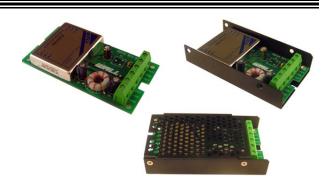




## **FEATURES**

- 1500VDC Isolation
- Six-Sided Shielding
- MTBF>700,000 Hours
- Remote On/Off Control
- UL1950 Safety Approval
- Internal SMT Construction
- 4:1 Ultra Wide Input Range
- UL 94V-0 Package Material
- Complies with EN55022 Class A • Call Factory for More Output Power Options
- Chassis Mount Options: Open Frame, U Channel, and Enclosed Types Available



SPECIFICATIONS: CMDMW Series  All specifications are ba	ased on 25°C, Nominal Input Voltage, and Maximum Output Curr	ent unless otherwis	se noted.							
We reserve the right to change specifications based on technological advances.										
SPECIFICATION INPUT (V <sub>in</sub> )	TEST CONDITIONS	Min	Nom	Max	Unit					
Operating Voltage Range			9-36, 18-75	5	VDC					
	24V input models	8	8.5	9	VDC					
Start Voltage	48V input models	15	17	18	VDC					
	24V input models	7	8	8.5	VDC					
Under Voltage Shutdown	48V input models	13	15	17	VDC					
Reverse Polarity Input Current	To v in par modelo	10		1	A					
Short Circuit Input Power			3500	•	mW					
	24V input models	-0.7	3333	50	VDC					
Input Surge Voltage (1000ms)	48V input models	-0.7								
OUTPUT (V <sub>o</sub> )		<u> </u>	•							
Output Voltage Range			See Rat	ing Chart						
Output Voltage Accuracy			±1.0	±2.0	%					
Load Regulation	Io = 10% to 100%		±0.5	±1.0	%					
Line Regulation	Vin = min. to max.		±0.1	±0.5	%					
Output Power				15	W					
Output Current Range			See Rat	ing Chart						
Ripple & Noise (peak to peak)	20MHz		55	80	mV <sub>pk-pl</sub>					
Ripple & Noise (peak to peak)	Over Line, Load, and Temperature			100	mV <sub>pk-p</sub>					
Ripple & Noise	·			15	mVrms					
Transient Recovery Time	25% load step change		300	500	μs					
Transient Response Deviation	25% load step change		±2	±4	%					
REMOTE ON/OFF										
Supply On		2.5	to 5.5VDC	or Open C	ircuit					
Supply Off		-0.7		0.8	VDC					
Standby Input Current				10	mA					
Control Input Current (On)	Vin – RC = 5.0V			50	mA					
Control Input Current (Off)	Vin – RC = 0V			-1	mA					
Control Common		Re	ferenced to	negative i	nput					
PROTECTION										
Over Power Protection		120			%					
Short Circuit Protection			Conti	nuous						
GENERAL										
Efficiency				ing Chart						
Switching Frequency		290	330	400	KHz					
Isolation Voltage Rated	60 seconds	1500			VDC					
Isolation Voltage Test	Flash Test for 1 second	1650			VDC					
Isolation Resistance	500VDC	1000			MΩ					
Isolation Capacitance	100KHz, 1V		1200	1500	pF					
Internal Power Dissipation				5,000	mW					
ENVIRONMENTAL			T		100					
Operating Temperature (Ambient)		-40		+60	°C					
Operating Temperature (Case)		-40		+100	°C					
Storage Temperature	4.5	-50		+125	°C					
Lead Temperature	1.5mm from case for 10 seconds			260	°C					
Humidity			F	95	%					
Cooling		<u> </u>	Free air convection Six-sided shielding, metal case							
RFI Temperature Coefficient		SIX-								
	MIL HDDK 247E @ 25°C Crawad Bankan	700	±0.01	±0.02	%/°C					
MTBF	MIL-HDBK-217F @ 25°C, Ground Benign	700	ENEGO	2 Class A	Khour					
Conducted EMI			⊏N5502	2 Class A						
PHYSICAL			Approvie	actoby Co-						
Weight Dimonsions		4.00//	Approximately 6oz							
Dimensions Flammability		4.00(1	4.00(L) x 2.25(W) x 0.81(H) inches							
Flammability Heatsink material			UL94V-0							
			Aluminum Anodic treatment (black)							



