



Size: 1.25in x 0.34in x 0.57in (31.8mm x 8.6mm x 14.5mm)

**FEATURES**

- RoHS Compliant
- Low Ripple and Noise
- Single and Dual Outputs
- Ultra Miniature SIP: 12 Pin
- Internal SMD Construction
- Regulated and Non-Regulated Versions Available
- Two Levels of I/O Isolation Available: 500VDC or 3KVDC
- Recognized by UL 60950-1

**DESCRIPTION**

When board space is at a premium and voltage conversions require low power the LAN F series miniature converters offer superior performance for an economical price. A multitude of options and operating ranges allow you to custom-tailor these converters to your application requirements. These dc/dc converters provide up to 1.8 watts of power while maintaining specifications over the entire commercial operating temperature range. This series is RoHS compliant and is recognized by UL 60950-1.

**MODEL SELECTION TABLE**

Single Output Models

Model Number <sup>(1)</sup>	Input Voltage Range	Output Voltage	Output Current	Efficiency		Ripple & Noise	Output Power
				Regulated	Non-Regulated		
LANF505N	5VDC (4.5-5.5VDC)	5VDC	360mA	58%	70%	50mVp-p	1.8W
LANF509N		9VDC	200mA	60%	70%		
LANF512N		12VDC	150mA	60%	75%		
LANF515N		15VDC	120mA	60%	75%		
LANF524N	12VDC (10.8-13.2VDC)	24VDC	75mA	60%	80%	50mVp-p	1.8W
LANF1205N		5VDC	360mA	58%	70%		
LANF1209N		9VDC	200mA	60%	70%		
LANF1212N		12VDC	150mA	60%	75%		
LANF1215N	15VDC (13.5-16.5VDC)	15VDC	120mA	60%	75%	50mVp-p	1.8W
LANF1224N		24VDC	75mA	60%	80%		
LANF1505N		5VDC	360mA	58%	70%		
LANF1509N		9VDC	200mA	60%	70%		
LANF1512N	24VDC (21.6-26.4VDC)	12VDC	150mA	60%	75%	50mVp-p	1.8W
LANF1515N		15VDC	120mA	60%	75%		
LANF1524N		24VDC	75mA	60%	80%		
LANF2405N		5VDC	360mA	58%	70%		
LANF2409N	9VDC	9VDC	200mA	60%	70%	50mVp-p	1.8W
LANF2412N		12VDC	150mA	60%	75%		
LANF2415N		15VDC	120mA	60%	75%		
LANF2424N		24VDC	75mA	60%	80%		

**MODEL SELECTION TABLE**

Dual Output Models

Model Number <sup>(1)</sup>	Input Voltage Range	Output Voltage	Output Current	Efficiency		Ripple & Noise	Output Power
				Regulated	Non-Regulated		
LANF505ND	5VDC (4.5-5.5VDC)	±5VDC	±180mA	-	70%	50mVp-p	1.8W
LANF509ND		±9VDC	±100mA	-	70%		
LANF512ND		±12VDC	±75mA	60%	75%		
LANF515ND		±15VDC	±60mA	60%	75%		
LANF524ND		±24VDC	±38mA	60%	80%		
LANF1205ND	12VDC (10.8-13.2VDC)	±5VDC	±180mA	-	70%	50mVp-p	1.8W
LANF1209ND		±9VDC	±100mA	-	70%		
LANF1212ND		±12VDC	±75mA	60%	75%		
LANF1215ND		±15VDC	±60mA	60%	75%		
LANF1224ND		±24VDC	±38mA	60%	80%		
LANF1505ND	15VDC (13.5-16.5VDC)	±5VDC	±180mA	-	70%	50mVp-p	1.8W
LANF1509ND		±9VDC	±100mA	-	70%		
LANF1512ND		±12VDC	±75mA	60%	75%		
LANF1515ND		±15VDC	±60mA	60%	75%		
LANF1524ND		±24VDC	±38mA	60%	80%		
LANF2405ND	24VDC (21.6-26.4VDC)	±5VDC	±180mA	-	70%	50mVp-p	1.8W
LANF2409ND		±9VDC	±100mA	-	70%		
LANF2412ND		±12VDC	±75mA	60%	75%		
LANF2415ND		±15VDC	±60mA	60%	75%		
LANF2424ND		±24VDC	±38mA	60%	80%		

