

FEATURES

- 12 Watts Output power
- High Efficiency up to 88%
- Five-Sided Continuous Shield
- DIP and SMT Types Available
- Standard 1.25 x 0.8 x 0.4 Inches
- 4:1 Ultra Wide Input Voltage Range
- Fixed Switching Frequency (400KHz)
- Compliant to RoHS EU Directive 2002/95/EC
- UL60950-1, EN60950-1, and IEC60950-1 Licensed
- CE Mark meets 2006/95/EC, 93/68/EEC, and 89/336 EEC

APPLICATIONS

- Measurement
- Wireless Network
- Telecom/Datacom
- Industry Control System
- Semiconductor Equipment



SPECIFICATIONS: LANCW12 Ultra Wide Series

All specifications apply @ 25°C ambient unless otherwise noted

INPUT SPECIFICATIONS

Input Voltage Range	24V nominal input	9-36VDC
	48V nominal input	18-75VDC
Input Filter	PI Type	
Input Voltage Variation	dv/dt	5V/ms max
	Complies with ETS300 132 part 4.4)	
Input Surge Voltage (100ms max)	24V input	50VDC
	48V input	100VDC
Input Reflected Ripple Current (nominal Vin and full load)	20mA _{p-p}	
Start Up Time (nominal Vin and constant resistive load)	450ms typ.	
Start Up Voltage	24V	9VDC
	48V	18VDC
Shutdown Voltage	24V	8VDC
	48V	16VDC
Remote ON/OFF (See Note 6)		
(Positive Logic)	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)	-0.5mA ~ 0.5mA	
Remote Off State Input Current (nominal Vin)	2.5mA	

OUTPUT SPECIFICATIONS

Output Voltage	see table	
Voltage Accuracy (nominal Vin and full load)	±1.2%	
Output Current	see table	
Output Power	12 watts max.	
Line Regulation (LL to HL at FL)	Single	±0.2%
Load Regulation (no load to full load)	Single Output (DIP)	±0.5%
	Single Output (SMT)	±1%
	Dual Output (SMT, DIP)	±1%
Cross Regulation (Dual) (Asymmetrical load 25% / 100% FL)	±5%	
Minimum Load	0%	
Ripple/Noise (20 MHz BW)	85mV _{p-p}	
Temperature Coefficient	±0.02% / °C max.	
Transient Response Recovery Time (25% load step)	250us	

PROTECTION SPECIFICATIONS

Over Voltage Protection (single output)	3.3V Output	3.9V
	5.1V Output	6.2V
	12V Output	15V
	15V Output	18V
Over Load Protection (% of full load at nominal input)	150% typ.	
Short Circuit Protection	Continuous, automatic recovery	

GENERAL SPECIFICATIONS

Efficiency	see table	
Switching Frequency	400KHz typ.	
Isolation Voltage		
Input to Output	1600VDC min.	
Input (Output) to Case (DIP)	1600VDC min.	
Input (Output) to Case (SMT)	1000VDC min.	
Isolation Resistance	10 ⁹ ohms min.	
Isolation Capacitance	1500pF max.	

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature		
Vo = 5.1V, 12V, 15V, ±12V, ±15V	-40°C to +69°C (w/o derating)	
	+69°C to +105°C (w/ derating)	
Vo = 3.3V, ±5V	-40°C to +61°C (w/o derating)	
	+61°C to 105°C (w/ derating)	
Storage Temperature	-55°C ~ +125°C	
Maximum Case Temperature	105°C	
Relative Humidity (non-condensing)	5% to 95% RH	
Thermal Impedance (Natural Convection)	20°C / Watt	
Thermal Shock	MIL-STD-810F	
Vibration	10~55Hz, 10G, 30 minutes along X, Y, and Z	
MTBF (See Note 1)	BELLCORE-TR-NWT-000332	2.75 x 10 ⁶ hrs
	MIL-STD-217F	8.745 x 10 ⁵ hrs

PHYSICAL SPECIFICATIONS

Weight	18g (0.63 oz)	
Dimensions	1.25 x 0.80 x 0.40 inches (31.8 x 20.3 x 10.2 mm)	
Case Material	Nickel-coated copper	
Base Material	Non-conductive black plastic	
Potting material	Epoxy (UL94-V0)	
Shielding	five – sided	

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

SAFETY & EMC

Approvals and Standards..... IEC60950-1, UL60950-1, EN60950-1
EMI (See Note 7) EN55022..... Class A
ESD..... EN61000-4-2..... Air $\pm 8\text{KV}$ Perf. Criteria B
Contact $\pm 6\text{KV}$

Radiated Immunity..... EN61000-4-3.....10V/m Perf. Criteria A
Fast Transient..... EN61000-4-4 $\pm 2\text{KV}$ Perf. Criteria B
Surge (See Note 8)..... EN61000-4-5..... $\pm 1\text{KV}$ Perf. Criteria B
Conducted Immunity..... EN61000-4-6.....10 Vrms Perf. Criteria A

