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

FEATURES

- Industrial Standard SIP-3 Package
- Fully Regulated Output Voltage
- Low Ripple & Noise
- No Minimum Load Requirement
- High Efficiency up to 96%
- Over Temperature and Short Circuit Protection
- RoHS & REACH Compliant

DESCRIPTION

The DCMAR1 series of DC/DC switching regulators offers 1A of output current in a compact industrial 0.45” x 0.30” x 0.40” standard SIP-3 package. This series consists of fully regulated single output models with low ripple & noise and high efficiency. Each model in this series has no minimum load requirement, over temperature and short circuit protection, and is RoHS & REACH compliant. Please contact factory for order details.

MODEL SELECTION TABLE

Model Number	Input Voltage Range[6]	Output Voltage	Max. Output Current	Ripple & Noise	Max. Line Regulation	Max. Load Regulation	Maximum Capacitive Load	Efficiency	
								@Min. Vin	@Max. Vin
DCMAR1-033	6.5~32VDC	3.3VDC	1000mA	50mVp-p	±0.4%	±0.6%	470µF	93%	87%
DCMAR1-05	6.5~32VDC	5VDC	1000mA	50mVp-p	±0.4%	±0.6%	470µF	94%	90%
DCMAR1-12	15~32VDC	12VDC	1000mA	75mVp-p	±0.2%	±0.4%	470µF	96%	94%

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			1		mA
Short Circuit Input Power					1.5	W
Input Filter	All Models		Internal Capacitor			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy					±2.0	%Vnom.
Line Regulation	Vin=Min. to Max. @Full Load	3.3V, 5V Models		±0.2	±0.4	%
		12V Models		±0.1	±0.2	
Load Regulation	Io=10% to 100%	3.3V, 5V Models		±0.4	±0.6	%
		12V 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			250		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			
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	Natural Convection		-40		+85	ºC
Storage Temperature			-55		+125	ºC
Case Temperature					+95	ºC
Humidity	Non-Condensing				95	%RH
Thermal Shutdown	Internal IC Junction			150		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		9,000,000			Hours
GENERAL SPECIFICATIONS						
Efficiency			See Table			
Switching Frequency				420		KHz

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.

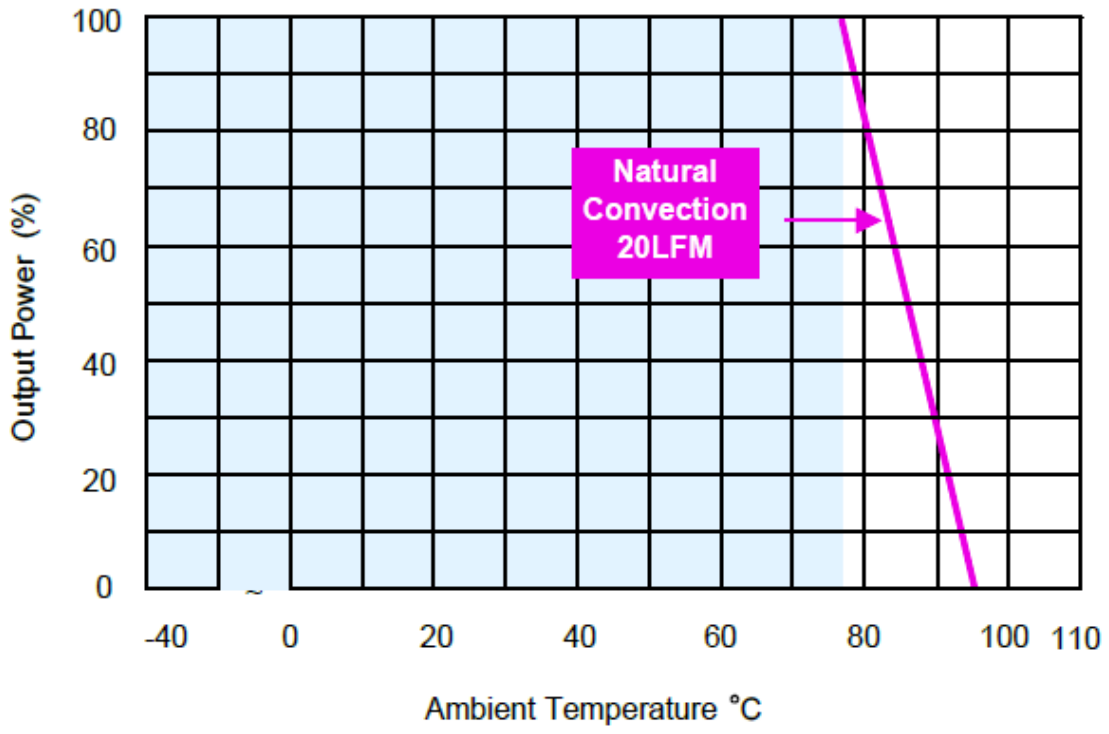
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
PHYSICAL SPECIFICATIONS						
Weight				0.08oz (2.2g)		
Dimensions (L x W x H)				0.45in x 0.30in x 0.40in (11.5mm x 7.55mm x 10.2mm)		
Case Material				Non-Conductive Black Plastic (Flammability to UL 94V-0 Rated)		
Pin Material				Alloy 42		
SAFETY CHARACTERISTICS						
EMI	Radiation without Adding External Components	EN55022, FCC part 15[5]				Class A, B
	Conduction with External Components					
EMS	ESD	EN61000-4-2 Air±8kV				A
	Radiated Immunity	EN61000-4-3 3V/m				A
	Fast Transient[6]	EN61000-4-4 ±0.5kV				A
	Conducted Immunity	EN61000-4-6 3Vrms				A
	PFMF	EN61000-4-8 3A/m				A

