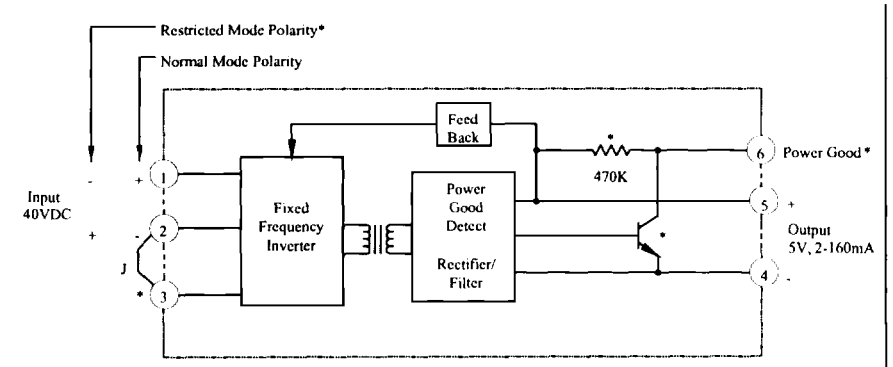
# ISDN DC/DC Converters

## Schematic Drawing




## Electrical Specifications

### Input Specifications

| | Model | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Input Voltage Range | PM6095 | 23 | -- | 57 | Vdc |
| | PM6116 | 24 | -- | 57 | Vdc |
| Reverse Polarity Operation | PM6116 | -32 | -- | -57 | Vdc |
| Absolute Minimum (non-damaging) | PM6095 | -- | -- | 72 | Vdc |
| | PM6116 | -- | -- | ±72 | Vdc |
| Current Inrush (for step load changes) | Both | -- | -- | 5 | mA/µs |

### Output Specifications

| | Model | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Output Voltage (Full range, $V_{IN}$, $V_{OUT}$, $T_A$) | Both | 4.75 | 5.0 | 5.25 | Vdc |
| Output Current | Both | 2 | -- | 160 | mA |
| Ripple and Noise (20 MHz BW) | Both | -- | 70 | 100 | mVpp |
| Overloads and Short Circuits | Both | Continuous | -- | -- | -- |
| Overvoltage Protection | Both | -- | -- | 6.5 | Vdc |

### General Specifications

| | Model | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Efficiency ($V_{IN}$ = 42V) | | | | | |
| Normal Mode - 1000mV input | PM6116 | 76 | 80 | -- | % |
| Normal Mode - 100 mW input | PM6116 | -- | 67 | -- | % |
| Restricted Mode - 380mV input | PM6116 | -- | 82 | -- | % |
| Restricted Mode - 25 mW input | PM6116 | 60 | 65 | -- | % |
| Efficiency ($V_{IN}$ = 42V) | | | | | |
| 1000mW input | PM6095 | 80 | 83 | -- | % |
| 380mW input | PM6095 | -- | 82 | -- | % |
| 100mW input | PM6095 | -- | 84 | -- | % |
| 25mW input | PM6095 | 68 | -- | -- | % |
| Switching Frequency (fixed) | Both | -- | 24 | -- | kHz |
| Input-Output Isolation Voltage (1 min.) | Both | 2000 | -- | -- | Vac |
| Operating Temperature | Both | -40 | -- | +85 | °C |

*Specifications apply over full -40°C to +85°C.*

**Valor's DC/DC converters** support the power requirements of ISDN telephones during both normal and restricted modes. They are designed for use in ISDN terminal equipment (TE) that is intended to operate from phantom power during restricted mode operating conditions. In this mode of operation, the telephone or TE is powered via the transmit and receive data pairs which reverse polarity when operating from battery backup.

These converters provide maximum output power under normal (1W input) and restricted (25mW input) mode operation. Both are regulated converters operating at a fixed frequency of 24 kHz to minimize electromagnetic interference. They accommodate US and international ISDN S interface voltages. The PM6116 includes input rectifiers and polarity detect circuitry, supporting restricted mode operation with no additional parts. A logic output from the PM6116 also informs the TE when restricted conditions exist.

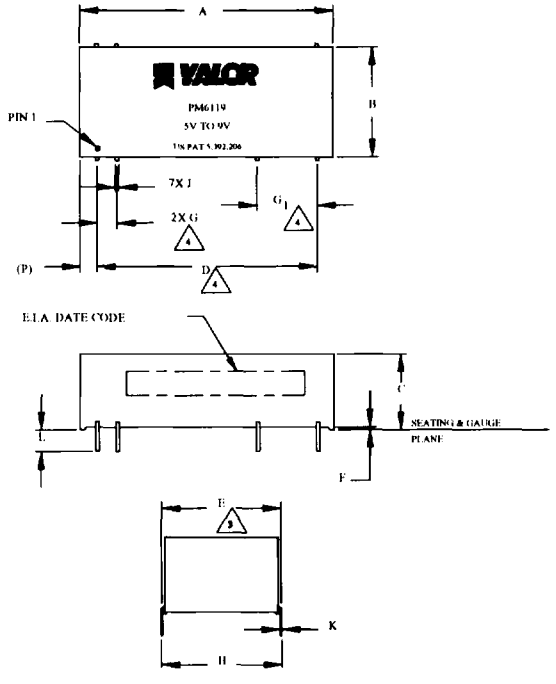
### Features:

