

Size: 2in x 2in x 0.5in (50.8mm x 50.8mm x 12.7mm)

OPTIONS

- Output Voltage
- Heatsink

FEATURES

- Single Outputs
- 4:1 Ultra Wide Input Voltage Range: 9~36VDC and 18~75VDC
- 60 Watts Output Power
- Fixed Switching Frequency
- Industry Standard Pin-Out
- 1500VDC I/O Isolation
- No Minimum Load Requirement
- Optional Heatsink Available (HS Suffix)
- Up to 90% Efficiency
- Short Circuit, Over Voltage, Over Load, and Over Temperature Protection
- Shielded Metal Case with Insulated Baseplate
- Lead Free Design, RoHS Compliant
- Synchronous Rectifier Topology
- Remote ON/OFF
- Adjustable Output Voltage
- Custom Designs Available

APPLICATIONS

- Distributed Power System
- Process Control Equipment
- Telecommunication Applications
- Industrial Applications
- Transportation Equipment
- Battery Powered Equipment
- Wireless Networks

DESCRIPTION

The DCBC60 series of isolated DC/DC power converters provides 60 watts of continuous output power in a 2” x 2” x 0.5” shielded metal case. This series consists of 3.3V, 5V, 12V, and 15V single output models with 4:1 input voltage ranges of 9-36VDC and 18-75VDC. Some features include high efficiency up to 90%, remote on/off, adjustable output voltage, 1500VDC I/O isolation, -40ºC~+85ºC operating temperature range, and no minimum load requirement. The DCBC60 series is RoHS compliant and has short circuit, over load, over voltage and over temperature protection. These converters are best suited for use in battery operated equipment, measurement equipment, telecom, wireless networks, industry control systems, and anywhere where isolated, tightly regulated voltages and compact size required.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current		Ripple & Noise	Input Current		Output Power	Maximum Capacitive Load[2]	Efficiency[3]
			Min Load[1]	Max Load		No Load	Full Load			
DCBC60-24S33W	24VDC (9~36V)	3.3VDC	0A	14A	75mVp-p	70mA	2437mA	60W Max.	47000µF	83%
DCBC60-24S05W		5VDC	0A	12A	75mVp-p	80mA	3086mA		36000µF	85%
*DCBC60-24S12W		12VDC	0A	5A	75mVp-p	100mA	2976mA		4700µF	88%
DCBC60-24S15W		15VDC	0A	4A	100mVp-p	90mA	2941mA		2200µF	89%
DCBC60-48S33W	48VDC (18~75V)	3.3VDC	0A	14A	75mVp-p	30mA	1188mA	60W Max.	47000µF	85%
DCBC60-48S05W		5VDC	0A	12A	75mVp-p	33mA	1506mA		36000µF	87%
DCBC60-48S12W		12VDC	0A	5A	75mVp-p	50mA	1488mA		4700µF	88%
DCBC60-48S15W		15VDC	0A	4A	100mVp-p	39mA	1453mA		2200µF	90%

SPECIFICATIONS

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.

