Size:
1.25 x 0.80 x 0.40 inches
31.75 x 20.32 x 10.16 mm

Weight:
0.61oz (17.2g)

Applications
- Battery Powered Equipment
- Telecommunication Applications
- Industrial Applications
- Distributed Power Systems
- Process Control Equipment
- Transportation Equipment

FEATURES

- Single & Dual Outputs
- Up to 3 Watts Output Power
- Remote On/Off Control
- 3000VDC I/O Isolation
- High Efficiency up to 80%
- Lead Free Design, RoHS Compliant
- IEC/EN60950-1 Safety Approvals
- 4:1 Input Voltage Ranges: 9-36VDC and 18-75VDC
- Shielded Metal Case with Insulated Base-plate
- -40°C to +85°C Operating Temperature Range
- 24-Pin DIP Package with Industry-Standard Footprint
- Short Circuit, Over Voltage, and Over Load Protection
- Free Air Convection
- Custom Designs Available

DESCRIPTION

The DCBOB3 series of isolated DC/DC power converters provides up to 3 Watts of continuous output power in an industry standard 1.25” x 0.80” x 0.40” shielded metal case. This series consists of single and dual output models with 4:1 input voltage ranges of 9-36VDC and 18-75VDC. Some features include high efficiency up to 80%, 3000VDC I/O isolation, remote on/off control, and -40°C to +85°C operating temperature range. The DCBOB3 series is RoHS compliant and has short circuit, over load, and over voltage protection. These converters are best suited for use in battery powered equipment, industrial applications, process control equipment, distributed power systems, and anywhere where isolated, tightly regulated voltages and compact size are required.

MODEL SELECTION TABLE

SINGLE OUTPUT MODELS

Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Output Power	Efficiency	Maximum Capacitive Load
			Min Load (1)	Full Load	No Load	Full Load			
DCBOB24S33-3H	24 VDC (9 – 36 VDC)	3.3 VDC	22mA	750mA	5mA	143mA	2.5W	76%	470µF
DCBOB24S05-3H		5 VDC	10mA	600mA	4mA	169mA	3W	78%	330µF
DCBOB24S12-3H		12 VDC	0mA	250mA	9mA	164mA	3W	80%	147µF
DCBOB24S15-3H		15 VDC	0mA	200mA	10mA	14mA	3W	80%	82µF
DCBOB48S33-3H	48 VDC (18 – 75 VDC)	3.3 VDC	11mA	750mA	3mA	72mA	2.5W	76%	470µF
DCBOB48S05-3H		5 VDC	10mA	600mA	2mA	84mA	3W	78%	330µF
DCBOB48S12-3H		12 VDC	0mA	250mA	5mA	83mA	3W	79%	100µF
DCBOB48S15-3H		15 VDC	0mA	200mA	6mA	82mA	3W	80%	68µF

DUAL OUTPUT MODELS

Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Output Power	Efficiency	Maximum Capacitive Load
			Min Load	Full Load	No Load	Full Load			
DCBOB24D05-3H	24 VDC (9 – 36 VDC)	±5 VDC	0mA	±300mA	8mA	167mA	3W	79%	±168µF
DCBOB24D12-3H		±12 VDC	0mA	±125mA	14mA	164mA	3W	80%	±47µF
DCBOB24D15-3H		±15 VDC	0mA	±100mA	16mA	164mA	3W	80%	±33µF
DCBOB48D05-3H	48 VDC (18 – 75 VDC)	±5 VDC	0mA	±300mA	5mA	84mA	3W	78%	±168µF
DCBOB48D12-3H		±12 VDC	0mA	±125mA	8mA	83mA	3W	79%	±33µF
DCBOB48D15-3H		±15 VDC	0mA	±100mA	9mA	86mA	3W	77%	±33µF

TECHNICAL SPECIFICATIONS: DCBOB3 SERIES

All specifications are based on 25°C, nominal input voltage, and maximum output current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

