

## 2 Watt DC/DC Converters for LAN Transceiver Chips

### Key Features

- Meets FCC Section 15, Sub Part J, A and B
- Continuous short circuit protection with foldback on 2E models
- No derating to 71° C
- Wide input range



The LAN series of DC/DC converters is designed to provide power and isolation for Local Area Network (LAN) transceiver chips. The LAN series covers both the Cheapernet and Ethernet LAN (IEEE 802.3 - 10 base 5 and 10 base 2 Standards) approach. The use of a compact and inexpensive DC/DC converter as a power source for these transceiver chips allows conversion of the normal bus 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. Ethernet converters offer a wide input range of 10.20 to 15.75 VDC with 2500 VDC isolation.

### General Electrical Specifications

(Specifications at Nominal Input and 25 C, nominal input voltage and rated output current unless otherwise noted.)

#### 2QP & 2SP Series

| Parameter                             | Limits                        | Conditions                             |
|---------------------------------------|-------------------------------|----------------------------------------|
| <b>Input Voltage Range</b>            |                               |                                        |
| 5V Devices                            | 4.75 - 5.25 VDC               |                                        |
| 12 V Devices                          | 11.4 - 12.6 VDC               |                                        |
| <b>Input Filter</b>                   | Filter Capacitor              | All Device Types                       |
| <b>Input/Output Isolation Voltage</b> | 500 VDC (Min)                 |                                        |
| <b>Resistance</b>                     | 10 <sup>3</sup> megohms (Min) |                                        |
| <b>Output Voltage Accuracy</b>        | ± 5%                          | Nom. Line at Full Load                 |
| <b>2QP &amp; 2SP Device Types</b>     | See Graph*                    |                                        |
| <b>Load Regulation</b>                | 100mV P-P (Max)               | 20Hz-20MHz Bandwidth                   |
| <b>Output Noise/Ripple</b>            | 10% of Full Load              | All Units                              |
| <b>Minimum Load Required</b>          | See Graph*                    |                                        |
| <b>Line Regulation</b>                | Momentary                     | All Units                              |
| <b>Short Circuit Protection</b>       | -25°C to +71°C                |                                        |
| <b>Operating Temperature</b>          | None                          | To 71 °C                               |
| <b>Derating</b>                       | -55°C to +125°C               |                                        |
| <b>Storage Temperature</b>            | Yes                           | Class B Radiated,<br>Class A Conducted |
| <b>FCC Sec 15, Sub Part J</b>         |                               |                                        |

**General Electrical Specifications**

(Specifications at Nominal Input and 25 °C, nominal input voltage and rated output current unless otherwise noted.)

**2E12R9 Series**

| Parameter                | Limits                                 | Conditions                                                     |
|--------------------------|----------------------------------------|----------------------------------------------------------------|
| Input Voltage Range      | 10.2 - 15.75VDC                        | All Devices                                                    |
| Input Filter             | Filter Capacitor                       | All Device Types                                               |
| Input/Output Isolation   |                                        |                                                                |
| Voltage                  | 2500 VDC (Min)                         | All Device Types                                               |
| Resistance               | 10 <sup>3</sup> Megohms (Min)          |                                                                |
| Output Voltage Accuracy  | ± 5%                                   | Nom. Line at Full Load                                         |
| Load Regulation          | 50mV                                   | Nom. Line, NL to FL                                            |
| Line Regulation          | 300mV                                  | Full Input Range, FL                                           |
| Output Noise/Ripple      | 100mV, P-P (Max)                       | 20Hz-20MHz Bandwidth                                           |
| Short Circuit Protection | Current Foldback                       | All Units                                                      |
| Duration                 | Continuous                             |                                                                |
| Switching Frequency      | 30 KHz                                 | Typical                                                        |
| Operating Temperature    | -25 °C 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         | 45 °C Case Rise                        |                                                                |
| FCC Sec 15, Sub Part J   | Yes                                    | High Line, Full Load<br>Class B Radiated,<br>Class A Conducted |

**Selection Guide**

| Device Type | Input Voltage Range VDC | Typical Input Current (A) @ Max Load | Output Voltage VDC | Max Output Current (mA) | Package/ Pinout |
|-------------|-------------------------|--------------------------------------|--------------------|-------------------------|-----------------|
| 2QP5U9      | 4.75 - 5.25             | .600                                 | -9                 | 250                     | QA              |
| 2SP5U9      | 4.75 - 5.25             | .600                                 | -9                 | 250                     | SA              |
| 2QP12U9     | 11.40 - 12.60           | .250                                 | -9                 | 250                     | QA              |
| 2E12R9      | 10.20 - 15.75           | .350                                 | -9                 | 250                     | 2E              |
| 2SP12U9     | 11.40 - 12.60           | .250                                 | -9                 | 250                     | SA              |

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