required (Case will be connected to a metal plate)				
Humidity	Up to 95% non-condensing				
Cooling	Free-air convection				
MTBF	per MIL-HNBK-217F (Ground benign, +25°C)		518,000		hours

PHYSICAL CHARACTERISTICS

PARAMETER	CONDITION / NOTE	MIN	TYP	MAX	UNIT
Dimensions (L×W×H)	1.490×1.465×1.500 in. (37.85×37.21×38.10mm)				
Weight	3.54 oz. (100.5g)				
Case Material	Nickel-plated aluminum				
Shielding	Six-sided continuous				
Case Connection	Input filter, Y connection				

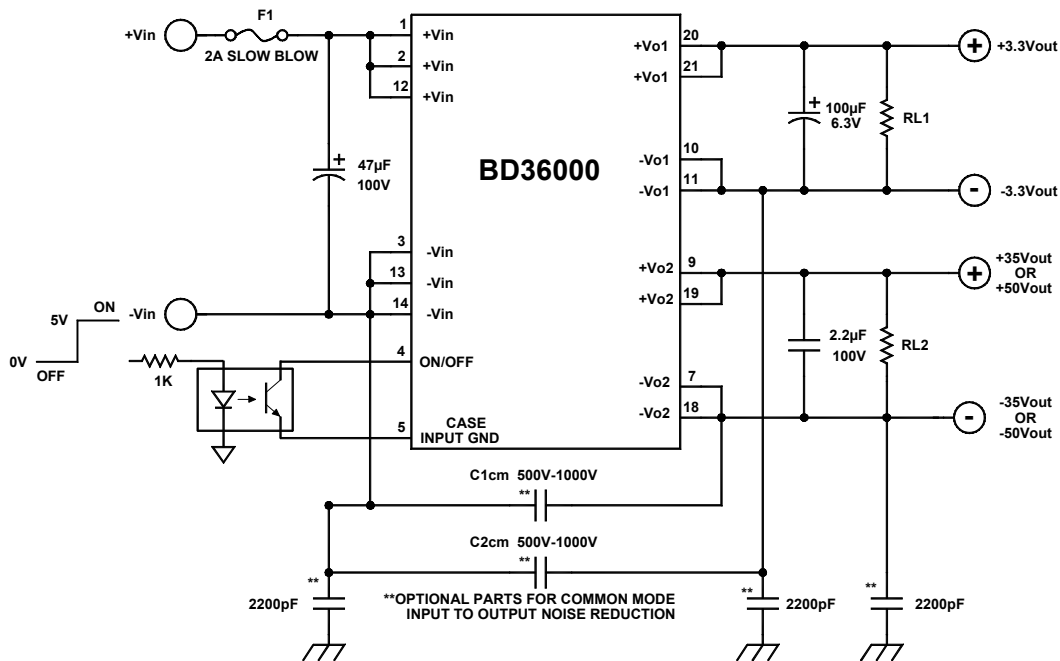


FIGURE 1. Connection diagram of BD36000 Dual Isolated Output DC/DC Converter
 $C_{1CM}, C_{2CM} = 2200\text{pF}$ to $0.01\mu\text{F}$ @ 500V to 1000V