**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.

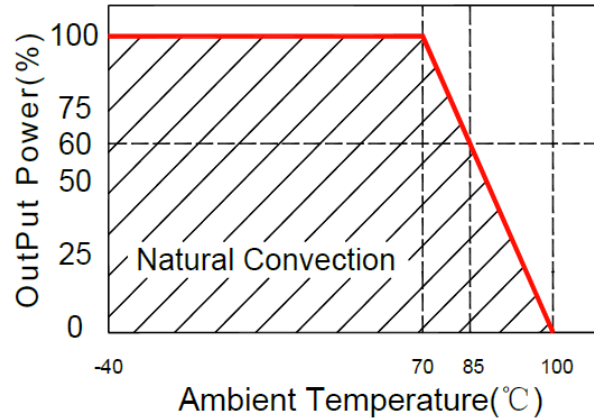
SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
<b>INPUT SPECIFICATIONS</b>					
Input Voltage Range	5V Nominal Input	4.5		5.5	VDC
	12V Nominal Input	10.8		13.2	
	15V Nominal Input	13.5		16.5	
	24V Nominal Input	21.6		26.4	
Input Filter		Pi Network			
<b>OUTPUT SPECIFICATIONS</b>					
Output Voltage		See Table			
Voltage Tolerance	100% Full Load		±5		%
Line Regulation	Regulated		1.2	±0.3	%
	Unregulated for 1% of Vin				
Load Regulation	Regulated			±0.5	%
	Unregulated 20% to 100% FL			10	
Output Power		See Table			
Output Current		See Table			
Ripple & Noise (20MHz bandwidth)				50	mVp-p
Transient Response Setting Time	50% Load Step Change		350		µS
<b>PROTECTION</b>					
Short Circuit Protection	Regulated Models	Continuous			
	Non-Regulated Models	Unregulated			
<b>ENVIRONMENTAL SPECIFICATIONS</b>					
Operating Temperature		-40		85	°C
Storage Temperature		-40		+100	°C
Humidity	Non-Condensing			95	%
Cooling		Free Air Convection			
MTBF	Unregulated, MIL-HDBK-217F @25°C	2,500,000			Hours
	Regulated, MIL-HDBK-217F @25°C	1,500,000			
<b>GENERAL SPECIFICATIONS</b>					
Efficiency		See Table			
Switching Frequency	Full Load, Nominal Input		100		KHz
Isolation Resistance	500VDC	1000			MΩ
Isolation Voltage	Input to Output	Standard		500	VDC
		"H" Suffix		3000	
<b>PHYSICAL SPECIFICATIONS</b>					
Weight		0.3oz (8.3g)			
Dimensions (L x W x H)		1.25in x 0.34in x 0.57in (31.8mm x 8.6mm x 14.5mm)			
Case Material		DAP			
<b>SAFETY CHARACTERISTICS</b>					
Safety Approvals		UL 60950-1			

