

Wall Industries, Inc.

LANCUW15 SERIES

4:1 Wide Input Voltage Range
Single and Dual Outputs
24 Pin DIP Package
15 Watt DC/DC Power Converters



APPLICATIONS

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

FEATURES

- Single and Dual Outputs
- Low Profile
- High Power Density with 15 Watts Output Power
- 4:1 Wide Input Voltage Range
- High Efficiency up to 90%
- 1600VDC I/O Isolation
- Output Current up to 4A
- Positive Logic Remote ON/OFF
- Fixed Switching Frequency
- Over Voltage, Over Load, and Short Circuit Protection
- Low Standby Power Dissipation
- Input Under Voltage Lockout
- Six-Sided Continuous Shield
- Standard 24 Pin DIP Package
- UL60950-1, EN60950-1, and IEC60950-1 Safety Approvals
- Compliant to RoHS EU Directive 2002/95/EC

DESCRIPTION

The LANC UW15 series of DC/DC power converters provides 15 watts of output power in a 1.25 x 0.80 x 0.40 inch DIP package. This series has single and dual output models with 4:1 wide input voltage ranges of 9-36VDC and 18-75VDC. Some features include high efficiency, 1600VDC I/O isolation, six-sided shielding, and positive logic remote ON/OFF. These converters are also protected against over voltage (single outputs only), over load, and short circuit conditions. All models are RoHS compliant and have UL60950-1, EN60950-1, and IEC60950-1 safety approvals. This series is best suited for use in wireless networks, telecom/datacom, measurement equipment, industry control systems, and semiconductor equipment.