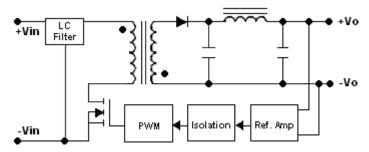
## **OUTPUT VOLTAGE / CURRENT RATING CHART**

Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Reflected	Efficiency	Max Capacitive
			Min	Max	No Load	Max Load	Ripple Current	(Typ)	Load
CMDMW24S3.3-3000	24 VDC - (9 - 36 VDC)	3.3 VDC	300 mA	3000mA	25mA (typ)	528 mA	40mA (typ)	78%	470 μF
CMDMW24S5-3000		5 VDC	300 mA	3000 mA		762 mA		82%	470 μF
CMDMW24S5.1-3000		5.1 VDC	300 mA	3000 mA		735 mA		81%	470 μF
CMDMW24S12-1250		12 VDC	125 mA	1250 mA		726 mA		85%	470 μF
CMDMW24S15-1000		15 VDC	100 mA	1000 mA		771 mA		86%	470 μF
CMDMW48S3.3-3000	- 48 VDC - (18 - 75 VDC)	3.3 VDC	300 mA	3000 mA	15mA (typ)	26 mA	30mA (typ)	78%	470 μF
CMDMW48S5-3000		5 VDC	300 mA	3000 mA		381 mA		82%	470 μF
CMDMW48S5.1-3000		5.1 VDC	300 mA	3000 mA		368 mA		81%	470 μF
CMDMW48S12-1250		12 VDC	125 mA	1250 mA		363 mA		85%	470 μF
CMDMW48S15-1000		15 VDC	100 mA	1000 mA		386 mA		86%	470 μF

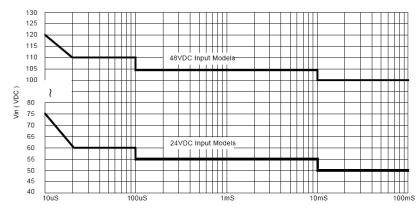
## **NOTES**

- 1. Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%.
- 2. Ripple and noise measured at 20MHz bandwidth.
- 3. The CMDMW series requires a minimum 10% load on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specifications.
- 4. Other input and output voltages may be available, please contact factory.
- 5. On/Off control is optional, please contact factory. Control voltage referenced to negative input (-Vin).
- 6. Heat-sink is optional, consult factory.
- 7. Chassis Mount Options: No suffix for open frame, "U" suffix for U Channel, and "E" suffix for Enclosed type.

### **BLOCK DIAGRAM**



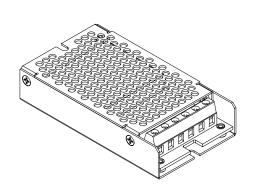
# INPUT VOLTAGE TRANSIENT RATING

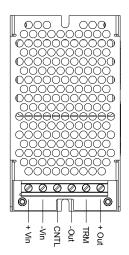


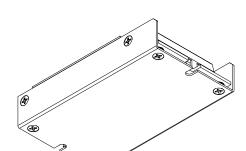


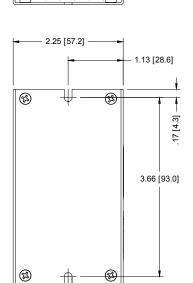
## **MECHANICAL DRAWING**

Unit: inches [mm]

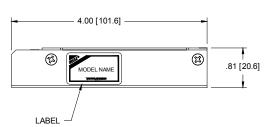








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## **DESIGN & FEATURE CONSIDERATONS**

#### Remote On/Off

Positive logic remote on/off turns the module on during a logic high voltage on the remote on/off pin, and off during a logic low. To turn the power module on and off, the user must supply a switch to control the voltage between the on/off terminal and the -Vin terminal. The switch can be an open collector or equivalent.

