Wall Industries, Inc.

DCMUA SERIES

2:1 Wide Input Voltage Ranges
Single and Dual Outputs
2.0” x 1.0” x 0.4” Encapsulated Shielded Metal Package
5 Watt DC/DC Power Converters



FEATURES

- Single and Dual Outputs
- 2:1 Input Voltage Ranges: 9-18VDC, 18-36VDC, and 36~75VDC
- High Power Density
- Fixed Switching Frequency: 300KHz
- 1500VDC I/O Isolation
- High Efficiency up to 87%
- Short Circuit, Over Voltage, Over Load, and Reverse Voltage Protection
- Shielded Metal Case with Insulated Base-plate
- Industry Standard 2.0” x 1.0” x 0.4” DIP Package
- Lead Free Design, RoHS Compliant
- Extended Operating Temperature Range: -55°C to +95°C
- Remote ON/OFF Control
- Custom Designs Available

APPLICATIONS

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

DESCRIPTION

The DCMUA series of isolated DC/DC power converters provides 5 Watts of continuous output power in a 2.0” x 1.0” x 0.4” shielded metal case. This series consists of single and dual output models with 2:1 input voltage ranges of 9-18VDC, 18~36VDC, and 36~75VDC. Some features include high efficiency up to 87%, 1500VDC I/O isolation, and -55°C to +95°C extended operating temperature range. The DCMUA series is RoHS compliant and has short circuit, over load, over voltage, and reverse voltage protection. These converters are best suited for use in military applications, battery operated equipment, measurement equipment, telecom, wireless networks, industry control systems, and anywhere where isolated, tightly regulated voltages and compact size are required.

TECHNICAL SPECIFICATIONS: DCMUA 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	12VDC nominal input models		9	12	18	VDC
	24VDC nominal input models		18	24	36	
	48VDC nominal input models		36	48	75	
Input Surge Voltage (100ms max)	12VDC nominal input models				25	VDC
	24VDC nominal input models				50	
	48VDC nominal input models				100	
Input Reflected Ripple Current	Nominal Vin and full load			250		mAp-p
Input Current			See Table			
Input Filter			Pi Type			
Sourcing Current of Remote Control Pin	Nominal Vin				0.2	mA
Idle Input Current (at Remote OFF State)	Nominal Vin				3	mA
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy	Full load and nominal Vin		-1		+1	%
Output Current			See Table			
Minimum Load			See Table			
Maximum 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	-5		+5	
Output Power			0		5	W
Ripple & Noise	20MHz bandwidth				75	mVp-p
Temperature Coefficient					±0.02	%/°C
Transient Response Overshoot	di/dt=0.8A/µs				±5	% of Vo
Transient Response Settling Time	50% load step change			300		µs
PROTECTION						
Over Voltage Protection	3.3VDC output models	Zener Diode Clamp			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 at nominal input			150		%
Reverse Voltage Protection					1.0	A
GENERAL SPECIFICATIONS						
Efficiency	Nominal input		See Table			
Isolation Voltage	Input to Output		1500			VDC
Isolation Resistance	Input to Output (500VDC)		1			GΩ
Isolation Capacitance	24VDC nominal input			580		pF
Switching Frequency				300		KHz
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature	With derating (see derating curve)		-55		+95	°C
Maximum Case Surface Temperature					+105	°C
Storage Temperature			-55		+125	°C
Relative Humidity			5		95	% RH
Cooling			Free air convection			
Soldering Temperature	Lead-free wave soldering		260°C/10sec. max.			
MTBF			1,960,000 hours			
PHYSICAL SPECIFICATIONS						
Case Material			Nickel-coated copper			
Base Material			Non-conductive black plastic			
Potting Material			Silicon rubber (UL94V-0)			
Weight			1.06oz (30g)			
Dimensions (L x W x H)			2.0 x 1.0 x 0.4 inches (50.8 x 25.4 x 10.2 mm)			