| SPECIFICATIONS: LANCUW15 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 | 24VDC nominal input models | | 9 | 24 | 36 | VDC |
| | 48VDC nominal input models | | 18 | 48 | 75 | |
| Input Surge Voltage (1 sec max) | 24VDC nominal input models | | | | 50 | VDC |
| | 48VDC nominal input models | | | | 100 | |
| Start-Up Voltage | 24VDC nominal input models | | | | 9 | VDC |
| | 48VDC nominal input models | | | | 18 | |
| Shutdown Voltage | 24VDC nominal input models | | | 8 | | VDC |
| | 48VDC nominal input models | | | 16 | | |
| Input Reflected Ripple Current | Nominal Vin and full load | | | 20 | | mAp-p |
| Input Filter | | | | | | Pi type |
| OUTPUT SPECIFICATIONS | | | | | | |
| Output Voltage | | | See Table | | | |
| Line Regulation | Low line to high line at full load | Single Output | -0.2 | | +0.2 | % |
| | | Dual Output | -0.5 | | +0.5 | |
| Load Regulation | No load to full load | Single Output | -0.5 | | +0.5 | % |
| | | Dual Output | -1 | | +1 | |
| Cross Regulation (Dual Outputs) | Asymmetrical load 25% to 100% full load | | -5 | | +5 | % |
| Voltage Accuracy | Full load an nominal Vin | | -1.0 | | +1.0 | % |
| Output Power | | | | | 15 | W |
| Output Current | | | | | | See Table |
| Ripple & Noise (See Note 6) | 20MHz Bandwidth | | | 85 | | 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 |
| Minimum Load | | | 0 | | | % |
| Temperature Coefficient | | | -0.02 | | +0.02 | %/°C |
| PROTECTION | | | | | | |
| Over Load Protection | % of full load at nominal input | | | 150 | | % |
| Short Circuit Protection | | | | | | Hiccup, automatic recovery |
| Over Voltage Protection (Single Outputs only) | | | | | | See Table |
| GENERAL SPECIFICATIONS | | | | | | |
| Efficiency | Nominal Vin and full load | | See Table | | | |
| Switching Frequency | | | | 330 | | KHz |
| Isolation Voltage | Input to Output | | 1600 | | | VDC |
| | Input to Case | | 1600 | | | |
| | Output to Case | | 1600 | | | |
| Isolation Resistance | | | 10 | | | GΩ |
| Isolation Capacitance | | | | | 2000 | pF |
| REMOTE ON/OFF | | | | | | |
| Positive Logic (See Note 7) | DC/DC ON | | Open or 3.0V < Vr < 12V | | | |
| | DC/DC OFF | | Short or 0V < Vr < 1.2V | | | |
| Input Current of Remote Control Pin | Nominal Vin | | -0.5 | | +0.5 | mA |
| Remote Off State Input Current | Nominal Vin | | | 2.5 | | mA |
| ENVIRONMENTAL SPECIFICATIONS | | | | | | |
| Operating Ambient Temperature | With derating | | -40 | | +100 | °C |
| Maximum Case Temperature | | | | | +105 | °C |
| Storage Temperature | | | -55 | | +105 | °C |
| Relative Humidity | | | 5 | | 95 | % RH |
| Thermal Shock | | | | | | MIL-STD-810F |
| Vibration | | | | | | MIL-STD-810F |
| Thermal Impedance | Natural Convection | | | 20 | | °C/Watt |
| MTBF (See Note 1) | BELLCORE TR-NWT-000332 | | 3,374,000 hours | | | |
| | MIL-HDBK-217F | | 413,500 hours | | | |
| PHYSICAL SPECIFICATIONS | | | | | | |
| Weight | | | 0.51oz (14.4g) | | | |
| Case Material | | | | | | Nickel-coated copper |
| Base Material | | | | | | FR4 PCB |
| Potting Material | | | | | | Epoxy (UL94-V0) |
| Dimensions (L x W x H) | | | | | | 1.25 x 0.80 x 0.40 inches (31.8 x 20.3 x 10.2 mm) |
| SAFETY & EMC CHARACTERISTICS | | | | | | |
| Safety Approvals | | | | | | IEC60950-1, UL60950-1 ⁽¹⁰⁾ , EN60950-1 |
| EMI (See Note 8) | EN55022 | | | | | Class A |
| | EN55022 | | | | | Class B |
| ESD | EN61000-4-2 | Air Contact | ±8KV ±6KV | | | Perf. Criteria A |
| Radiated Immunity | EN61000-4-3 | | 10 V/m | | | Perf. Criteria A |
| Fast Transient (See Note 9) | EN61000-4-4 | | ±2KV | | | Perf. Criteria A |
| Surge (See Note 9) | 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 Range | Output Voltage | Output Current | | Input Current | | Over Voltage Protection | Output Power | Efficiency ⁽⁴⁾ | Maximum ⁽⁵⁾ Capacitive Load |
| | | | Min. Load | Full Load | No Load ⁽³⁾ | Full Load ⁽²⁾ | | | | |
| LANC2433UW15 | 24 VDC (9 – 36 VDC) | 3.3 VDC | 0mA | 4000mA | 6mA | 654mA | 3.9 VDC | 13.2W | 88% | 4700µF |
| LANC2451UW15 | | 5.1 VDC | 0mA | 3000mA | 6mA | 741mA | 6.2 VDC | 15W | 90% | 3300µF |
| LANC2412UW15 | | 12 VDC | 0mA | 1250mA | 6mA | 726mA | 15 VDC | 15W | 90% | 600µF |
| LANC2415UW15 | | 15 VDC | 0mA | 1000mA | 6mA | 726mA | 18 VDC | 15W | 90% | 400µF |
| LANC4833UW15 | 48 VDC (18 – 75 VDC) | 3.3 VDC | 0mA | 4000mA | 4mA | 323mA | 3.9 VDC | 13.2W | 89% | 4700µF |
| LANC4851UW15 | | 5.1 VDC | 0mA | 3000mA | 4mA | 375mA | 6.2 VDC | 15W | 89% | 3300µF |
| LANC4812UW15 | | 12 VDC | 0mA | 1250mA | 4mA | 363mA | 15 VDC | 15W | 90% | 600µF |
| LANC4815UW15 | | 15 VDC | 0mA | 1000mA | 4mA | 363mA | 18 VDC | 15W | 90% | 400µF |

