

**UL US CE CB Patent Protection RoHS**

Size: 0.77in x 0.28in x 0.4in  
(19.65mm x 7.05mm x 10.16mm)

**FEATURES**

- Fixed Input Voltage
- Unregulated Outputs
- High Efficiency
- Industry Standard Pin-Out
- High Power Density
- Continuous Short Circuit Protection
- I/O Isolation Test Voltage: 3KVDC
- No Load Input Current as Low as 8mA
- RoHS Compliant
- IEC62368, UL62368, EN62368 Approvals

**DESCRIPTION**

The LANM2 series of isolated DC/DC converters offers 2 watts of output power in a compact 0.77" x 0.28" x 0.4" through hole package. This series consists of unregulated single and dual output models with a fixed input voltage. Each model features high efficiency, industry standard pin-out, and continuous short circuit protection. This series is also RoHS compliant and has IEC62368, UL62368, and EN62368 safety approvals.

**MODEL SELECTION TABLE**

Single Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current		Efficiency		Output Power	Maximum Capacitive Load	Certification
			Min.	Max.	Min.	Typ.			
LANM2-1205NSH	12VDC (10.8~13.2VDC)	5VDC	40mA	400mA	78%	82%	2W	2400µF	UL/CE/CB
LANM2-1264NSH		6.4VDC	31mA	312mA	78%	82%		1000µF	-
LANM2-1209NSH		9VDC	22mA	222mA	78%	82%		1000µF	-
LANM2-1212NSH		12VDC	17mA	167mA	80%	84%		560µF	UL/CE/CB
LANM2-1215NSH		15VDC	13mA	133mA	81%	85%		560µF	UL/CE/CB
LANM2-1224NSH		24VDC	8mA	83mA	82%	86%		220µF	UL/CE/CB
LANM2-1505NSH	15VDC (13.5~16.5VDC)	5VDC	40mA	400mA	76%	80%	2W	2400µF	-
LANM2-1509NSH		9VDC	22mA	222mA	76%	80%		1000µF	-
LANM2-1512NSH		12VDC	17mA	167mA	77%	81%		560µF	-
LANM2-1515NSH		15VDC	13mA	133mA	77%	81%		560µF	-
LANM2-1524NSH		24VDC	8mA	83mA	77%	81%		220µF	-
LANM2-2403NSH	24VDC (21.6~26.4VDC)	3.3VDC	40mA	400mA	70%	76%	2W	2400µF	-
LANM2-2405NSH		5VDC	40mA	400mA	74%	80%		2400µF	UL/CE/CB
LANM2-2472NSH		7.2VDC	27mA	278mA	74%	80%		1000µF	-
LANM2-2409NSH		9VDC	22mA	222mA	75%	81%		1000µF	-
LANM2-2412NSH		12VDC	17mA	167mA	78%	84%		560µF	UL/CE/CB
LANM2-2415NSH		15VDC	13mA	133mA	80%	86%		560µF	UL/CE/CB
LANM2-2418NSH		18VDC	11mA	111mA	80%	86%		220µF	-
LANM2-2424NSH		24VDC	8mA	83mA	80%	86%		220µF	UL/CE/CB

**MODEL SELECTION TABLE**

Dual Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current		Efficiency		Output Power	Maximum Capacitive Load <sup>(1)</sup>	Certification
			Min.	Max.	Min.	Typ.			
LANM2-1203NDH	12VDC (10.8~13.2VDC)	±3.3VDC	±30mA	±303mA	71%	75%	2W	1200µF	UL/CE/CB
LANM2-1205NDH		±5VDC	±20mA	±200mA	76%	80%		1200µF	UL/CE/CB
LANM2-1272NDH		±7.2VDC	±13mA	±139mA	76%	80%		470µF	-
LANM2-1209NDH		±9VDC	±11mA	±111mA	78%	82%		470µF	-
LANM2-1212NDH		±12VDC	±8mA	±83mA	79%	83%		220µF	UL/CE/CB
LANM2-1215NDH		±15VDC	±7mA	±67mA	79%	83%		220µF	UL/CE/CB
LANM2-1224NDH		±24VDC	±4mA	±42mA	79%	83%		100µF	-
LANM2-1505NDH	15VDC (13.5~16.5VDC)	±5VDC	±20mA	±200mA	76%	80%	2W	1200µF	-
LANM2-1515NDH		±15VDC	±7mA	±67mA	78%	82%		220µF	-
LANM2-2403NDH	24VDC (21.6~26.4VDC)	±3.3VDC	±30mA	±303mA	70%	76%	2W	1200µF	-
LANM2-2405NDH		±5VDC	±20mA	±200mA	74%	80%		1200µF	UL/CE/CB
LANM2-2472NDH		±7.2VDC	±13mA	±139mA	74%	80%		470µF	-
LANM2-2409NDH		±9VDC	±11mA	±111mA	75%	81%		470µF	-
LANM2-2412NDH		±12VDC	±8mA	±83mA	77%	83%		220µF	UL/CE/CB
LANM2-2415NDH		±15VDC	±7mA	±67mA	77%	83%		220µF	UL/CE/CB
LANM2-2424NDH		±24VDC	±4mA	±42mA	77%	83%		100µF	-

