

Wall Industries, Inc.

LANEUW3 SERIES

4:1 Ultra Wide Input Voltage Range
Single and Dual Outputs
0.86" x 0.36" x 0.44" SIP Package
3 Watt DC/DC Power Converters



FEATURES

- 3 Watts Maximum Output Power
- Output Current up to 700mA
- Single and Dual Outputs
- 4:1 Ultra Wide Input Voltage Range
- 0.86 x 0.36 x 0.44 Inch SIP Package
- High Efficiency up to 82%
- 1600VDC I/O Isolation (3000VDC I/O Isolation Available)
- Low Ripple & Noise
- External ON/OFF Control
- Switching Frequency (100KHz, min)
- Continuous Short Circuit Protection
- UL94V-V0 Case Potting Materials
- ISO9001 Certified Manufacturing Facilities
- CE Mark Meets 2006/95/EC, 93/68/EEC, and 2004/108/EC
- UL60950-1, EN60950-1, and IEC60950-1 Safety Approvals
- Compliant to RoHS EU Directive 2002/95/EC

APPLICATIONS

- Wireless Networks
- Telecom / Datacom
- Industry Control Systems
- Measurement Equipment
- Semiconductor Equipment

OPTIONS

- 3000VDC I/O Isolation (Suffix "H")

DESCRIPTION

The LANEUW3 series of DC/DC power converters provides 3 Watts of output power in a 0.86" x 0.36" x 0.44" SIP package without derating up to 71°C. This series has single and dual output models with 4:1 ultra wide input voltage ranges of 4.5-18VDC, 9-36VDC, and 18-75VDC. Some features include high efficiency, low ripple and noise, 1600VDC (3000VDC optional) I/O isolation, remote ON/OFF, and continuous short circuit protection. All models are RoHS compliant and have UL60950-1, EN60950-1, and IEC60950-1 safety approvals. These converters are ideally suited for telecommunications, mobile telecom, test equipment, and industrial applications.

SPECIFICATIONS: LANEUW3 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		4.5	12	18	VDC	
	24VDC nominal input models		9	24	36		
	48VDC nominal input models		18	48	75		
Input Surge Voltage (100ms max)	12VDC nominal input models				36	VDC	
	24VDC nominal input models				50		
	48VDC nominal input models				100		
Input Reflected Ripple Current <i>(See Note 6)</i>	12VDC nominal input models			25		mAp-p	
	24VDC nominal input models			10			
	48VDC nominal input models			8			
Input Filter			Capacitor type				
OUTPUT SPECIFICATIONS							
Output Voltage			See Table				
Line Regulation	Low line to high line at full load		-0.2		+0.2	%	
Load Regulation	No load to full load		-1.0		+1.0	%	
	5% load to 100% load		-0.5		+0.5		
Cross Regulation (Dual Output Models)	Asymmetrical load 25%/100% full load		-5		+5	%	
Voltage Accuracy	Full load an nominal Vin		-1		+1	%	
Output Power					3	W	
Output Current			See Table				
Ripple & Noise (20MHz Bandwidth)	Nominal Vin and full load			30		mVp-p	
Transient Response Recovery Time	25% load step change			250		µs	
Start-Up Time	Nominal Vin and constant resistive load	Power Up		30		ms	
		Remote ON/OFF		30			
Minimum Load			0			%	
Temperature Coefficient			-0.02		+0.02	%/°C	
PROTECTION							
Short Circuit Protection			continuous, automatic recovery				
GENERAL SPECIFICATIONS							
Efficiency	Nominal Vin and full load		See Table				
Switching Frequency	Full load to minimum load		100			KHz	
Isolation Voltage (Input to Output)	Standard		1600			VDC	
	Suffix “H”		3000				
Isolation Resistance			10			GΩ	
Isolation Capacitance	Standard				200	pF	
	Suffix “H” <i>(See Note 9)</i>				40		
REMOTE ON/OFF <i>(See Page 4 for application circuits)</i>							
Remote ON/OFF	DC/DC ON		Open or high impedance				
	DC/DC OFF		Control pin applied current 2 ~ 4mA max. (via 1KΩ)				
Remote Off State Input Current	Nominal Vin				2.5	mA	
ENVIRONMENTAL SPECIFICATIONS							
Operating Ambient Temperature	Without derating		-40		+71	°C	
	With derating		+71		+100		
Storage Temperature			-55		+125	°C	
Relative Humidity			5		95	% RH	
Thermal Shock			MIL-STD-810F				
Vibration			MIL-STD-810F				
MTBF <i>(See Note 1)</i>	BELLCORE TR-NWT-000332		3,963,000 hours				
	MIL-HDBK-217F		1,707,000 hours				
PHYSICAL SPECIFICATIONS							
Case Material			Non-conductive black plastic				
Base Material			None				
Potting Material			Silicon (UL94-V0)				
Weight			0.17oz (4.8g)				
Dimensions (L x W x H)			0.86 x 0.36 x 0.44 inches (21.8 x 9.2 x 11.1 mm)				
SAFETY & EMC CHARACTERISTICS							
Safety Approvals			IEC60950-1, UL60950-1, EN60950-1				
EMI <i>(See Note 6)</i>	EN55022		Class A				
ESD	EN61000-4-2	Air Contact	+8KV +6KV	Perf. Criteria A			
Radiated Immunity	EN61000-4-3	10 V/m		Perf. Criteria A			
Fast Transient <i>(See Note 7)</i>	EN61000-4-4	±2KV		Perf. Criteria A			
Surge <i>(See Note 7)</i>	EN61000-4-5	±1KV		Perf. Criteria A			
Conducted Immunity	EN61000-4-6	10 Vrms		Perf. Criteria A			