| DUAL OUTPUT MODELS | | | | | | | | | | |
|--------------------|-------------------------|----------------|----------------|-----------|------------------------|--------------------------|--------------------------------------|--------------|---------------------------|--|
| Model Number | Input Voltage Range | Output Voltage | Output Current | | Input Current | | Output ⁽⁶⁾ Ripple & Noise | Output Power | Efficiency ⁽⁴⁾ | Maximum ⁽⁵⁾ Capacitive Load |
| | | | Min. Load | Full Load | No Load ⁽³⁾ | Full Load ⁽²⁾ | | | | |
| LANC2405DUW15 | 24 VDC (9 – 36 VDC) | ±5 VDC | 0mA | ±1500mA | 6mA | 762mA | 85mVp-p | 15W | 86% | ±1500µF |
| LANC2412DUW15 | | ±12 VDC | 0mA | ±625mA | 6mA | 735mA | 85mVp-p | 15W | 89% | ±288µF |
| LANC2415DUW15 | | ±15 VDC | 0mA | ±500mA | 6mA | 726mA | 85mVp-p | 15W | 90% | ±200µF |
| LANC4805DUW15 | 48 VDC (18 – 75 VDC) | ±5 VDC | 0mA | ±1500mA | 4mA | 381mA | 85mVp-p | 15W | 86% | ±1500µF |
| LANC4812DUW15 | | ±12 VDC | 0mA | ±625mA | 4mA | 368mA | 85mVp-p | 15W | 89% | ±288µF |
| LANC4815DUW15 | | ±15 VDC | 0mA | ±500mA | 4mA | 363mA | 85mVp-p | 15W | 90% | ±200µF |

NOTES

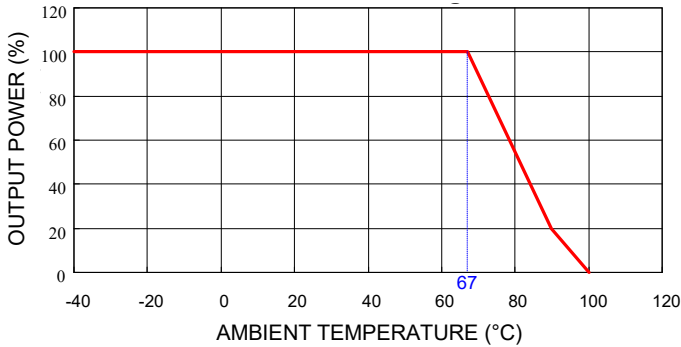
1. BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C. MIL-HDBK-217F Notice2 @Ta=25°C, Full load (Ground, Benign, controlled environment).
2. Maximum value at nominal input voltage and full load.
3. Typical value at nominal input voltage and no load.
4. Typical value at nominal input voltage and full load.
5. Test by minimum Vin and constant resistive load.
6. Ripple and Noise is measured with a 1µF ceramic capacitor in parallel with the output pins.
7. The ON/OFF control pin voltage is referenced to -Vin.
8. The LANCUW15 series can meet EN55022 Class B with an external filter on the input pins to the converter. Please call factory for more detailed information.
9. 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, 220µF/100V.
10. This product is Listed to applicable standards and requirements by UL.

CAUTION: This power module is not internally fused. An input line fuse must always be used.