**SPECIFICATIONS**

All specifications are based on Ta=25°C, Humidity <75%RH, Nominal Input Voltage, and Rated Output Load unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

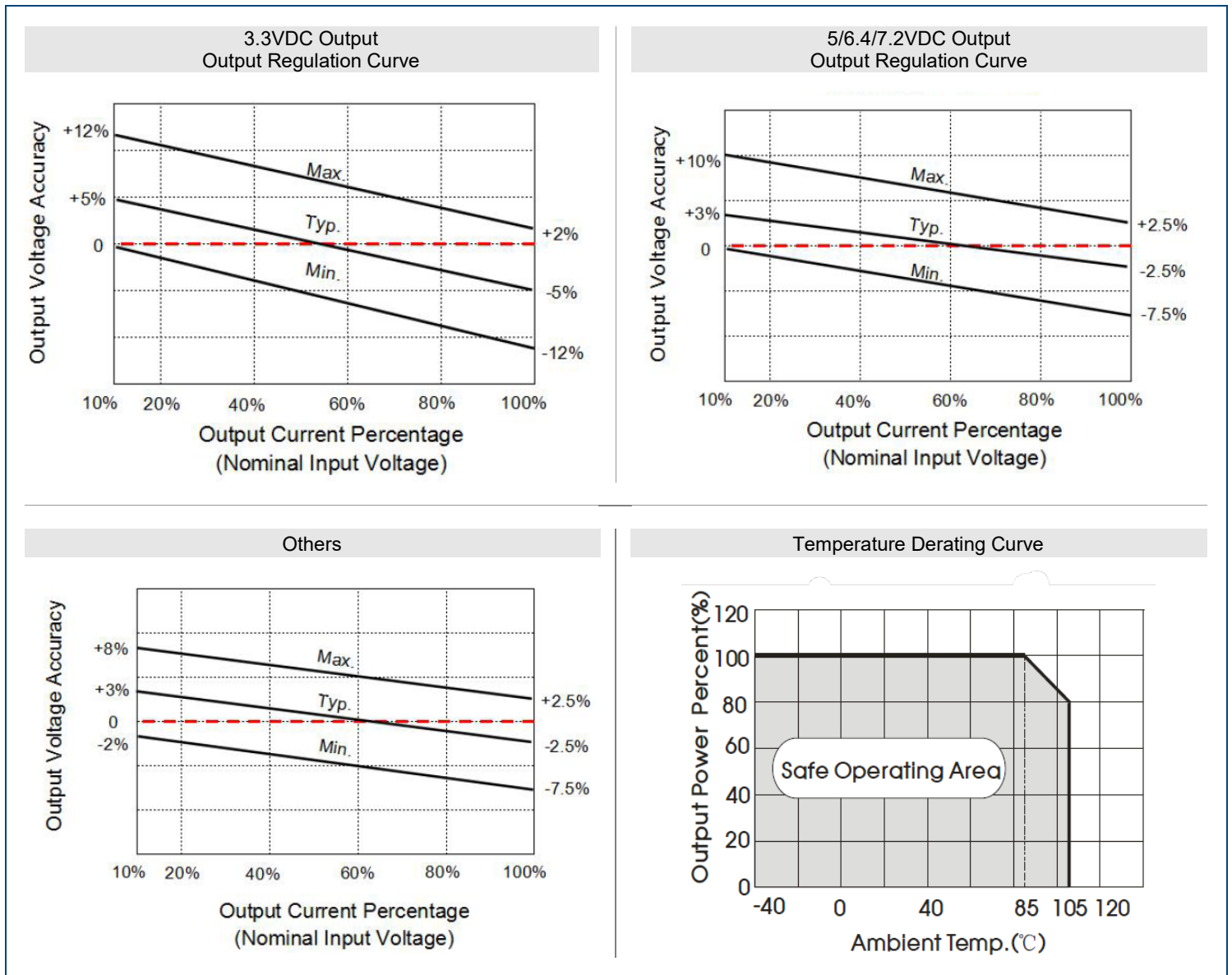
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
<b>INPUT SPECIFICATIONS</b>						
Input Voltage Range			See Table			
Input Current	No Load	12V Input		8		mA
		15V Input		8		
		24V Input		8		
	Full Load	12V Input		208		mA
		15V Input		167		
		24V Input		104		
Reflected Ripple Current				15		mA
Surge Voltage (1 sec. Max.)	12V Input		-0.7		18	VDC
	15V Input		-0.7		21	
	24V Input		-0.7		30	
Input Filter			Capacitance Filter			
Hot Plug			Unavailable			
<b>OUTPUT SPECIFICATIONS</b>						
Output Voltage			See Table			
Voltage Accuracy			See Output Regulation Curves			
Line Regulation	Input Voltage Change: ±1%	3.3VDC Output Others			±1.5 ±1.2	-
Load Regulation	10% - 100%	3.3VDC Output		15		%
		5VDC Output		7		
		6.4VDC Output		10		
		7.2VDC Output		6		
		9VDC Output		5		
		12VDC Output		5		
		15VDC Output		4		
		18VDC Output		3		
24VDC Output		3				
Output Power			See Table			
Output Current			See Table			
Maximum Capacitive Load	Tested at input voltage range and full load		See Table			
Ripple & Noise <sup>(2)</sup>	20MHz bandwidth			75	180	mVp-p
Temperature Coefficient	Full Load			±0.02		%/°C
<b>PROTECTION</b>						