MODEL SELECTION TABLES

SINGLE OUTPUT MODELS										
Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Output ⁽⁴⁾ Ripple & Noise	Efficiency ⁽⁴⁾	Maximum ⁽⁵⁾ Capacitive Load	Output Power
			Min Load	Full Load	No Load ⁽³⁾	Full Load ⁽²⁾				
LANEUW1233R3	12 VDC (4.5 – 18 VDC)	3.3 VDC	0mA	700mA	35mA	285mA	30mVp-p	74%	3300μF	2.3W
LANEUW1205R3		5 VDC	0mA	600mA	40mA	338mA	30mVp-p	78%	1680μF	3W
LANEUW1209R3		9 VDC	0mA	333mA	40mA	333mA	30mVp-p	79%	1000μF	3W
LANEUW1212R3		12 VDC	0mA	250mA	40mA	329mA	30mVp-p	80%	820μF	3W
LANEUW1215R3		15 VDC	0mA	200mA	40mA	329mA	30mVp-p	80%	680μF	3W
LANEUW2433R3	24 VDC (9 – 36 VDC)	3.3 VDC	0mA	700mA	20mA	140mA	30mVp-p	75%	3300μF	2.3W
LANEUW2405R3		5 VDC	0mA	600mA	20mA	165mA	30mVp-p	80%	1680μF	3W
LANEUW2409R3		9 VDC	0mA	333mA	19mA	165mA	30mVp-p	80%	1000μF	3W
LANEUW2412R3		12 VDC	0mA	250mA	20mA	160mA	30mVp-p	82%	820μF	3W
LANEUW2415R3		15 VDC	0mA	200mA	19mA	160mA	30mVp-p	82%	680μF	3W
LANEUW4833R3	48 VDC (18 – 75 VDC)	3.3 VDC	0mA	700mA	12mA	71mA	30mVp-p	74%	3300μF	2.3W
LANEUW4805R3		5 VDC	0mA	600mA	12mA	82mA	30mVp-p	80%	1680μF	3W
LANEUW4809R3		9 VDC	0mA	333mA	13mA	82mA	30mVp-p	80%	1000μF	3W
LANEUW4812R3		12 VDC	0mA	250mA	14mA	81mA	30mVp-p	81%	820μF	3W
LANEUW4815R3		15 VDC	0mA	200mA	14mA	81mA	30mVp-p	81%	680μF	3W