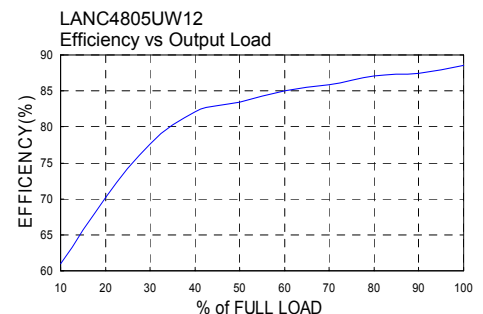
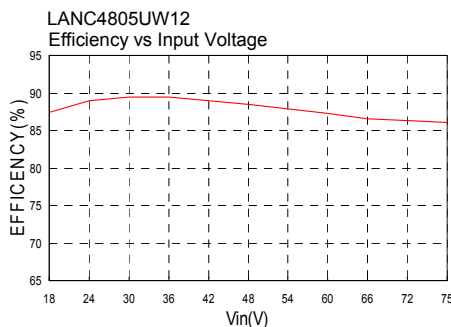
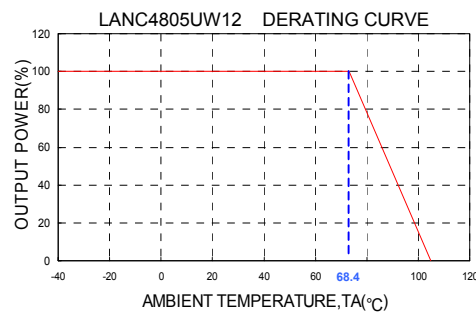
OUTPUT VOLTAGE / CURRENT RATING CHART

Model Number	Input Range	Output Voltage	Output Current		Output ⁽²⁾ Ripple & Noise	Input Current		Efficiency ⁽⁴⁾	Capacitor ⁽⁵⁾ Load max
			Min. load	Full load		No load ⁽³⁾	Full load ⁽²⁾		
LANC2433UW12	24 VDC (9-36 VDC)	3.3 VDC	0mA	3500mA	85mVp-p	55mA	602mA	84%	2000uF
LANC2405UW12		5.1 VDC	0mA	2400mA	85mVp-p	55mA	614mA	87%	2000uF
LANC2412UW12		12 VDC	0mA	1000mA	85mVp-p	13mA	602mA	87%	430uF
LANC2415UW12		15 VDC	0mA	800mA	85mVp-p	11mA	602mA	87%	300uF
LANC2405DUW12		$\pm 5\text{ VDC}$	0mA	$\pm 1200\text{mA}$	85mVp-p	15mA	625mA	84%	$\pm 1250\text{uF}$
LANC2412DUW12		$\pm 12\text{ VDC}$	0mA	$\pm 500\text{mA}$	85mVp-p	12mA	602mA	87%	$\pm 200\text{uF}$
LANC2415DUW12	48VDC (18-75 VDC)	$\pm 15\text{ VDC}$	0mA	$\pm 400\text{mA}$	85mVp-p	20mA	602mA	87%	$\pm 120\text{uF}$
LANC4833UW12		3.3 VDC	0mA	3500mA	85mVp-p	17mA	301mA	84%	2000uF
LANC4805UW12		5.1 VDC	0mA	2400mA	85mVp-p	20mA	307mA	87%	2000uF
LANC4812UW12		12 VDC	0mA	1000mA	85mVp-p	6mA	302mA	87%	430uF
LANC4815UW12		15 VDC	0mA	800mA	85mVp-p	6mA	298mA	88%	300uF
LANC4805DUW12		$\pm 5\text{ VDC}$	0mA	$\pm 1200\text{mA}$	85mVp-p	7mA	309mA	85%	$\pm 1250\text{uF}$
LANC4812DUW12		$\pm 12\text{ VDC}$	0mA	$\pm 500\text{mA}$	85mVp-p	7mA	301mA	87%	$\pm 200\text{uF}$
LANC4815DUW12		$\pm 15\text{ VDC}$	0mA	$\pm 400\text{mA}$	85mVp-p	7mA	301mA	87%	$\pm 120\text{uF}$