MODEL SELECTION TABLE

SINGLE OUTPUT MODELS

Model Number	Input Voltage Range	Output Voltage	Output Current		Input Current		Output Power	Efficiency	Maximum [2] Capacitive Load
			Min Load [1]	Full Load	No Load	Full Load			
DCMUA12S3.3-5	12 VDC (9 – 18 VDC)	3.3 VDC	20mA	1500mA	7mA	558mA	5W	78%	4700µF
DCMUA12S5-5		5 VDC	0mA	1000mA	7mA	549mA	5W	80%	2200µF
DCMUA12S12-5		12 VDC	0mA	416mA	18mA	514mA	5W	85%	330µF
DCMUA12S15-5		15 VDC	0mA	333mA	22mA	514mA	5W	85%	220µF
DCMUA24S3.3-5	24 VDC (18 – 36 VDC)	3.3 VDC	20mA	1500mA	4mA	275mA	5W	79%	3200µF
DCMUA24S5-5		5 VDC	0mA	1000mA	4mA	268mA	5W	82%	2200µF
DCMUA24S12-5		12 VDC	0mA	416mA	10mA	254mA	5W	86%	330µF
DCMUA24S15-5		15 VDC	0mA	333mA	12mA	251mA	5W	87%	220µF
DCMUA48S3.3-5	48 VDC (36 – 75 VDC)	3.3 VDC	20mA	1500mA	1.6mA	142mA	5W	77%	3300µF
DCMUA48S5-5		5 VDC	0mA	1000mA	1.7mA	134mA	5W	82%	2200µF
DCMUA48S12-5		12 VDC	0mA	416mA	6mA	129mA	5W	85%	220µF
DCMUA48S15-5		15 VDC	0mA	333mA	7mA	127mA	5W	86%	147µF

DUAL OUTPUT MODELS

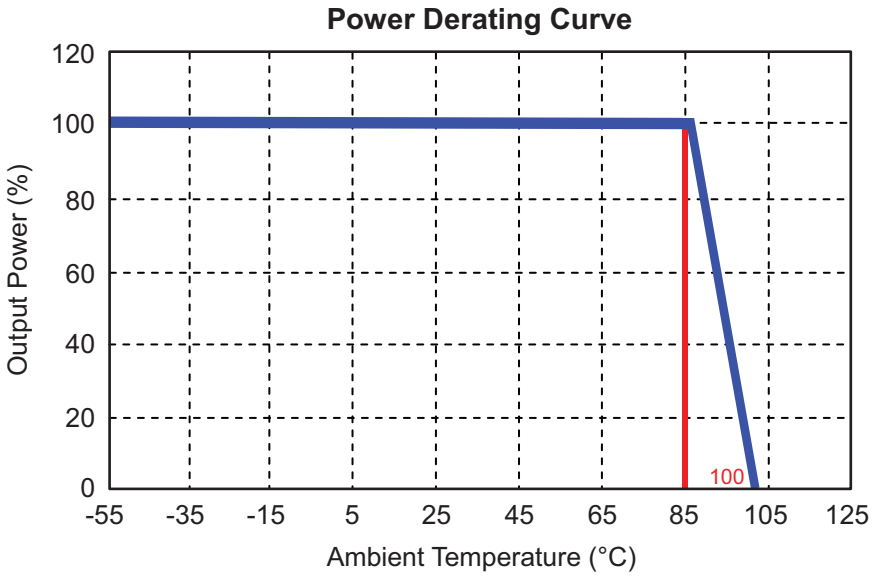
Model Number	Input Voltage Range	Output Voltage	Output Current		Input Current		Output Power	Efficiency	Maximum [2] Capacitive Load
			Min Load [1]	Full Load	No Load	Full Load			
DCMUA12D5-5	12 VDC (9 – 18 VDC)	±5 VDC	57mA	±500mA	6mA	535mA	5W	82%	1100µF
DCMUA12D12-5		±12 VDC	0mA	±208mA	27mA	520mA	5W	84%	100µF
DCMUA12D15-5		±15 VDC	0mA	±167mA	30mA	516mA	5W	85%	69µF
DCMUA24D5-5	24 VDC (18 – 36 VDC)	±5 VDC	57mA	±500mA	4mA	264mA	5W	83%	990µF
DCMUA24D12-5		±12 VDC	0mA	±208mA	15mA	254mA	5W	86%	122µF
DCMUA24D15-5		±15 VDC	0mA	±167mA	15mA	252mA	5W	87%	147µF
DCMUA48D5-5	48 VDC (36 – 75 VDC)	±5 VDC	57mA	±500mA	22mA	134mA	5W	82%	1000µF
DCMUA48D12-5		±12 VDC	0mA	±208mA	8mA	127mA	5W	86%	220µF
DCMUA48D15-5		±15 VDC	0mA	±167mA	8mA	127mA	5W	86%	13µF