Short Circuit Protection			Continuous, Self-Recovery			
<b>ENVIRONMENTAL SPECIFICATIONS</b>						
Operating Temperature	Derating when operating temperature ≥85°C (See Fig. 2)		-40		105	°C
Storage Temperature			-55		125	°C
Case Temperature Rise	Ta=25°C			25		°C
Storage Humidity	Non-Condensing		5		95	%RH
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds				300	°C
Vibration			10-150Hz, 5G, 0.75mm, along X, Y, and Z			
MTBF	MIL-HDBK-217F@25°C		3500			kHours
<b>GENERAL SPECIFICATIONS</b>						
Efficiency			See Table			
Switching Frequency	Full Load, Nominal Input Voltage			260		kHz
Isolation	Input-Output electric strength test for 1 minute with a leakage current of 1mA max.		3000			VDC
Insulation Resistance	Input-Output resistance at 500VDC		1000			MΩ
Isolation Capacitance	Input-Output Capacitance at 100kHz/0.1V			20		pF
<b>PHYSICAL SPECIFICATIONS</b>						
Weight			0.08oz (2.4g) Typ.			
Dimensions (L x W x H)			0.77in x 0.28in x 0.4in (19.65mm x 7.05mm x 10.16mm)			
Case Material	Black Plastic		Flame Retardant & Heat Resistant (UL94 V-0)			
Cooling Method			Free Air Convection			
<b>SAFETY CHARACTERISTICS</b>						
Safety Approvals			IEC62368, UL62368, EN62368			
Emissions <sup>(4)</sup>	CE		CISPR32/EN55032		Class B	
	RE		CISPR/EN55032		Class B	
Immunity <sup>(4)</sup>	ESD	IEC/EN61000-4-2	Air ±8kV, Contact ±6kV		Perf. Criteria B	