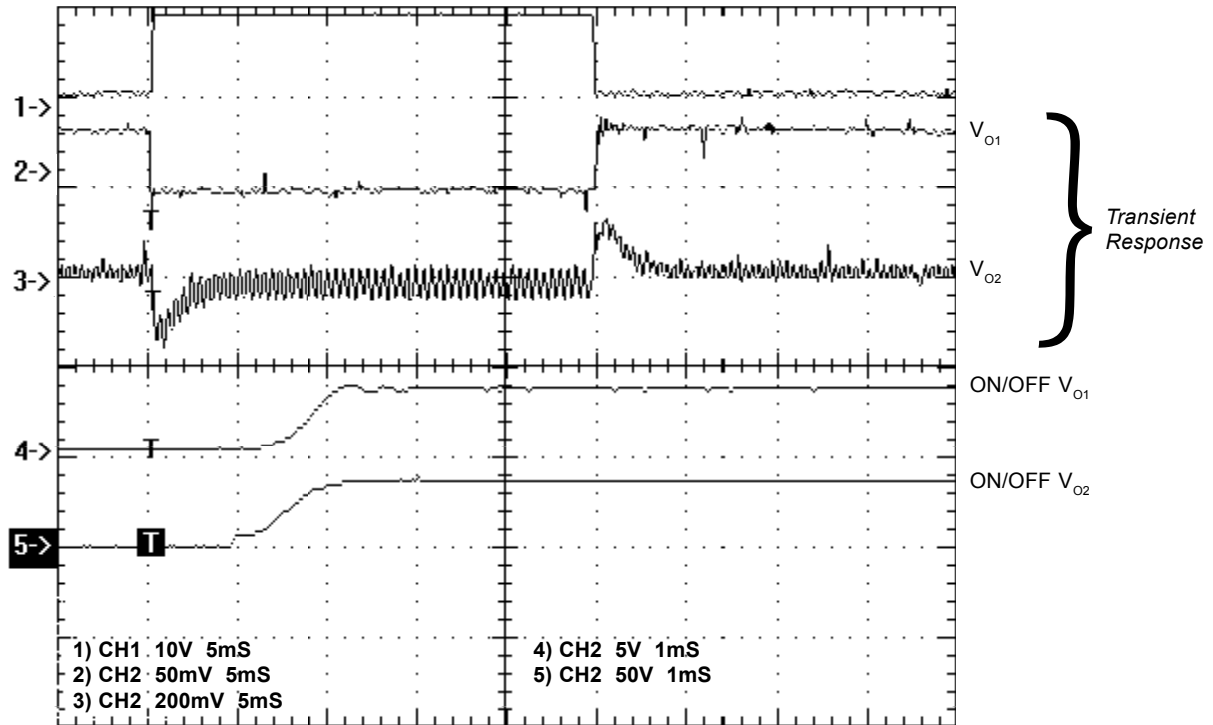


FIGURE 2. Dynamic performance of BD36000*

- 1) Load step 50% FL to FL to 50% FL
- 2) V_{O1}
- 3) V_{O2}
- 4) Turn on delay with soft start (V_{O1})
- 5) Turn on delay with soft start (V_{O2})

* All input/output measurements are made on a test card that connects to the converter via its 6-inch mating connector.

