Wall Industries, Inc.

LANCW12 Series
Single and Dual Output
12 Watt DC/DC Converter
2:1 Ultra Wide Input Voltage

FEATURES
- 12 Watts Output power
- High Efficiency up to 88%
- 2:1 Wide Input Voltage Range
- Five-Sided Continuous Shield
- DIP and SMT Types Available
- Standard 1.25 x 0.8 x 0.4 Inches
- 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 Series*

All specifications apply @ 25°C ambient unless otherwise noted

INPUT SPECIFICATIONS

Input Voltage Range	12V nominal input	9-18VDC
	24V nominal input	18-36VDC
	48V nominal input	36-75VDC
Input Filter		PI Type
Input Voltage Variation	dv/dt	5V/ms max
		Complies with ETS300 132 part 4.4)
Input Surge Voltage (100ms max)	12V input	36VDC
	24V input	50VDC
	48V input	100VDC
Input Reflected Ripple Current (nominal Vin and full load)		20mAp-p
Start Up Time (nominal Vin and constant resistive load)		450ms typ.
Start Up Voltage	12V	9VDC
	24V	18VDC
	48V	36VDC
Shutdown Voltage	12V	8VDC
	24V	16VDC
	48V	33VDC
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%
	Dual	±0.5%
Load Regulation (no load to full load)	Single Output (DIP)	±0.5%
	Single Output (SMT)	±1%
	Dual Output (SMT, DIP)	±1%
	2.5Vo only	±1%
Cross Regulation (Dual) (Asymmetrical load 25% / 100% FL)		±5%
Minimum Load		0%
Ripple/Noise (20 MHz BW)		85mVp-p
Temperature Coefficient		±0.02% / °C max.
Transient Response Recovery Time (25% load step)		250us

PROTECTION SPECIFICATIONS

Over Voltage Protection (single output)	2.5V Output	3.9V
Zener diode clamp	3.3V Output	3.9V
(only for single outputs)	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		1200pF max.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°C to +85°C (w/ derating)
Storage Temperature	-55°C ~ +105°C
Maximum Case Temperature	100°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)	2.75 x 10^6 hrs

PHYSICAL SPECIFICATIONS

Weight	18g (0.62 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

Wall Industries, Inc. 5 Watson Brook Road Exeter, NH 03833
603-778-2300 www.wallindustries.com Fax 603-778-9797