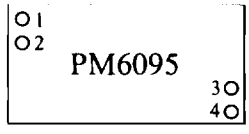
- HIGH EFFICIENCY UNDER CCITT/ ITU-TS I.430 RESTRICTIONS
- FULL -40°C TO +85°C OPERATING RANGE
- PM6116 OPERATES IN BOTH POLARITIES AND PROVIDES NORMAL/RESTRICTED SIGNAL
- OUTPUT TOLERANCE ±5%

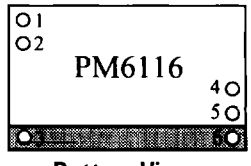
VALOR

# ISDN DC/DC Converters

## PM6095/PM6116




**Bottom Views**

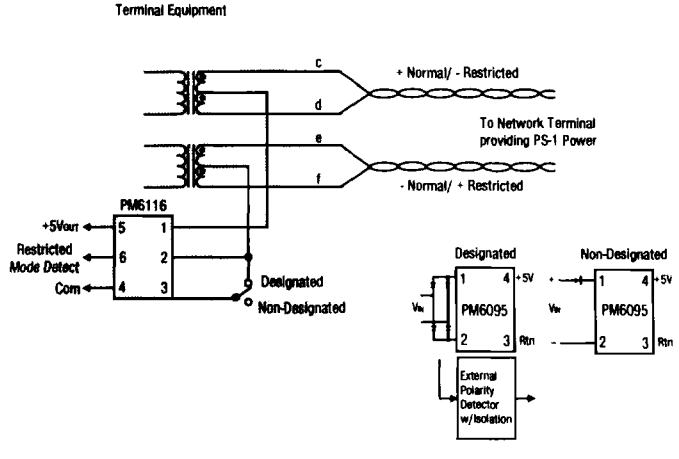
*applies to PM6095 only

| | Inches | | Millimeters | |
|---|---|---|---|---|
| **Dim** | **Min** | **Max** | **Min** | **Max** |
| A | 1.742 | 1.762 | 44.25 | 44.75 |
| **B** * | **.987** | **1.007** | **25.07** | **25.58** |
| B | 1.242 | 1.262 | 31.55 | 32.05 |
| C | .385 | .405 | 9.78 | 10.29 |
| D | 1.000 | (TP) | 25.40 | (TP) |
| E | 1.490 | 1.510 | 37.85 | 38.35 |
| G | .200 | (TP) | 5.08 | (TP) |
| $G_1$ | .400 | (TP) | 10.16 | (TP) |
| øK | .027 | .037 | .69 | .94 |
| L | .105 | .115 | 2.67 | 2.92 |
| (P) | .095 | .155 | 2.41 | 3.94 |
| ($P_1$) | .095 | .155 | 2.41 | 3.94 |

***Notes:***

1) Black plastic case, self-extinguishing (per UL94V-0).
2) Leads: Solderability MIL-STD-202, Method 208.
3) Applies when unit installed at gauge plane.
4) Leads within .13 [.005] radius of true position at gauge plane with maximum material condition and unit installed.
5) Lead Straightness: ±.033 inches from perpendicular.
6) Pin numbers for reference only.

## Application Information




The PM6116 should be installed with the positive side of the normal mode input voltage connected to pin 1, and the negative voltage connected to pin 2. When used in a designated terminal that supports restricted mode operation, pin 2 and 3 must be jumpered. The power reversal detection circuitry provides a low output during normal operation (15µA maximum sink current) and a high output during restricted mode operation (470k ohms to + 5V.)

The PM6095 operates only with pin 1 positive and pin 2 negative. With its expanded input range, the PM6095 can accommodate additional diode drops resulting from external rectifiers, yet still meets the I.430 low input voltage limit of 24 volts.

**Valor Electronics, Inc.**
A GTI Company

**NORTH AMERICA** 9715 Business Park Avenue San Diego, CA 92131-1642 **tel** 800.31-VALOR **fax** 619.537.2525
**ASIA** Flat B, 7/F., K.K. Industrial Building 5 Mok Cheong Street Tokwawan, Kowloon, Hong Kong **tel** 852.2333.0127 **fax** 852.2363.6206
**EUROPE** Steinstraße 68, 81667 München Germany **tel** 49.89.4587040 **fax** 49.89.484743