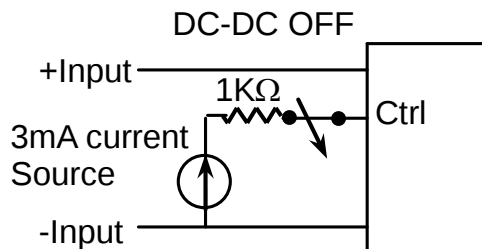
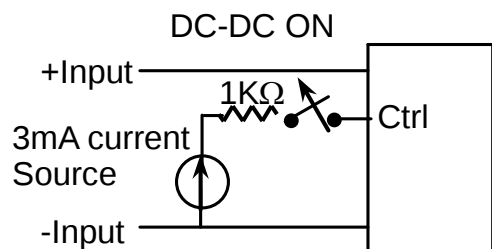
DUAL OUTPUT MODELS										
Model Number	Input Voltage	Output Voltage	Output Current		Input Current		Output ⁽⁴⁾ Ripple & Noise	Efficiency ⁽⁴⁾	Maximum ⁽⁵⁾ Capacitive Load	Output Power
			Min Load	Full Load	No Load ⁽³⁾	Full Load ⁽²⁾				
LANEUW1205RD3	12 VDC (4.5 – 18 VDC)	±5 VDC	0mA	±300mA	40mA	329mA	30mVp-p	80%	±1000μF	3W
LANEUW1212RD3		±12 VDC	0mA	±125mA	40mA	329mA	30mVp-p	80%	±470μF	3W
LANEUW1215RD3		±15 VDC	0mA	±100mA	40mA	329mA	30mVp-p	80%	±330μF	3W
LANEUW2405RD3	24 VDC (9 – 36 VDC)	±5 VDC	0mA	±300mA	25mA	167mA	30mVp-p	79%	±1000μF	3W
LANEUW2412RD3		±12 VDC	0mA	±125mA	25mA	162mA	30mVp-p	81%	±470μF	3W
LANEUW2415RD3		±15 VDC	0mA	±100mA	25mA	162mA	30mVp-p	81%	±330μF	3W
LANEUW4805RD3	48 VDC (18 – 75 VDC)	±5 VDC	0mA	±300mA	14mA	84mA	30mVp-p	79%	±1000μF	3W
LANEUW4812RD3		±12 VDC	0mA	±125mA	14mA	81mA	30mVp-p	81%	±470μF	3W
LANEUW4815RD3		±15 VDC	0mA	±100mA	14mA	81mA	30mVp-p	81%	±330μF	3W

NOTES

- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C.
MIL-HDBK-217F Notice2 @Ta=25°C, Full load (Ground, Benign, controlled environment).
- Maximum value at nominal input voltage and full load.
- Typical value at nominal input voltage and no load.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistive load.
- The LANEUW3 series meets EN55022 Class A and input reflected ripple current with an external L-C filter before the input pins to the converter. (See Class B figure for connecting network)
Recommended: 12Vin: C1=4.7μF/25V 1812 MLCC L1=2.2μH 0504 SMD Inductor P/N: PMT-059
24Vin: C1=2.2μF/50V 1812 MLCC L1=10μH 0504 SMD Inductor P/N: PMT-047
48Vin: C1=2.2μF/100V 1812 MLCC L1=10μH 0504 SMD Inductor P/N: PMT-047
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5. The filter capacitor suggested is Nippon chemi-con KY series, 100μF /100V, ESR 110mΩ.
- To order 3000VDC I/O isolation version, add the suffix "H" to the model number (Ex: LANEUW2405R3H).
- CAUTION:** This power module is not internally fused. An input line fuse must always be used.

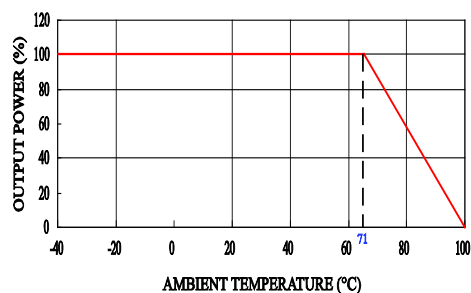
Due to advances in technology, specifications are subject to change without notice.