NOTES

1. Output current under this value will not damage these devices; however, they may not meet all listed specifications.

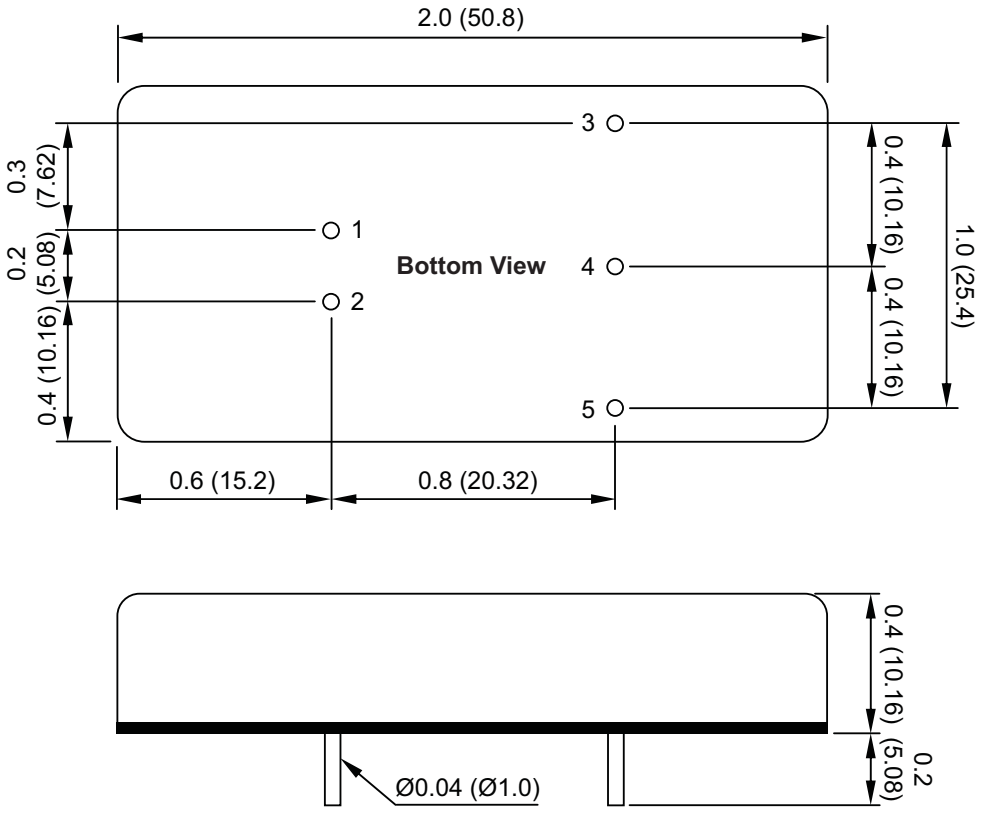
2. For each output.

DERATING CURVE



MECHANICAL DRAWING

Unit: inches (mm)



PIN ASSIGNMENT		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout

Tolerance: ±0.02 (±0.5)

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:

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