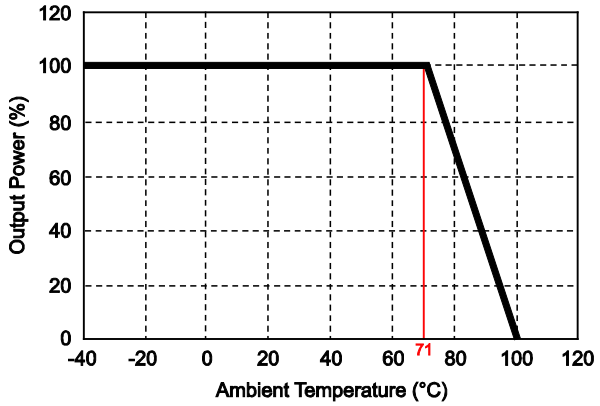
SPECIFICATION	TEST CONDITIONS		Min	Nom	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	24VDC nominal input models		9	24	36	VDC
	48VDC nominal input models		18	48	75	
Input Surge Voltage (100ms max)	24VDC nominal input models			50		VDC
	48VDC nominal input models			100		
Input Reflected Ripple Current	Nominal Vin and full load			72		mAp-p
Input Current			See Table			
Input Filter			Pi Type			
Remote On/Off	Converter ON		Open or 3.5V < Vr < 12V			
	Converter OFF		Short to -Vin (Pin 2,3) or 0V < Vr < 1.2V			
Sourcing Current of Remote Control Pin	Nominal Vin				0.2	mA
Idle Input Current (at Remote OFF State)	Nominal Vin				2.5	mA
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy	Full load and nominal Vin		-2		+2	%
Output Current			See Table			
Minimum Load			See Table			
Capacitive Load			See Table			
Start-up Time	Nominal Vin and constant resistive load				400	ms
Line Regulation	LL to HL at full load		-0.5		+0.5	%
Load Regulation	Single output models	25% load to full load	-0.5		+0.5	%
	Dual output models	Balanced output	-0.5		+0.5	
		Unbalanced load 25% to full load	-3.0		+3.0	
Output Power			See Table			
Ripple & Noise	20MHz bandwidth				60	mVp-p
Temperature Coefficient			-0.02		+0.02	%/°C
Transient Response Overshoot	di/dt=0.8A/µs		-5		+5	% of Vo
Transient Response Settling Time	50% load step change				1320	µs
PROTECTION						
Over Voltage Protection	Zener diode clamp	3.3VDC output models		3.9		VDC
		5VDC output models		6.2		
		12VDC output models		15		
		15VDC output models		18		
Short Circuit Protection			continuous, automatic recovery			
Over Load Protection	% of full load		120			%
GENERAL SPECIFICATIONS						
Efficiency	Nominal input and full load		See Table			
Isolation Voltage (Input to Output)			3000			VDC
Isolation Resistance (Input to Output)	500VDC		1			GΩ
Isolation Capacitance				270		pF
Switching Frequency				300		KHz
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature	With derating (see derating curve)		-40		+85	°C
Maximum Case Temperature					+100	°C
Storage Temperature			-55		+105	°C
Relative Humidity			5		95	% RH
Cooling			Free air convection			
MTBF			2,530,000			hours
PHYSICAL SPECIFICATIONS						
Case Material			Nickel-coated copper			
Base Material			Non-conductive black plastic			
Potting Material			Silicon rubber (UL94V-0)			
Weight			0.61oz (17.2g)			
Dimensions (L x W x H)			1.25 x 0.80 x 0.40 in (31.75 x 20.32 x 10.16 mm)			

NOTES

1. Output current under this value will not damage these devices; however, they may not meet all listed specifications.
Due to advances in technology, specifications subject to change without notice.

