

LAN-PAC SERIES

DC/DC CONVERTERS—9V OUTPUT

FEATURES

- IEEE 802.3 standards
- Meets FCC Sec 15, Sub Part J, A&B
- Input/Output isolated to IEEE 802.3 standards
- PC mountable, low profile
- Continuous short circuit protected, self recovering (2E12R10-5)
- No derating to 71°C
- Wide input voltage range
- 100% burned-in and triple tested
- 3 year warranty

GENERAL DESCRIPTION

The Lan-Pac Series of DC/DC converters is designed to provide power and isolation for local area network (LAN) transceiver chips.

The Lan-Pac Series covers both the Cheapernet and Ethernet LAN (IEEE 802.3 10base 5 and 10base 2 standards) approach. The use of a compact and inexpensive DC/DC converter as the power source for these new transceiver chips allows conversion of the normal buss power to the isolated power required.

The series operates from inputs of 5 and 12 VDC for Cheapernet with input/output isolation of 500 VDC and wide input models of 10.2 - 15.75 VDC for Ethernet, with 2500 VDC isolation.

GENERAL ELECTRICAL SPECIFICATIONS

(Specifications at Nominal Input and 25°C)

PARAMETER	LIMIT	CONDITIONS
2VA5U10-5, 2VA12U10-5		
Input Voltage Range	4.75 - 5.25 VDC	5V Input Devices
Input Filter	11.4 - 12.6 VDC	12V Input Devices
Input/Output Isolation	Filter Capacitor	All Device Types
Voltage	500 VDC (Min.)	All Device Types
Resistance	10 ³ megohms (Min.)	
Power Efficiency	70%	All Units
Output Voltage Accuracy	± 4%	Nom. Line at Full Load
Load Regulation	See Graphs	
Minimum Load Required	10% of Full Load	All Units
Line Regulation	See Graphs	
Output Noise/Ripple	300 mV, P-P (Max.)	20 HZ-20MHZ Bandwidth
Short Circuit Protection	Momentary	All Units
Switching Frequency	100 KHZ	Typical
Operating Temperature	-25° to +71°C	
Derating	None	To 71°C
Storage Temperature	-55°C to +125°C	
FCC Sec 15 Sub Part J	Yes	Class B Radiated, Class A Conducted
2E12R10-5		
Input Voltage Range	10.2 - 15.75 VDC	
Input Filter	Filter Capacitor	All Device Types
Input/Output Isolation		
Voltage	2500 VDC (Min.)	All Device Types
Resistance	10 ³ megohms (Min.)	
Output Voltage Accuracy	± 5%	Nom. Line at Full Load
Load Regulation	50 mV	20ma to Full Load, Both Outputs
Minimum Load Required	20 ma	Each Output
Line Regulation	50 mV	Full Load, Both Outputs
Output Noise/Ripple	50 mV, P-P (Max.)	Each Output, 20HZ-20MHZ Bandwidth
Short Circuit Protection	Constant Current Limited	All Units
Duration	Continuous	
Switching Frequency	40 KHZ	Typical
Operating Temperature	0° to +71°C	
Derating	None	To 71°C
Storage Temperature	-55°C to +125°C	
External Heatsink	Recommended for still air environments	
Case	UL94V-0	
Encapsulant	UL94H-B	
Heat Dissipation	40°C Case Rise	High Line, Full Load
FCC Sec 15 Sub Part J	Yes	Class B Radiated, Class A Conducted



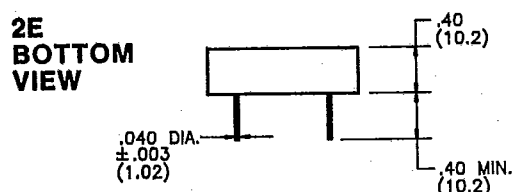
SELECTION GUIDE STANDARD PRODUCTS

DEVICE TYPE	INPUT VOLTAGE VDC	INPUT CURRENT A (MAX)	OUTPUT VOLTAGE VDC	OUTPUT CURRENT ma (MAX)	PACKAGE	APPLICATION
2VA5U10-5	5	.400	+ 10, + 5	100ma, 80ma	2VA	Cheapernet
2VA12U10-5	12	.170	+ 10, + 5	100ma, 80ma	2VA	Cheapernet
2E12R10-5	12	.300	+ 10, + 5	100ma, 80ma	2E	Ethernet

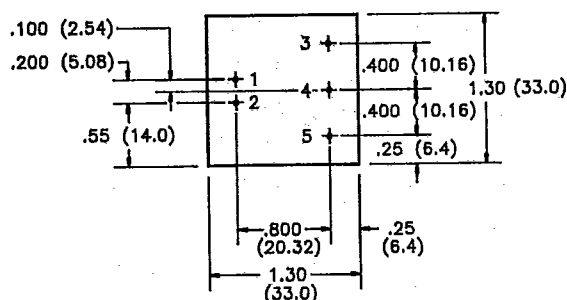
(1) Capable of supplying 150ma at 10VDC and 110ma at 5 VDC, however, at this power level, adequate thermal management must be provided. Consult factory for details.