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

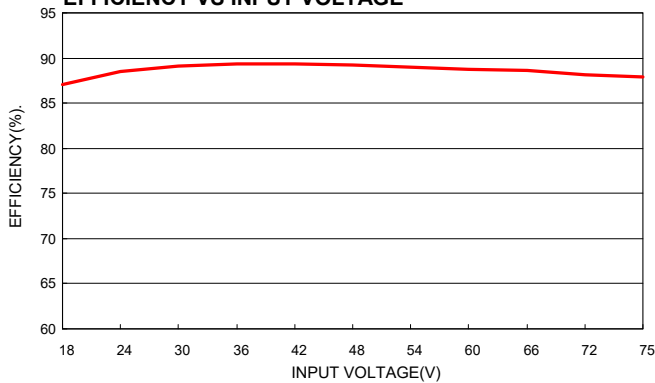
DERATING CURVE

LANC4851UW15 DERATING CURVE

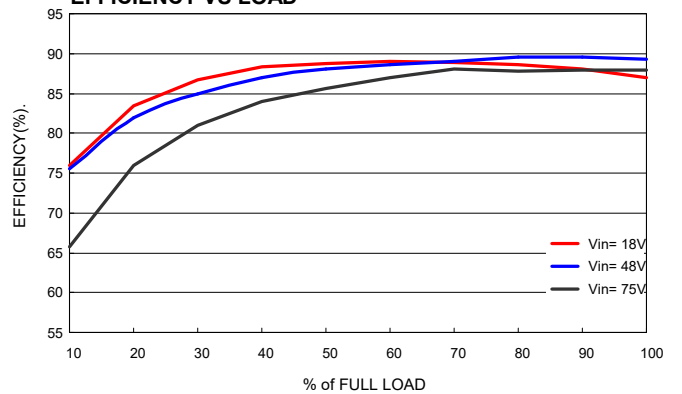


CHARACTERISTICS

LANC4851UW15 EFFICIENCY VS INPUT VOLTAGE



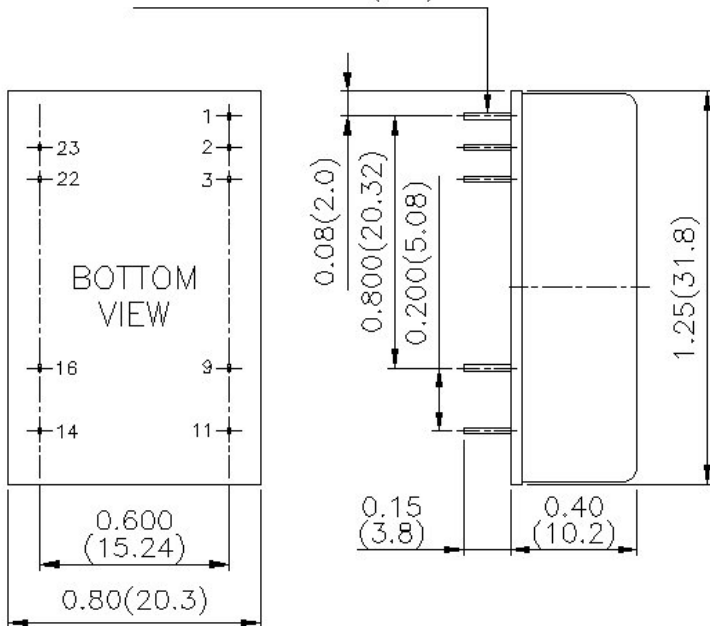
LANC4851UW15 EFFICIENCY VS LOAD



MECHANICAL DRAWING

Unit: inches (mm)

Pin size is 0.02(0.5) Dia



PIN CONNECTIONS

| PIN | SINGLE | DUAL | PIN | SINGLE | DUAL |
|-----|--------|---------|-----|---------|---------|
| 1 | CTRL | CTRL | | | |
| 2 | -INPUT | -INPUT | 23 | +INPUT | +INPUT |
| 3 | -INPUT | -INPUT | 22 | +INPUT | +INPUT |
| 9 | NC | COMMON | 16 | -OUTPUT | COMMON |
| 11 | NC | -OUTPUT | 14 | +OUTPUT | +OUTPUT |

- Tolerance: x.xx±0.02 (x.xx±0.5)
x.xxx±0.01 (x.xx±0.25)
- Pin Pitch Tolerance: ±0.01 (0.25)
- Pin Material: Copper
- Pin Foundation Plating / Thickness: nickel / 1-3µm
- Pin Surface / Thickness: Tin / 3-5µm
- Pin Finishing: Matte



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.

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