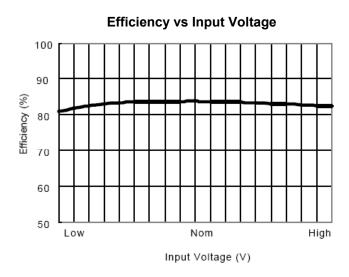
A logic low is -0.7V to 0.8V.

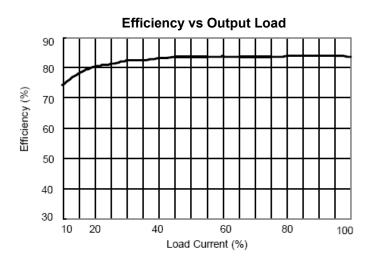
A logic high is 2.5V to 5.5V.

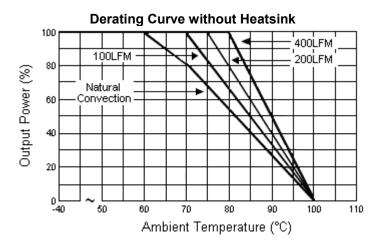
The maximum sink current at on/off terminal during a logic low is -1mA. The maximum allowable leakage current of the switch at on/off terminal (2.5 to 5.5V) is 50uA.

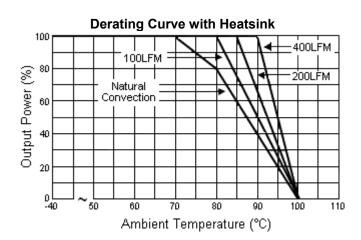
### **Over Current Protection**

To provide protection in a fault (output overload) condition, the unit is equipped with internal current limiting circuitry and can endure current limiting for an unlimited duration. At the point of current-limit inception, the unit shifts from voltage control to current control. The unit operates normally once the output current is brought back into its specified range.











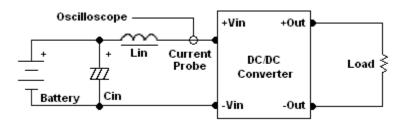
## **TEST CONFIGURATIONS**

## Input Reflected-Ripple Current Test Setup

Input reflected-ripple current is measured with an inductor Lin (4.7uH) and Cin (220uF, ESR <  $1.0\Omega$  at 100 KHz) to simulate source impedance.

Capacitor Cin offsets possible battery impedance.

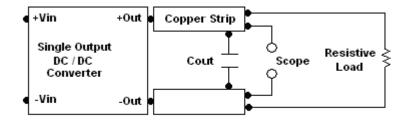
Current ripple is measured at the input terminals of the module. Measurement bandwidth is 0-500 KHz.



## **Peak-to-Peak Output Noise Measurement Test**

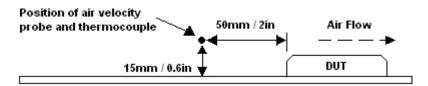
Use a Cout 0.47uF ceramic capacitor.

Scope measurement should be made by using a BNC socket; measurement bandwidth is 0-20 MHz. Position the load between 50 mm and 75 mm from the DC/DC Converter.



#### **Thermal Considerations**

Many conditions affect the thermal performance of the power module, such as orientation, airflow over the module, and board spacing. To avoid exceeding the maximum temperature rating of the components inside the power module, the case temperature must be kept below 100°C. The derating curves are determined from measurements obtained in an experimental apparatus.







### **COMPANY INFORMATION:**

Wall Industries, Inc. has created custom and modified units for over 40 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on time and on budget. Our ISO9001-2000 certification is just one example of our commitment to producing a high guality, 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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