Wall Industries, Inc.

FEATURES

- Industrial Standard SIP-3 Package
- Fully Regulated Output Voltage
- Low Ripple & Noise
- High Efficiency up to 97%
- Short Circuit and Over Temperature Protection
- No Minimum Load Requirement
- RoHS & REACH Compliant

DESCRIPTION

The DCMAR05 series of DC/DC switching regulators offers 0.5A output current in a compact 0.45" x 0.30" x 0.40" standard SIP-3 package. This series consists of fully regulated single output models with high efficiency and low ripple & noise. Each model in this series has short circuit and over temperature protection, no minimum load requirement, and is RoHS & REACH compliant. Please contact factory for order details.

Size: 0.45in x 0.30in x 0.40in (11.5mm x 7.55mm x 10.2mm)

MODEL SELECTION TABLE

Model Number	Input Voltage Range[1]	Output Voltage	Max. Output Current	Ripple & Noise	Max. Line Regulation	Max. Load Regulation	Maximum Capacitive Load	Typ. Efficiency @Min. Vin.	Typ. Efficiency @Max. Vin
DCMAR05-015	4.75~32VDC	1.5VDC	500mA	30mVp-p	±0.4%	±0.6%	220µF	73%	63%
DCMAR05-018	4.75~32VDC	1.8VDC	500mA	30mVp-p	±0.4%	±0.6%	220µF	82%	71%
DCMAR05-025	4.75~32VDC	2.5VDC	500mA	30mVp-p	±0.4%	±0.6%	220µF	87%	77%
DCMAR05-033	4.75~32VDC	3.3VDC	500mA	30mVp-p	±0.4%	±0.6%	220µF	91%	81%
DCMAR05-05	6.5~32VDC	5VDC	500mA	30mVp-p	±0.4%	±0.6%	220µF	94%	86%
DCMAR05-065	8~32VDC	6.5VDC	500mA	30mVp-p	±0.4%	±0.6%	220µF	95%	88%
DCMAR05-09	11~32VDC	9VDC	500mA	40mVp-p	±0.2%	±0.4%	220µF	96%	92%
DCMAR05-12	15~32VDC	12VDC	500mA	40mVp-p	±0.2%	±0.4%	220µF	97%	94%
DCMAR05-15	18~32VDC	15VDC	500mA	40mVp-p	±0.2%	±0.4%	220µF	97%	95%

SPECIFICATIONS

All specifications are based on 25°C, Resistive Load, Nominal Input Voltage, and Rated 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				See Table		
Input Surge Voltage	1 sec. max		-0.3		34	VDC
Input Current	@No Load			5		mA
Input Filter	All Models			Internal Capacitor		
Internal Filter Type				Capacitor		
Short Circuit Input Power					1.5	W
OUTPUT SPECIFICATIONS						
Output Voltage				See Table		
Voltage Accuracy				±2.0	±3.0	%Vnom.
Line Regulation	Vin=Min. to Max. @Full Load	1.5 to 6.5V Models		±0.2	±0.4	%
		9V to 15V Models		±0.1	±0.2	
Load Regulation	Io=10% to 100%	1.5 to 6.5V Models		±0.4	±0.6	%
		9V to 15V Models		±0.25	±0.4	
Output Current				See Table		
Minimum Load				No Minimum Load Requirement		
Maximum Capacitive Load				See Table		
Ripple & Noise	0-20MHz Bandwidth			See Table		
Transient Recovery Time	50% Load Step Change			100		µsec
Transient Response Deviation	50% Load Step Change			±2		%
Temperature Coefficient					±0.015	%/ºC
PROTECTION						
Short Circuit Protection				Continuous, Automatic Recovery		
Over Temperature Protection				Yes		

5/22/2017

Wall Industries, Inc. • 37 Industrial Drive, Exeter, NH 03833 • Tel: 603-778-2300 • Toll Free: 888-597-9255 •
Fax 603-778-9797
website: www.wallindustries.com • e-mail: sales@wallindustries.com

Page 1 of 4

Wall Industries, Inc.