**NOTES**

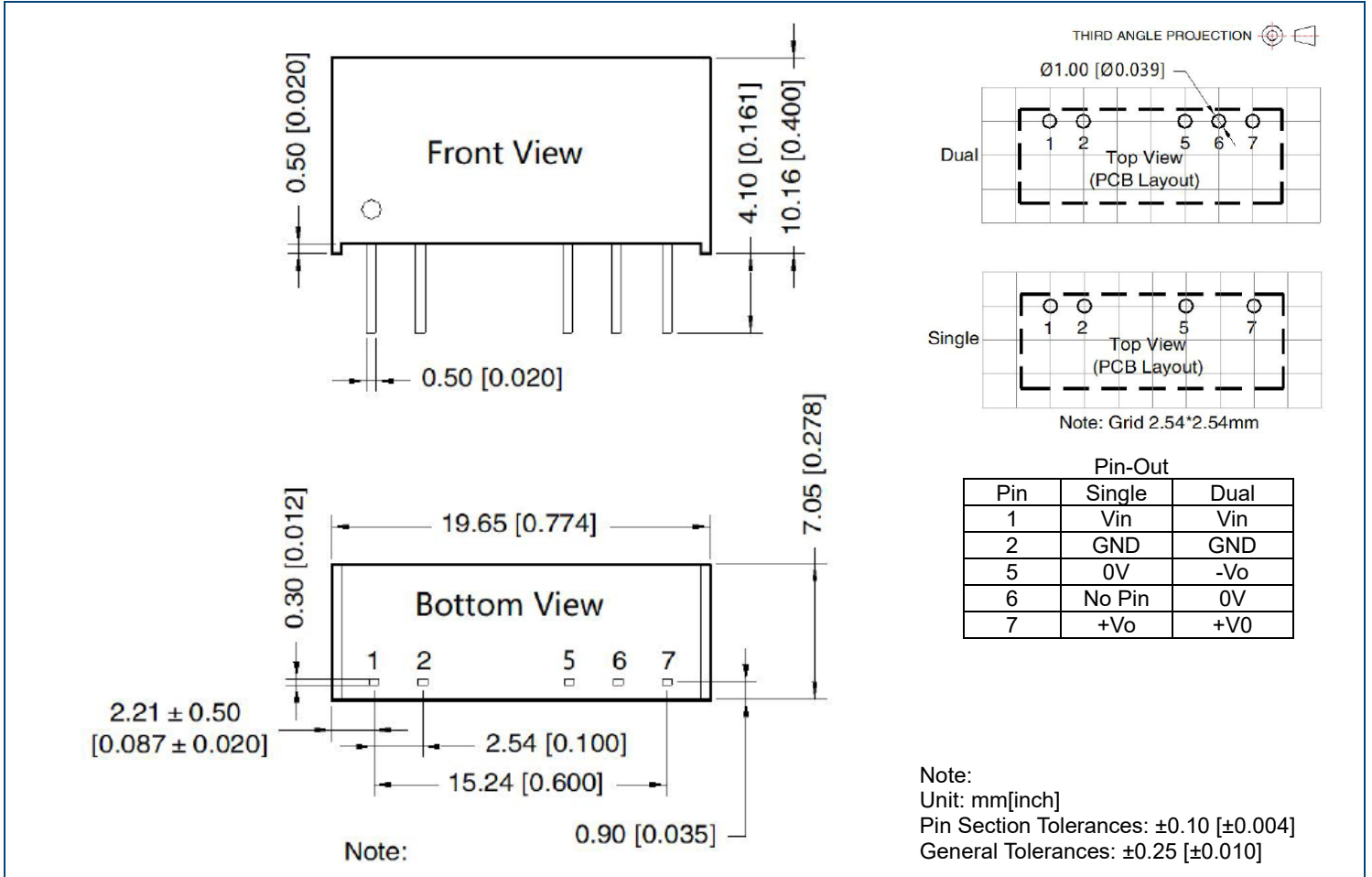
1. The specified maximum capacitive load for positive and negative output is identical.
2. Parallel Cable method is used for ripple and noise test, please contact factory for more information.
3. Refer EMC Compliance Circuit (Fig. 2) for recommended Circuit Test.
4. This product is Listed to applicable standards and requirements by UL.
5. If the product is not operated within the required load range, product performance cannot be guaranteed to comply with all parameters in the datasheet.
6. Product customization is available, contact factory for more information.
7. Product should be classified according to ISO14001 and related environmental laws and regulations and should be handled by qualified units.

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

**TYPICAL PERFORMANCE CURVES**



MECHANICAL DRAWINGS



DESIGN REFERENCE

1. Typical Application

Input and/or output ripple can be further reduced by connecting a filter capacitor from the input and/or output terminal to ground as shown in Fig. 1.