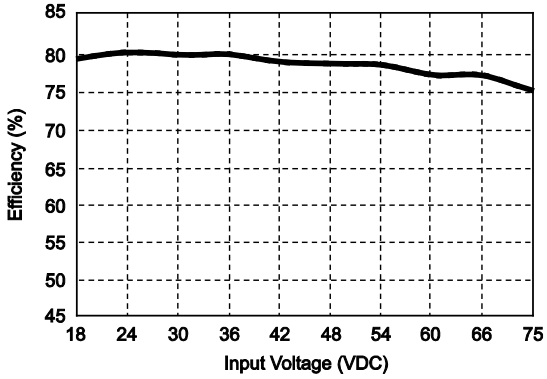
DERATING CURVES

DCBOB3 Series Derating Curve

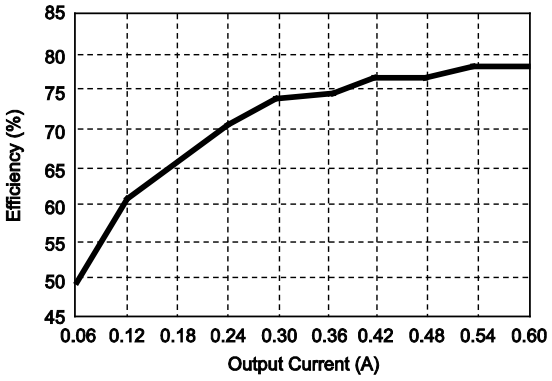


EFFICIENCY CURVES

DCBOB48S05-3H Efficiency vs Input Voltage

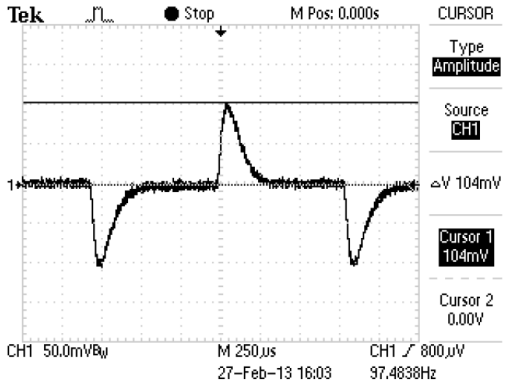


DCBOB48S05-3H Efficiency vs Output Current

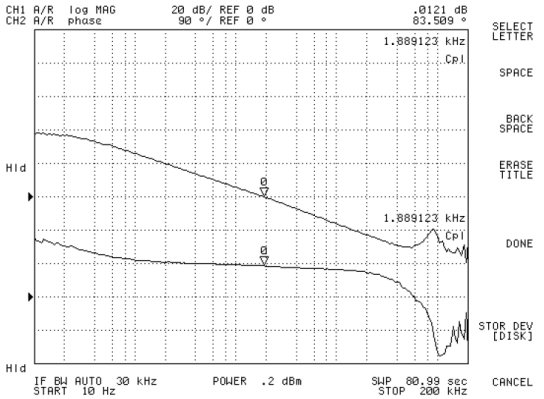


CHARACTERISTIC CURVES

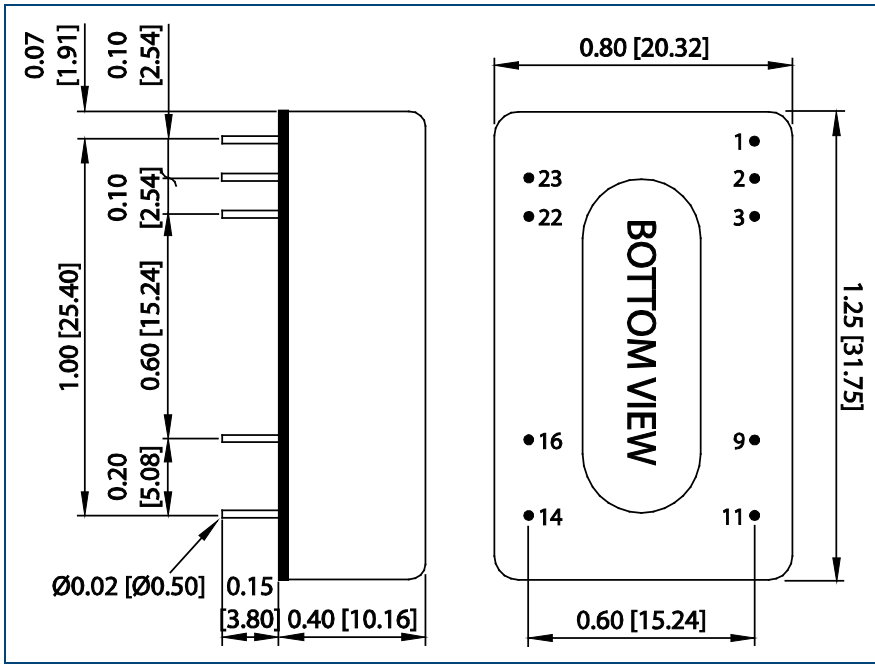
Transient Response at 50%~100% Max Load



Loop Gain & Phase at Vin=48VDC, Full Load



MECHANICAL DRAWING



PIN CONNECTIONS		
PIN	SINGLE	DUAL
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	-Vin	-Vin
9	No Pin	Common
11	No Function	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

NOTES
1. Unit: inches [mm]
2. Tolerance: ±0.02 [±0.5]
3. Weight: 0.61 [17.2g]

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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