SAFETY & EMC

Approvals and Standards..... IEC60950-1, UL60950-1, EN60950-1

EMI (See Note 7) ..... EN55022..... Class A

ESD..... EN61000-4-2…….. Air ± 8KV Contact ± 6KV ……Perf. Criteria B

Radiated Immunity..... EN61000-4-3……10V/m Perf. Criteria A

Fast Transient..... EN61000-4-4 ..... ±2KV Perf. Criteria B

Surge (See Note 8)..... EN61000-4-5……..±1KV Perf. Criteria B

Conducted Immunity..... EN61000-4-6……10 Vrms Perf. Criteria A

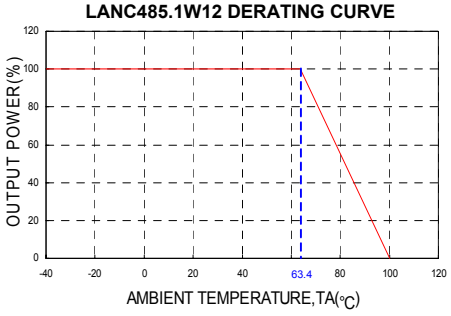
OUTPUT VOLTAGE / CURRENT RATING CHART

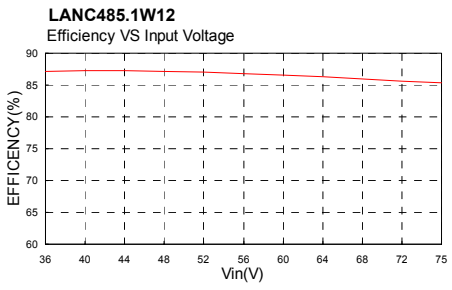
Model Number	Input Range	Output Voltage	Output Current		Output [4] Ripple & Noise	Input Current		Efficiency [4]	Capacitor [5] Load max
			Min. load	Full load		No load [3]	Full load [2]		
LANC122.5W12	12 VDC (9 – 18 VDC)	2.5 VDC	0mA	3500mA	85mVp-p	50mA	935mA	82%	2000uF
LANC123.3W12		3.3 VDC	0mA	3500mA	85mVp-p	60mA	1203mA	84%	2000uF
LANC125.1W12		5.1 VDC	0mA	2400mA	85mVp-p	53A	1244mA	86%	2000uF
LANC1212W12		12 VDC	0mA	1000mA	85mVp-p	15mA	1219mA	86%	430uF
LANC1215W12		15 VDC	0mA	800mA	85mVp-p	17mA	1219mA	86%	300uF
LANC1205DW12		±5 VDC	0mA	±1200mA	85mVp-p	24mA	1282mA	82%	±1250uF
LANC1212DW12		±12 VDC	0mA	±500mA	85mVp-p	19mA	1205mA	87%	±200uF
LANC1215DW12		±15 VDC	0mA	±400mA	85mVp-p	24mA	1205mA	87%	±120uF
LANC242.5W12	24 VDC (18 – 36 VDC)	2.5 VDC	0mA	3500mA	85mVp-p	36mA	461mA	83%	2000uF
LANC243.3W12		3.3 VDC	0mA	3500mA	85mVp-p	36mA	594mA	85%	2000uF
LANC245.1W12		5.1 VDC	0mA	2400mA	85mVp-p	35mA	614mA	87%	2000uF
LANC2412W12		12 VDC	0mA	1000mA	85mVp-p	16mA	602mA	87%	430uF
LANC2415W12		15 VDC	0mA	800mA	85mVp-p	17mA	602mA	87%	300uF
LANC2405DW12		±5 VDC	0mA	±1200mA	85mVp-p	15mA	633mA	83%	±1250uF
LANC2412DW12		±12 VDC	0mA	±500mA	85mVp-p	15mA	595mA	88%	±200uF
LANC2415DW12		±15 VDC	0mA	±400mA	85mVp-p	18mA	595mA	88%	±120uF
LANC482.5W12	48 VDC (36 – 75 VDC)	2.5 VDC	0mA	3500mA	85mVp-p	10mA	231mA	83%	2000uF
LANC483.3W12		3.3 VDC	0mA	3500mA	85mVp-p	14mA	297mA	85%	2000uF
LANC485.1W12		5.1 VDC	0mA	2400mA	85mVp-p	23mA	307mA	87%	2000uF
LANC4812W12		12 VDC	0mA	1000mA	85mVp-p	11mA	301mA	87%	430uF
LANC4815W12		15 VDC	0mA	800mA	85mVp-p	5mA	301mA	87%	300uF
LANC4805DW12		±5 VDC	0mA	±1200mA	85mVp-p	6mA	316mA	83%	±1250uF
LANC4812DW12		±12 VDC	0mA	±500mA	85mVp-p	6mA	297mA	88%	±200uF
LANC4815DW12		±15 VDC	0mA	±400mA	85mVp-p	6mA	297mA	88%	±120uF

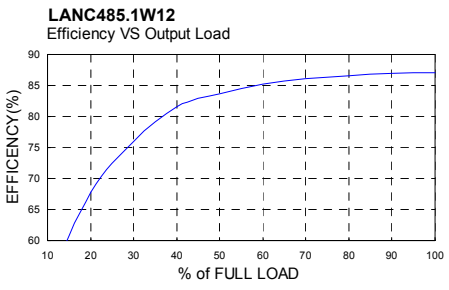
NOTES

1. BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40ºC.(Ground fixed and controlled environment)
2. Maximum value at nominal input voltage and full load of standard type.
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. The ON/OFF control pin voltage is referenced to -Vin.
7. The LANCW12 Series can meet EN55022 Class A with parallel an external capacitor to the input pins.
   Recommended: 12Vin: 6.8μF/50V
   24Vin: 4.7μF/50V
   48Vin: 2.2μF/100V
8. An external filter capacitor is required if the module has to meet EB61000-4-5. (The filter capacitor Wall Industries suggests: Nippon chemi-con KY Series, 220μF/100V, ESR 48mΩ).