Choosing suitable filter capacitor values is very important for a smooth operation of the modules, particularly to avoid start-up problems caused by capacitor values that are too high. For recommended input and output capacitor values, refer to Table 1.

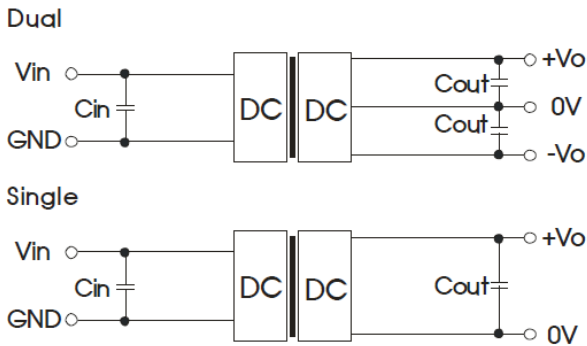


Fig. 1

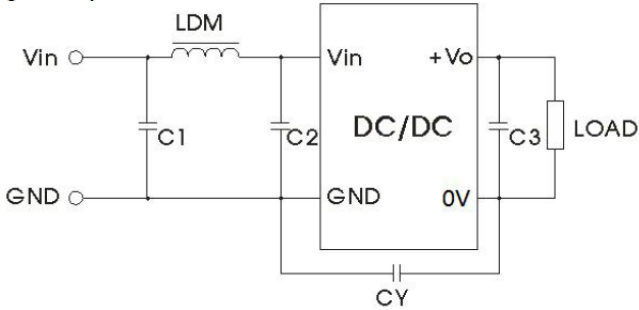
Table 1: Recommended Input and Output Capacitor Values

Vin	Cin	Single Output	Cout	Dual Output	Cout*
12VDC	2.2 $\mu$ F/25V	3.3VDC	10 $\mu$ F/16V	$\pm 3.3$ VDC	4.7 $\mu$ F/16V
15VDC	2.2 $\mu$ F/25V	5VDC	10 $\mu$ F/16V	$\pm 5$ VDC	4.7 $\mu$ F/16V
24VDC	1 $\mu$ F/50V	6.4VDC	4.7 $\mu$ F/16V	$\pm 7.2$ VDC	2.2 $\mu$ F/25V
-	-	7.2VDC	2.2 $\mu$ F/25V	$\pm 9$ VDC	2.2 $\mu$ F/25V
-	-	9VDC	2.2 $\mu$ F/25V	$\pm 12$ VDC	1 $\mu$ F/25V
-	-	12VDC	2.2 $\mu$ F/25V	$\pm 15$ VDC	1 $\mu$ F/25V
-	-	15VDC	1 $\mu$ F/25V	$\pm 24$ VDC	0.47 $\mu$ F/50V
-	-	18VDC	1 $\mu$ F/50V	-	-
-	-	24VDC	1 $\mu$ F/50V	-	-

\*Note: The capacitor value of the positive and negative output is identical

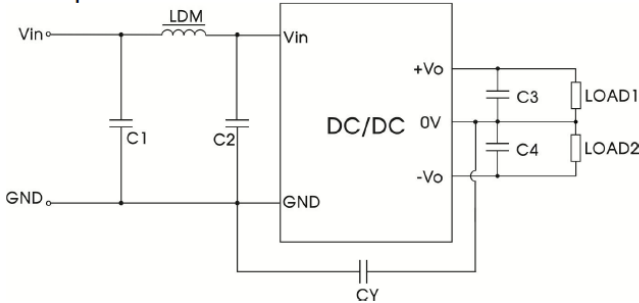
2. EMC Compliance Circuit

Single Output



Input Voltage (VDC)		12/15/24
EMI	C1/C2	4.7 $\mu$ F/50V
	CY	270pF/3kV
	C3	Refer to Cout in Fig. 1
	LDM	6.8 $\mu$ H

Dual Output



Input Voltage (VDC)		12/15/24
EMI	C1/C2	4.7 $\mu$ F/50V
	CY	270pF/3kV
	C3/C4	Refer to Cout in Fig. 1
	LDM	6.8 $\mu$ H

Fig. 2

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: 2015 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](mailto:sales@wallindustries.com)  
 Web: [www.wallindustries.com](http://www.wallindustries.com)  
 Address: 37 Industrial Drive  
 Exeter, NH 03833

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