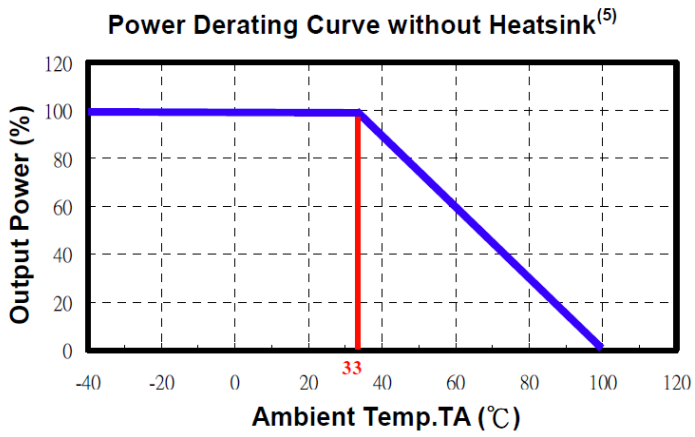
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	24VDC nominal input		9	24	36	VDC
	48VDC nominal input		18	48	75	
Input Surge Voltage (100ms max.)	24V Input				50	VDC
	48V Input				100	
Input Reflected Ripple Current	Nominal Vin and Full Load			200		mAp-p
Input Filter				Pi Type		
Input Current				See Table		
OUTPUT SPECIFICATIONS						
Output Voltage				See Table		
Voltage Accuracy	Full Load and Nominal Vin			±1		%
Line Regulation	LL to HL at Full Load			±0.5		%
Load Regulation	25% Load to Full Load	3.3V Models		±0.8		%
		All other models		±0.5		
Output Power				See Table		
Output Current				See Table		
Ripple & Noise (20MHz bandwidth)	3.3V, 5V, &12V Models				75	mVp-p
	15V Models				100	
Transient Response Settling Time	50% Load Step Change			3		mS
Transient Response Over Shoot	di/dt=0.8A/µs			≤5		% of Vo
Start-Up Time	Nominal Vin and Constant Resistive Load			60		ms
Temperature Coefficient				±0.02		%/ºC
REMOTE ON/OFF CONTROL						
Remote ON/OFF	Converter: ON			Open or 3.5V<Vr<12V		
	Converter: OFF			Short (to-Vin Pin 2) or 0V<Vr<0.7V		
Sourcing Current of Remote Control Pin	Nominal Vin			<0.2		mA
Idle Input Current (at Remote OFF state)	Nominal Vin			<20		mA
PROTECTION						
Short Circuit Protection	Hiccup			Automatic Recovery		
Over Load Protection	% of Full Load at Nominal Input		110			%
Over Voltage Protection	Zener Diode Clamp	3.3V models		3.9		V
		5V models		6.2		
		12V models		15		
		15V models		18		
Thermal Shutdown				110		ºC
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature	With derating		-40		+85	ºC
Storage Temperature			-55		+125	ºC
Maximum Case Surface Temperature					+105	ºC
Relative Humidity					95	% RH
MTBF				888,000		hours
GENERAL SPECIFICATIONS						
Efficiency	Nominal Input			See Table		
Switching Frequency				300		kHz
Isolation Voltage	Input to Output			1500		VDC
Isolation Resistance	500VDC		10			GΩ
Isolation Capacitance				1200		pF
PHYSICAL SPECIFICATIONS						
Weight				2.96oz (84g) typ.		
Dimensions (L x W x H)				2.0in x 2.0in x 0.5in (50.8mm x 50.8mm x 12.7mm)		
Case Material				Nickel-Coated Copper		
Base Material				FR4 PCB		
Potting Material				Silicon Rubber (UL94 V-0)		
SAFETY & EMC CHARACTERISTICS						
Safety Approvals						

NOTES

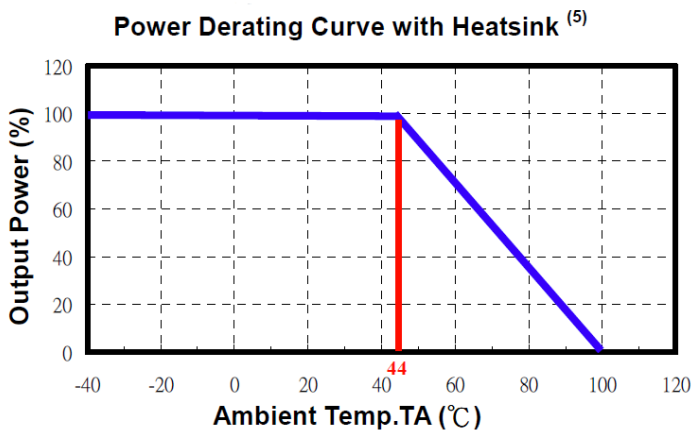
(1) Io below this value will not damage these converters, however, they may not meet all listed specifications.
(2) For each output.
(3) Typical value, tested at nominal input and full load
(4) For heatsink option, add the suffix "HS" to the model number.
(5) Specifications subject to change without notice.