**NOTES**

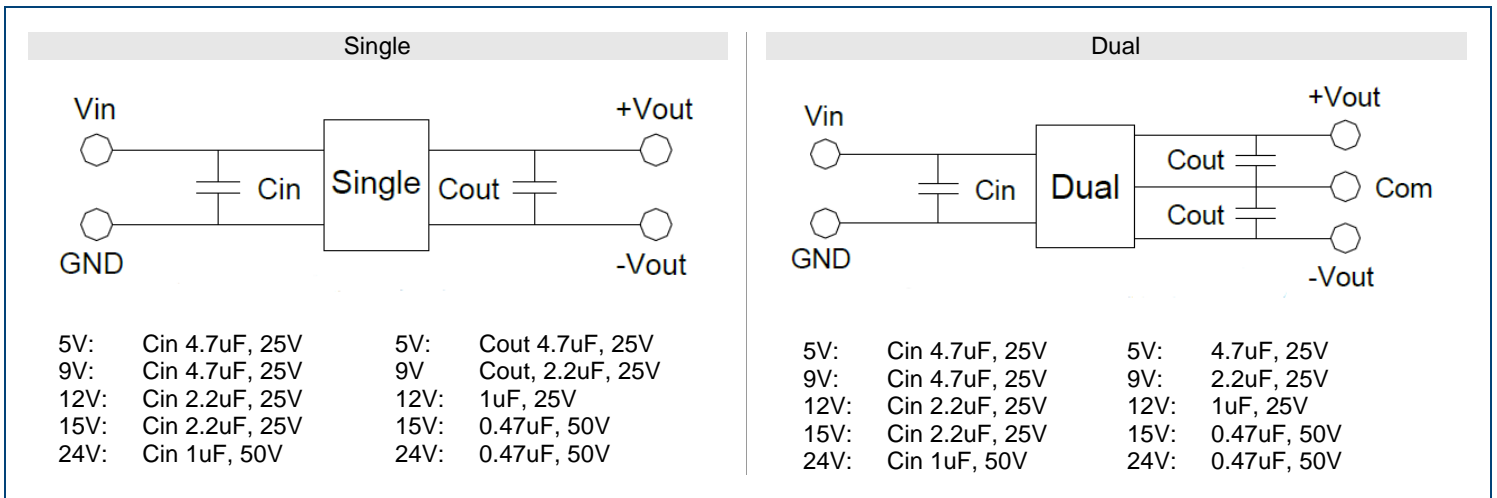
- All case and pin-to-case dimensions reference only unless otherwise noted.
- Models can either be regulated or non-regulated. Substitute "R" for "N" in last digits of part number to indicate regulated model. Please note that LANFxx05ND and LANFxx09ND models cannot be regulated.
- Add "H" onto the end of LANF part number for 3000VDC isolation (Ex: LANF2415NH).