NOTES

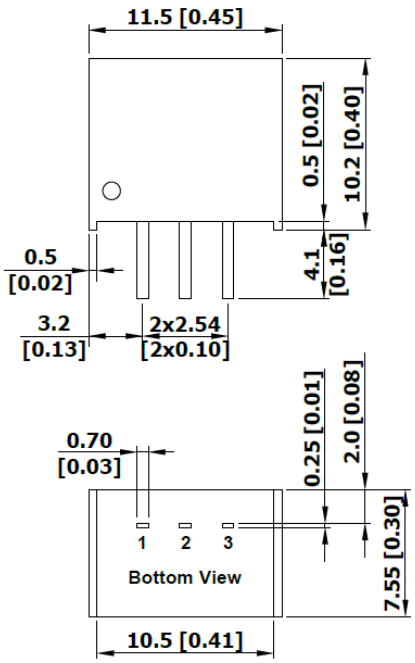
1. With input capacitor 22µF/50V (CHEMI-CON KY) for input voltage >28VDC, input voltage allows 32VDC, max.
2. Other input and output voltages may be available, please contact factory.
3. It is recommended to protect the converter by a slow blow fuse in the input supply line.
4. Natural convection is about 20LFM but is not equal to still air (0 LFM)
5. To meet EN55022 Class A,B an external filter is necessary. Please contact factory
6. This series can meet EN61000-4-4 by adding a capacitor across the input pins. Suggested capacitor: 22µF/50V (CHEMI-CON KY).

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

DERATING CURVES



MECHANICAL DRAWINGS



Pin Connections

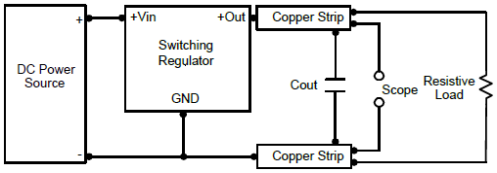
Pin	Function
1	+Vin
2	GND
3	+Vout

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 Noise Measurement Test

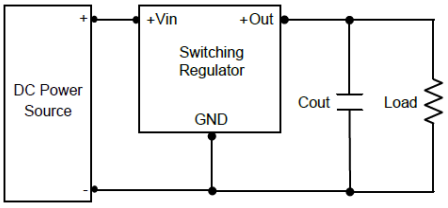
Use a Cout 0.47µF ceramic capacitor. Scope measurement should be made by using a BNC socket, measurement bandwidth is 0-20MHz. Position the load between 50mm and 75mm from the DC/DC Converter.



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 DCMAR1 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 startup time. Maximum capacitance can be found in the data sheet.

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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