DERATING CURVES

DCBC60-48S05W Power Derating Curve (Without Heatsink)

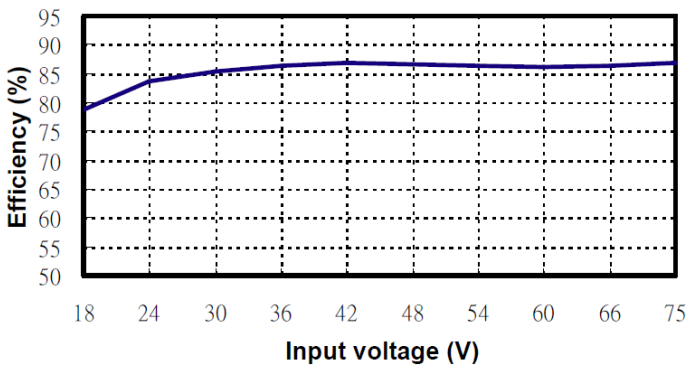


DCBC60-48S05W Power Derating Curve (With Heatsink)

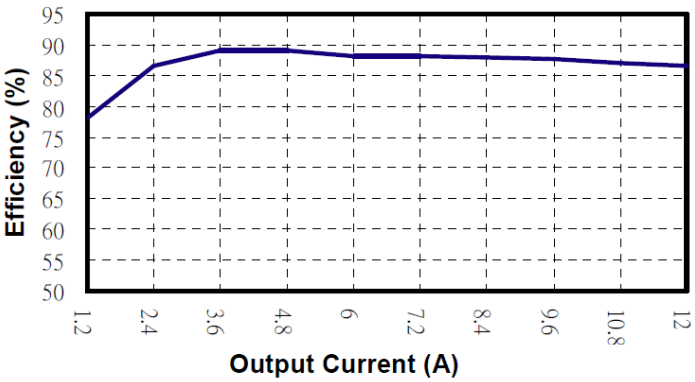


EFFICIENCY GRAPHS

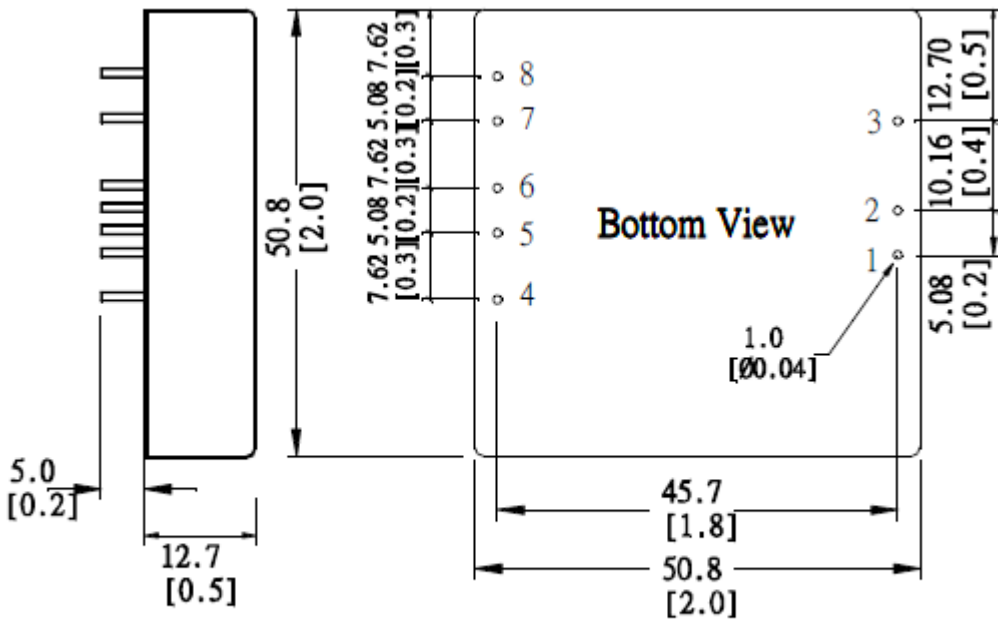
DCBC60-48S05W Input Voltage vs. Efficiency