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

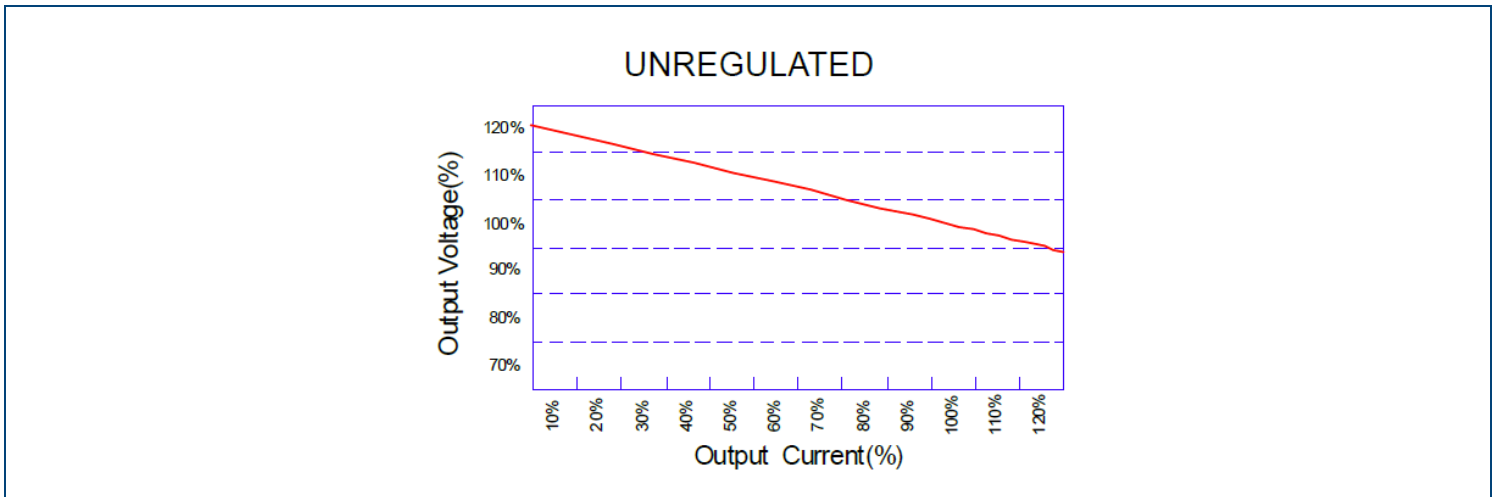
DERATING CURVES



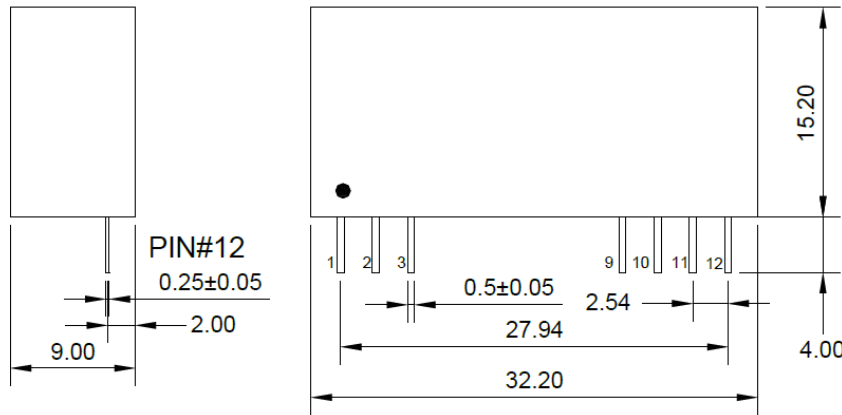
RECOMMENDED TEST CIRCUIT



TOLERANCE ENVELOPE GRAPH



MECHANICAL DRAWINGS

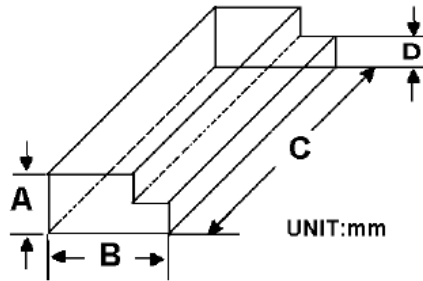


PIN Connections

Pin	Single	Dual
1	+Vin	+Vin
2	NC	-Vout
3	NC	COM
9	NC	NC
10	+Vout	COM
11	+Vout	+Vout
12	-Vin	-Vin

Unit: mm unless otherwise specified. All tolerances are ±0.25

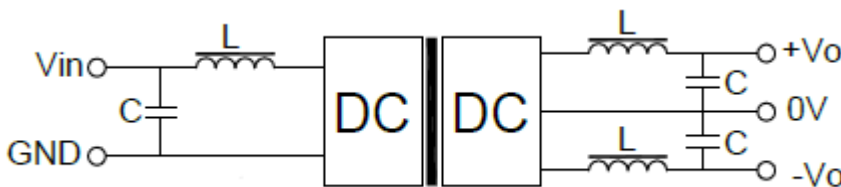
Packaging



Size mm			
A	B	C	D
12.0	28.55	550	6.00

APPLICATION NOTE

Filtering



In some circuits sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. To ensure safe and reliable operation for every channel of output, refer to the external capacitor table for the greatest capacitance of the filter capacitor.

External Capacitor Table

Vin	External Capacitor	Vout	External Capacitor
5VDC	4.7uF/25V	5VDC	4.7uF/25V
9VDC	4.7uF/25V	9VDC	2.2uF/25V
12VDC	2.2uF/25V	12VDC	1uF/25V
15VDC	2.2uF/25V	15VDC	0.47uF/50V
24VDC	1uF/50V	24VDC	0.47uF/50V

To get an extremely low ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect. It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference.

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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.

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