DERATING CURVE & EFFICIENCY GRAPHS

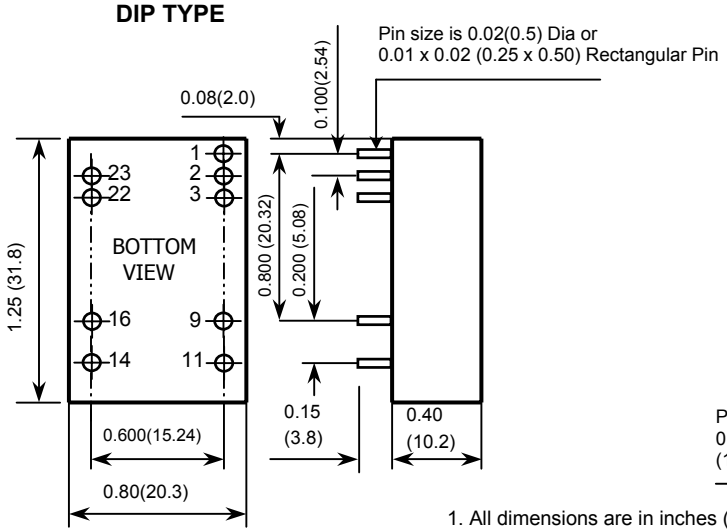




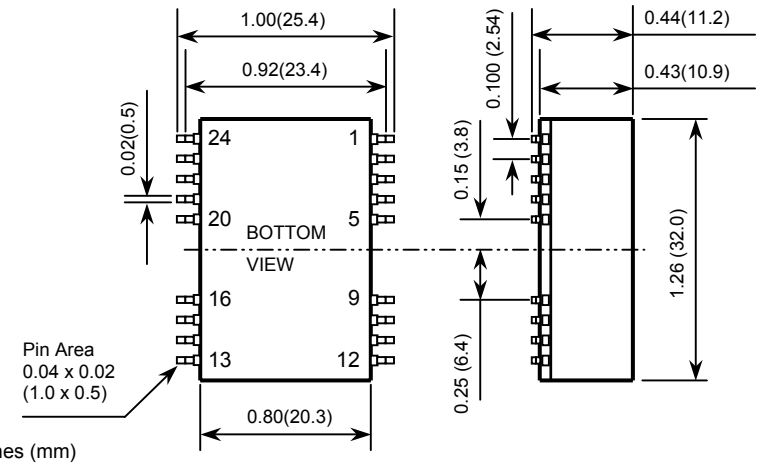


MECHANICAL DRAWING

DIP TYPE



SMT TYPE
(add suffix "S")



1. All dimensions are in inches (mm)
   Tolerance: XX.XX ±0.02 (X.X±0.5)
   XX.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01 (0.25)

(DIP) PIN CONNECTION					
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

(SMT) PIN CONNECTION					
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
Others	NC	NC	Others	NC	NC

FIGURE 1

Recommended Filter for EN55022 Class B Compliance

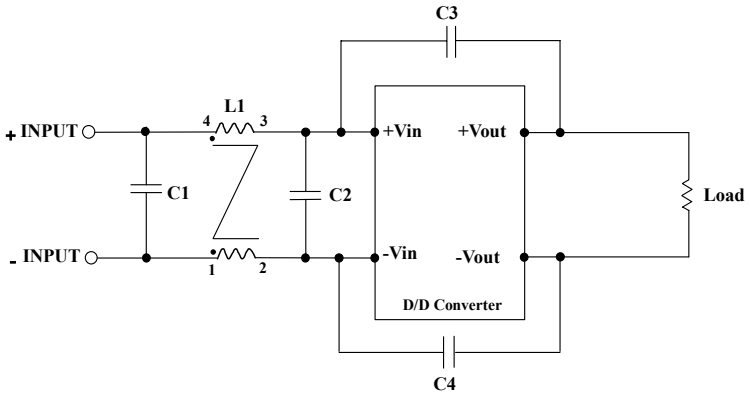
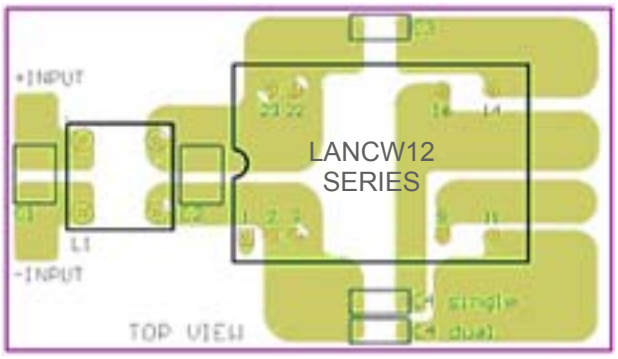


FIGURE 2

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
LANC12xxxW12	3.3uF/50V	N/A	1000pF/2KV	1000pF/2KV	325uF Common Choke
LANC24xxxW12	4.7uF/50V	N/A	1000pF/2KV	1000pF/2KV	325uF Common Choke
LANC48xxxW12	2.2uF/100V	2.2uF/100V	1000pF/2KV	1000pF/2KV	325uF Common Choke