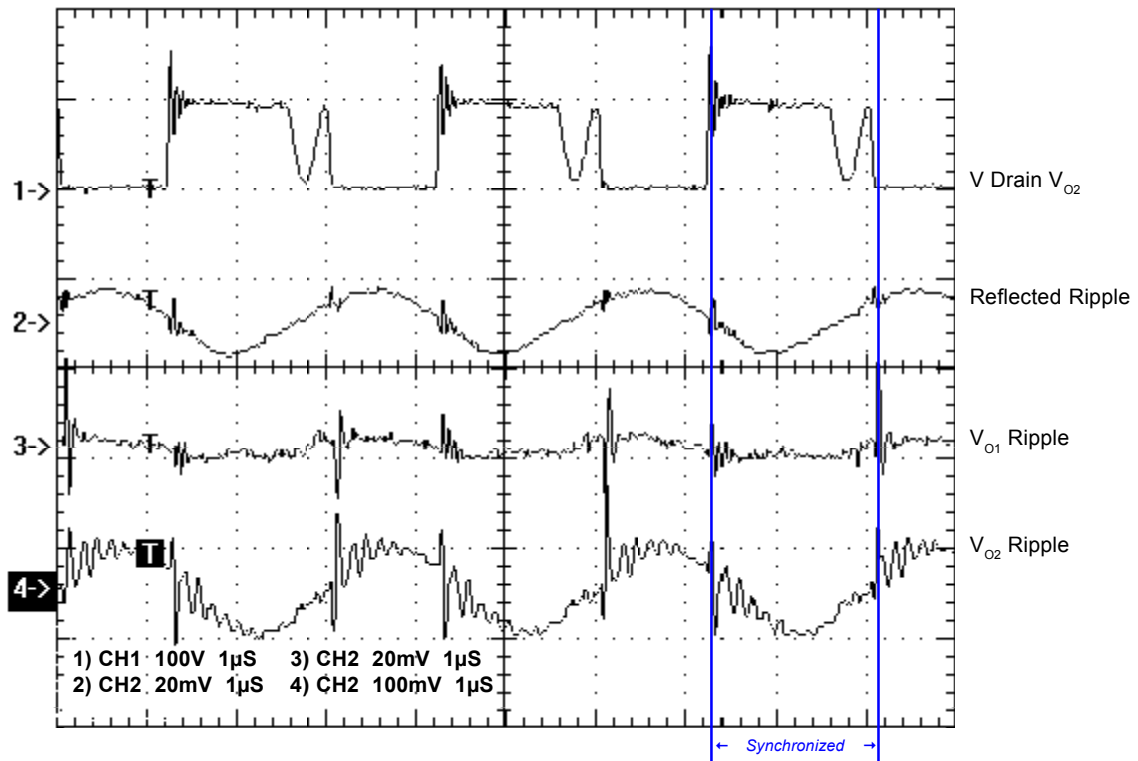
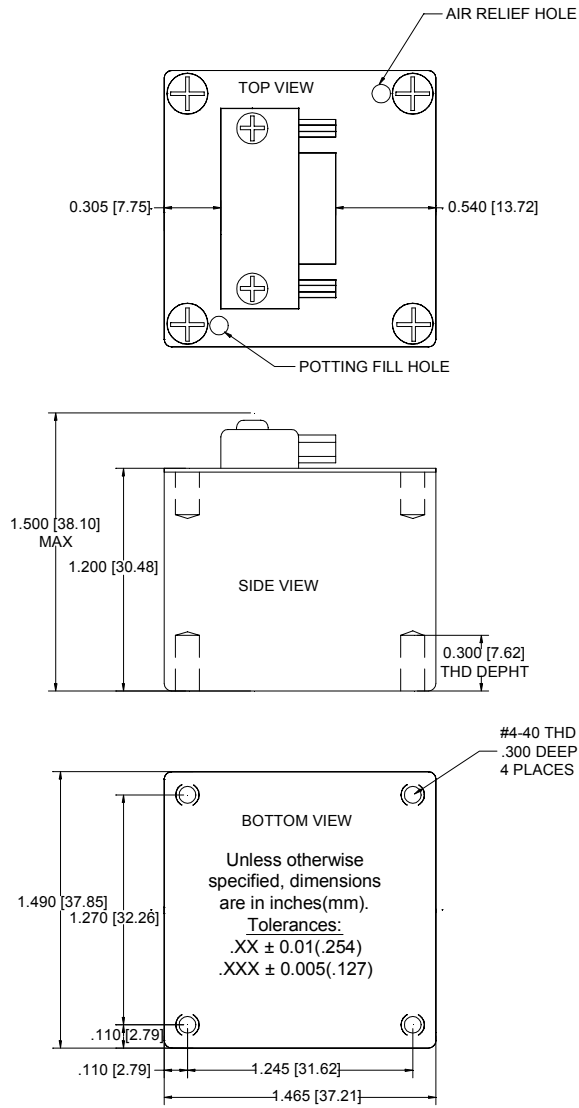


FIGURE 3. Static performance of BD36000

MECHANICAL SPECIFICATIONS



PIN ASSIGNMENT

AIRBORN OUTPUT CONNECTOR P/N: MS252021325220S

Pin	Function	Pin	Function	Pin	Function
1	+V _{IN}	8	NC	15	NC
2	+V _{IN}	9	+V _{O2}	16	NC
3	-V _{IN}	10	-V _{O1}	17	NC
4	+ISOL	11	-V _{O1}	18	-V _{O2}
5	-ISOL	12	+V _{IN}	19	+V _{O2}
6	NC	13	-V _{IN}	20	+V _{O1}
7	-V _{O2}	14	-V _{IN}	21	+V _{O1}