MECHANICAL DIMENSIONS AND PIN CONNECTIONS

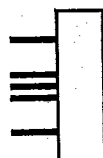
**2E
BOTTOM
VIEW**



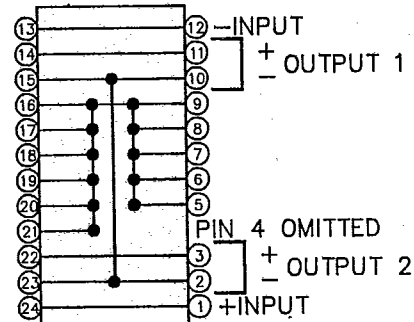
PIN	PIN CONNECTIONS
1	+ INPUT
2	- INPUT
3	+ 10V OUTPUT
4	OUTPUT COMMON
5	+ 5V OUTPUT



Note: All dimensions in parentheses are mm.
Tolerances unless otherwise specified: .XX ± .03
.XXX ± .010

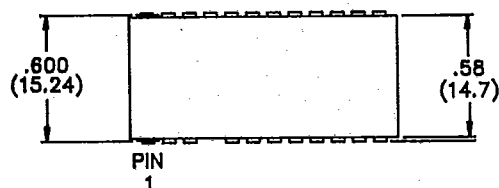


TOP VIEW

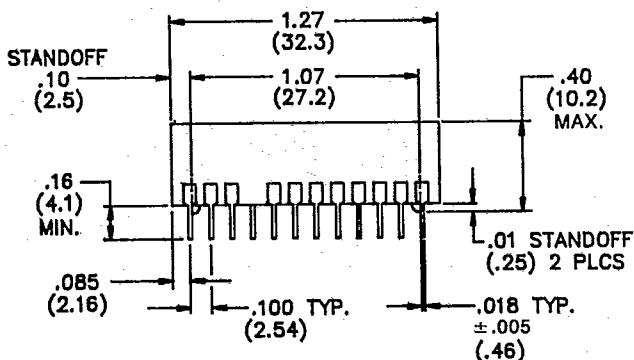


2 VA

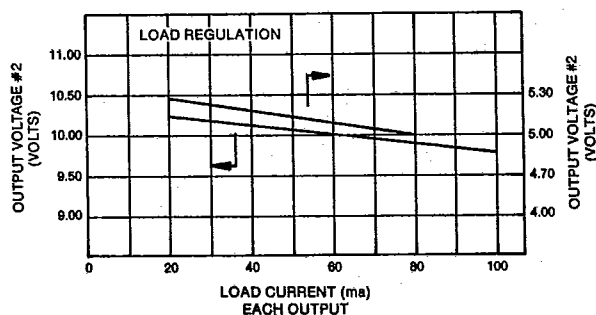
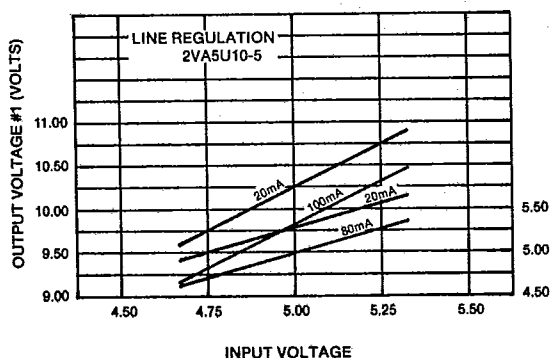
TOP



SIDE

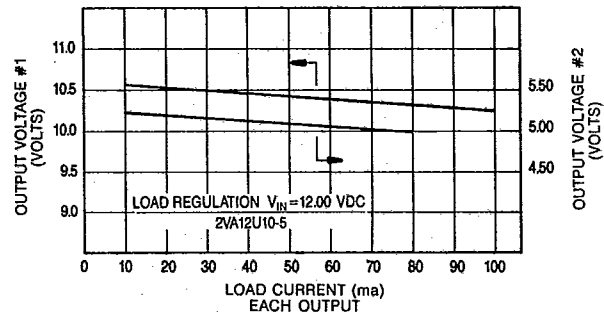
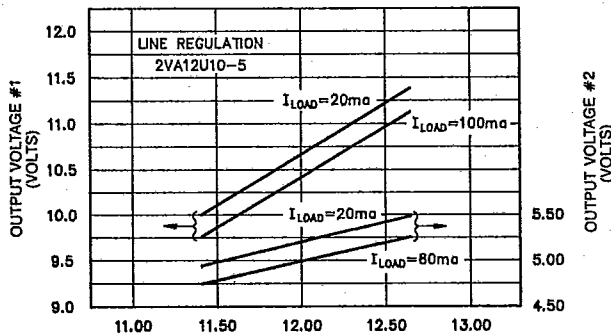


PERFORMANCE DATA



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PERFORMANCE DATA 2VA12U10-5



APPLICATIONS

The Reliability family of Lan-Pac converters is designed to provide the isolated power requirements for transceiver integrated circuits used in either Ethernet or Cheapernet Local Area Networks.

For Ethernet applications, IEEE 802.3 specifies a power connection cable not more than 50 meters long with the Vc (voltage common) line capable of sinking 2 amps. Also, the DC power pair shall be composed of a twisted pair of sufficient gauge stranded wires to result in a nominal DC resistance not to exceed 1.75 ohms per conductor. Furthermore, IEEE 802.3 requires that the local power supply be capable of operating at one fixed level (VP) between +12 VDC - 6% and +15VDC + 5% with respect to circuit Vc for all current values from 0 to 500 ma.

From the above, we can see that the minimum input voltage to the Lan-Pac Converter is:

$$12 - (12 \times 0.06) - (3.5 \text{ ohms}) (\text{Input current}) \text{ or } 11.28 - 3.5 I_{in} = V_{min}$$

similarly, the maximum input voltage is:

$$15 + (15 \times 0.05) - (3.5 \text{ ohms}) (\text{Input current}) \text{ or } 15.75 - 3.5 I_{in} = V_{max}$$

with a total power cable resistance of 3.5 ohms.

Obviously, with no input current or zero cable resistance, the maximum input voltage to the Ethernet DC/DC converters is 15.75 and is so specified in the General Electrical Specifications. However, as regards minimum input voltage, all Ethernet converters are guaranteed to meet their specifications with a local power supply voltage of 11.28V and source impedance of 3.5 ohms, while the converter is operating at maximum output current/s.