SPECIFICATIONS

All specifications are based on 25°C, Resistive Load, Nominal Input Voltage, and Rated Output Current unless otherwise noted.
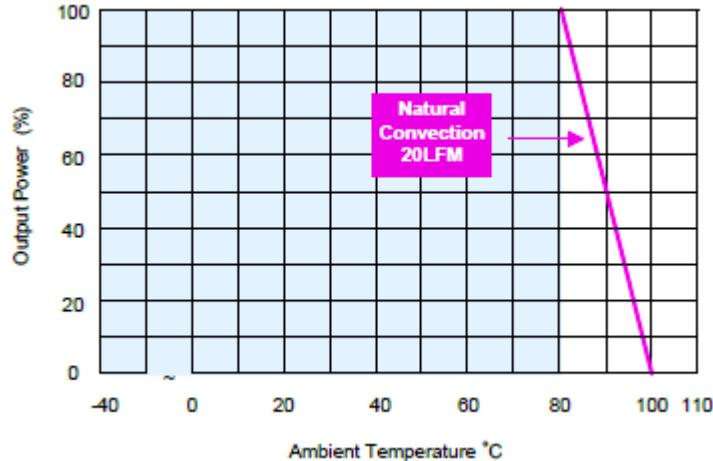We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
ENVIRONMENTAL SPECIFICATIONS					
Operating Ambient Temperature	Natural Convection	-40		+90	ºC
Storage Temperature		-55		+125	ºC
Case Temperature				+100	ºC
Humidity	Non Condensing			95	%RH
Thermal Shutdown	Internal IC Junction		160		ºC
Cooling[4]			Natural Convection		
Lead-Free Reflow Solder Process	1.5mm from case for 10sec			260	ºC
MTBF (Calculated)	MIL-HDBK-217F@25ºC, Ground Benign		2,000,000		Hours
GENERAL SPECIFICATIONS					
Typical Efficiency			See Table		
Switching Frequency		280	330	380	KHz
PHYSICAL SPECIFICATIONS					
Weight			0.069oz (1.95g)		
Dimensions (L x W x H)			0.45in x 0.30in x 0.40in (11.5mm x 7.55mm x 10.2mm)		
Case Material			Non-Conductive Black Plastic (Flammability to UL94V-0 rated)		
Pin Material			Alloy 42		
SAFETY CHARACTERISTICS					
EMI	Radiation without adding external components / EN55022, FCC Part 15		Class B		
EMI	Conduction with external components / EN55022, FCC Part 15		Class B		
EMS	ESD — EN61000-4-2 Air±8kV		A		
EMS	Radiated Immunity — EN61000-4-3 3V/m		A		
EMS	Fast Transient[5] — EN61000-4-4 ±0.5kV		A		
EMS	Conducted Immunity — EN61000-4-6 3Vrms		A		
EMS	PFMF — EN61000-4-8 3A.m		A		

NOTES

1. With an input capacitor 22µF/50V for input voltage >28VDC, input voltage allows 32VDC, max.
2. Other input and output voltages may be available, please contact factory.
3. It is recommended to protect the converter by a slow blow fuse in the input supply line.
4. Natural Convection is about 20LFM but is not equal to still air (0LFM).
5. This series can meet EN61000-4-4 by adding a capacitor across the input pins. Suggested capacitor: CHEMI-CON KY 330µF/100V.

Due to advances in technology, specifications subject to change without notice.

DERATING CURVES

5/22/2017

Wall Industries, Inc. • 37 Industrial Drive, Exeter, NH 03833 • Tel: 603-778-2300 • Toll Free: 888-597-9255 •
Fax 603-778-9797
website: www.wallindustries.com • e-mail: sales@wallindustries.com

Page 2 of 4

Wall Industries, Inc.

MECHANICAL DRAWINGS

Pin Connections	
Pin	Function
1	+Vin
2	GND
3	+Vout

Notes:
All dimensions in mm (inches)
Tolerance: X.X±0.5 (X.XX±0.02)
              X.XX±0.25 (X.XXX±0.01)
Pins ±0.05 (±0.002)

TEST SETUP

Peak-to-Peak Output Noise Measurement Test

Use a Cout 0.47µF ceramic capacitor. Scope measurement should be made by using a BNC socket, measurement bandwidth 0-20MHz. Position the load between 50mm and 75mm from the DC/DC converter.

TECHNICAL NOTES

Output Ripple Reduction

A good quality low ESR capacitor placed as close as practicable across the load will give the best ripple and noise performance. To reduce output ripple, it is recommended to use 3.3µF capacitors at the output.

Maximum Capacitive Load

The DCMAR05 series has limitation of maximum connected capacitance on the output. The power module may operate in current limiting mode during start-up, affecting the ramp-up and the startup time. Maximum capacitance can be found in the data sheet.

5/22/2017

Wall Industries, Inc. • 37 Industrial Drive, Exeter, NH 03833 • Tel: 603-778-2300 • Toll Free: 888-597-9255 •
Fax 603-778-9797
website: www.wallindustries.com • e-mail: sales@wallindustries.com

Page 3 of 4

Wall Industries, Inc.

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.

Contact **Wall Industries** for further information:

Phone:	☎(603)778-2300
Toll Free:	☎(888)597-9255
Fax:	☎(603)778-9797
E-mail:	sales@wallindustries.com
Web:	www.wallindustries.com
Address:	37 Industrial Drive
	Exeter, NH 03833

5/22/2017

Wall Industries, Inc. • 37 Industrial Drive, Exeter, NH 03833 • Tel: 603-778-2300 • Toll Free: 888-597-9255 •
Fax 603-778-9797
website: www.wallindustries.com • e-mail: sales@wallindustries.com

Page 4 of 4