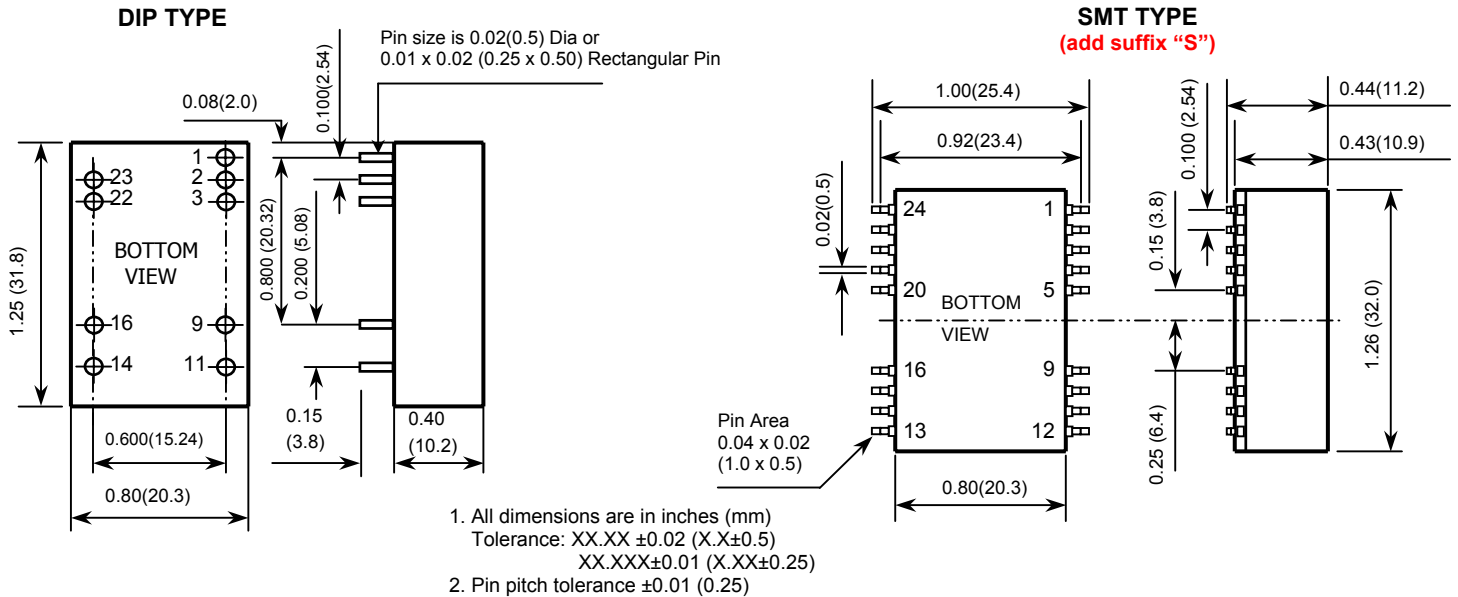
NOTES

- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
MIL-STD-217F Notice2 @Ta=25 °C, Full load (Ground, Benign, controlled environment)
- Maximum value at nominal input voltage.
- 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 ON/OFF control pin voltage is referenced to negative input.
- The LANC UW12 Series can meet EN55022 Class A with an external capacitor in parallel with the input pins.
Recommended: 24Vin: 3.3 $\mu\text{F}/50\text{V}$
48Vin: 1.5 $\mu\text{F}/100\text{V}$
- An external filter capacitor is required if the module has to meet EN61000-4-5. The filter capacitor Wall Industries suggests: Nippon chemi-con KY Series, 220uF/100V, ESR 48m Ω .

DERATING CURVE & EFFICIENCY GRAPHS



MECHANICAL DRAWING



(DIP) PIN CONNECTION					
PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
1	CTRL	CTRL	23	+INPUT	+INPUT
2	-INPUT	-INPUT	22	+INPUT	+INPUT
3	-INPUT	-INPUT			
9	NC	COMMON	16	-OUTPUT	COMMON
11	NC	-OUTPUT	14	+OUTPUT	+OUTPUT

(SMT) PIN CONNECTION					
PIN	SINGLE	DUAL	PIN	SINGLE	DUAL
1	CTRL	CTRL	23	+INPUT	+INPUT
2	-INPUT	-INPUT	22	+INPUT	+INPUT
3	-INPUT	-INPUT			
9	NC	COMMON	16	-OUTPUT	COMMON
11	NC	-OUTPUT	14	+OUTPUT	+OUTPUT
Others	NC	NC	Others	NC	NC

FIGURE 1

Recommended Filter for EN55022 Class B Compliance

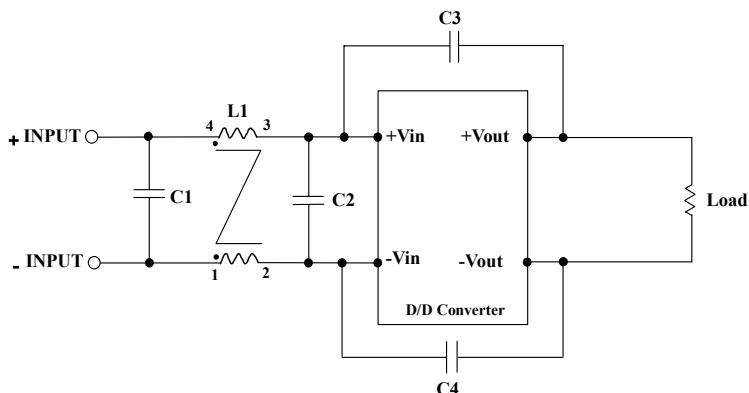


FIGURE 2

Recommended EN55022 Class B Filter Circuit Layout



The components used in Figure 1, together with the manufacturers' part numbers for these components, are as follows:

	C1	C2	C3	C4	L1
LANC24xxxUW12	3.3uF/50V	N/A	1000pF/2KV	1000pF/2KV	325uF Common Choke
LANC48xxxUW12	2.2uF/100V	2.2uF/100V	1000pF/2KV	1000pF/2KV	145uF Common Choke