REMOTE ON/OFF APPLICATION CIRCUITS

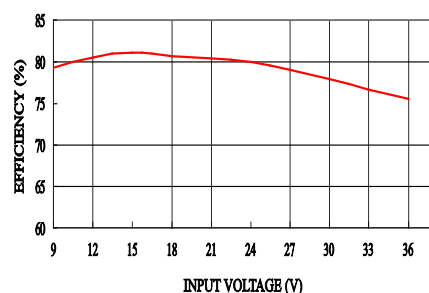


CHARACTERISTICS

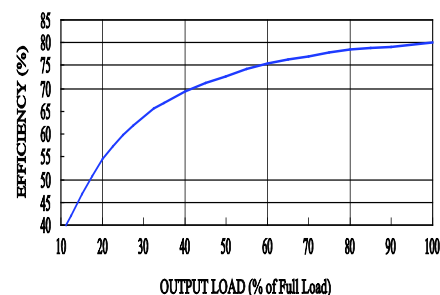
LANEUW2405R3 Derating Curve



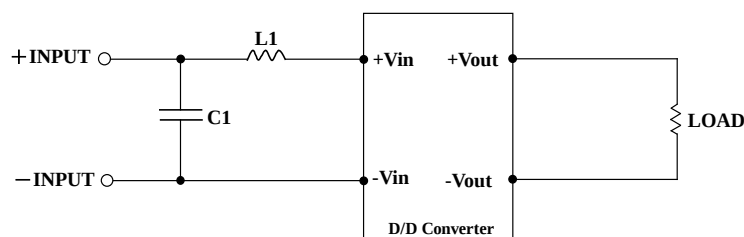
LANEUW2405R3 Efficiency vs Input Voltage



LANEUW2405R3 Efficiency vs Output Load



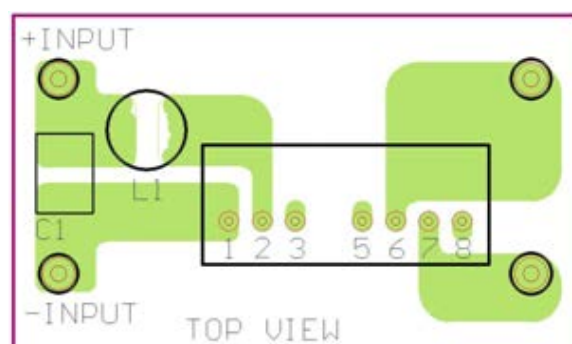
Recommended Filter for EN55022 Class B Compliance



The components used in the figure above are as follows

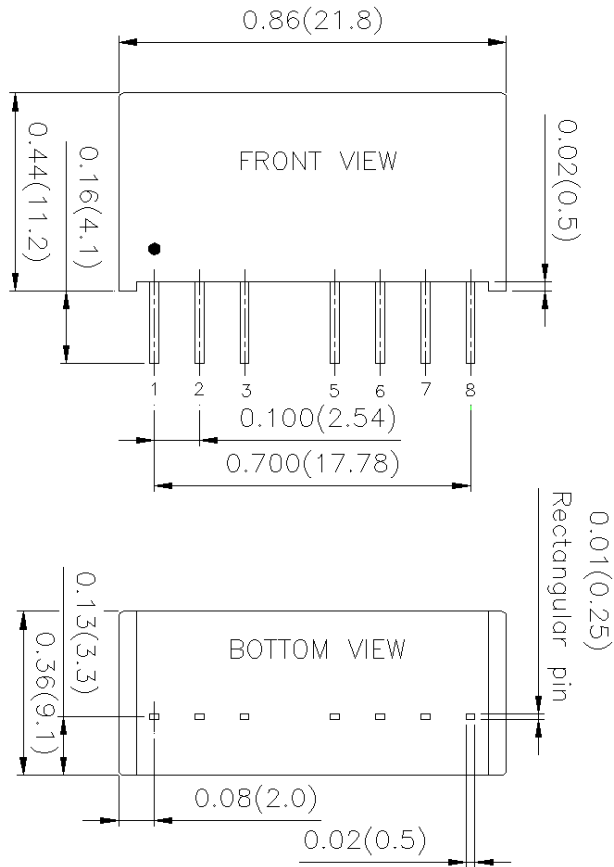
	C1	L1
LANEUW12xxx	10μF/25V 1812 MLCC	2.2μH 0504 SMD Inductor PMT-059
LANEUW24xxx	6.8μF/50V 1812 MLCC	18μH 0504 SMD Inductor PMT-046
LANEUW48xxx	2.2μF/100V 1812 MLCC	18μH 0504 SMD Inductor PMT-046

Recommended EN55022 Class B Filter Circuit Layout



MECHANICAL DRAWINGS

Unit: inches (mm)



PIN CONNECTIONS		
Pin	Single	Dual
1	-Input	-Input
2	+Input	+Input
3	CTRL	CTRL
5	NC* / No Pin**	NC* / No Pin**
6	+Output	+Output
7	-Output	COM
8	NC	-Output

* NC pin for standard version

** No Pin for 3KV isolation version (suffix "H")

1. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$)
 $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
2. Pin Pitch Tolerance: ± 0.01 (0.25)

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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