DCBC60-48S05W Output Current vs. Efficiency



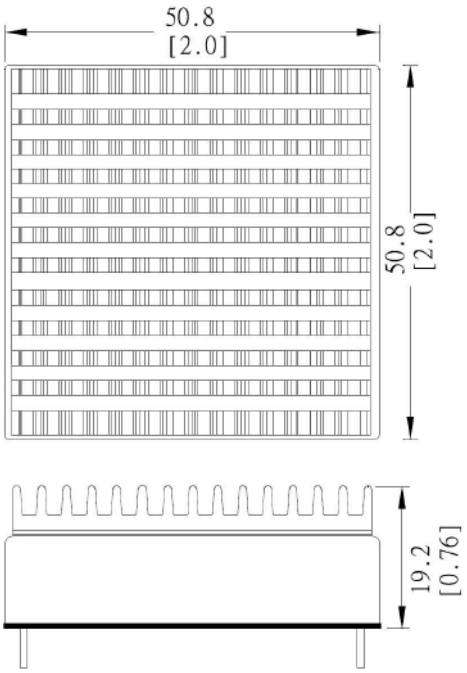
MECHANICAL DRAWINGS



Unit: mm [inch]
Tolerance:±0.5[±0.02]

Pin Assignment		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Remote On/Off	
4	-Sense	+Vout
5	+Sense	Common
6	+Vout	Common
7	-Vout	-Vout
8	Trim	

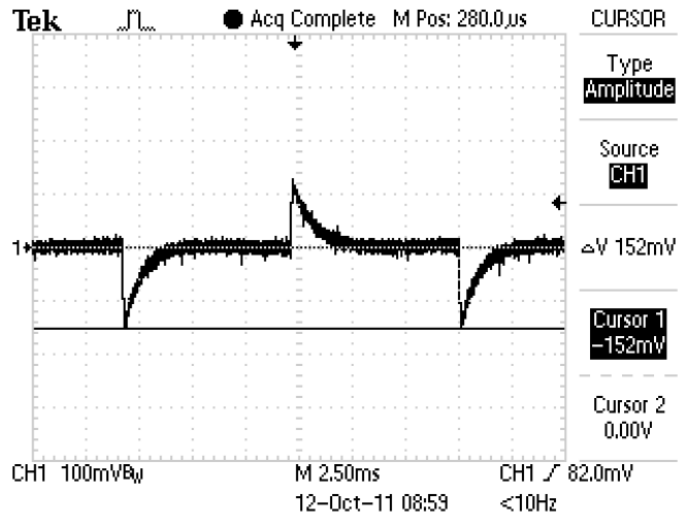
HEATSINK OPTIONS



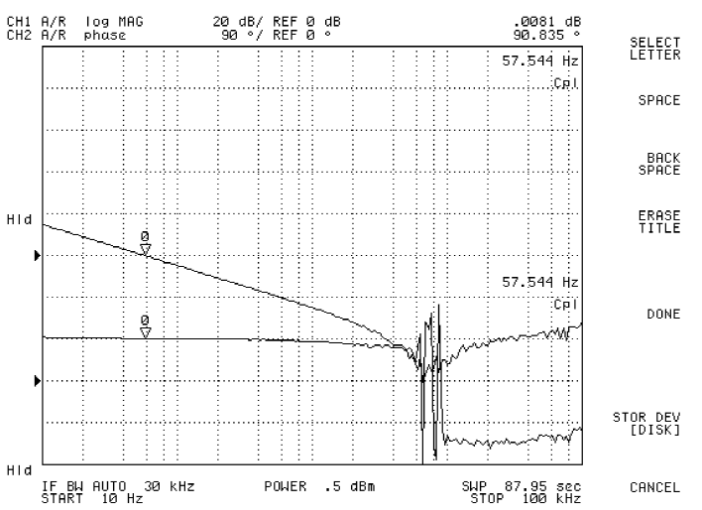
Material: Aluminum
Weight: 0.67oz (19g) (without converter)
Note: The product label on converter has to be removed before mounting the heat-sink. For volume orders, converters will be supplied with heat-sink already mounted. Please contact factory for more details

CHARACTERISTICS

DCBC60-48S05W
Transient Response at 50%~100% Max Load



DCBC60-48S05W
Loop Gain & Phase at Vi=48V, Full Load



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 ISO9001-2008 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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