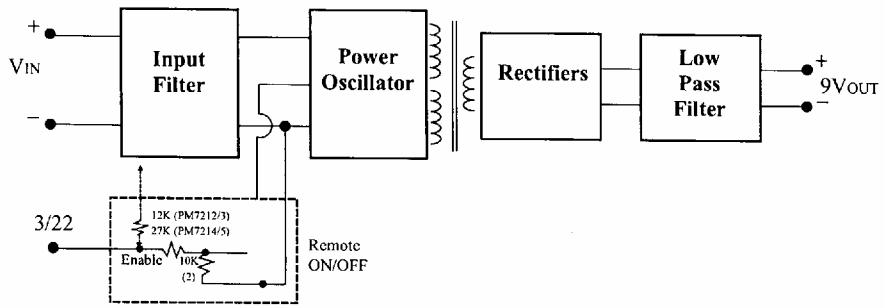
Ethernet
DC/DC Converters

Schematic Drawings



Pin 22 -------PM722X Active HI Enable
Pin 3 - - - - PM721X Active LO Enable

Electrical Specifications

Input Specifications

Parameter	*Model*	*Conditions*	*Min*	*Typ*	*Max*	*Units*
Input Voltage-Range	PM72X2/X3		4.5	5.0	5.5	Vdc
Input Voltage-Range	PM72X4/X5		10.8	12.0	13.2	Vdc
Reflected Ripple Current	PM72X2/X3	0.25Ω In Series	--	--	60	mApp
Reflected Ripple Current	PM72X4/X5	0.25Ω In Series	--	--	30	mApp

Output Specifications

Parameter	*Model*	*Conditions*	*Min*	*Typ*	*Max*	*Units*
Output Voltage-Initial Tolerance	All	Vin=NOM, Iout=200mA	8.55	9.0	9.45	V
Output Regulation	All	See Regulation Graphs				
Output Current-Full Load Rating	All	Continous 0° to 70°C	80	--	200	mA
Output Current-Peak Rating	All	Continous at 25°C	80	--	225	mA
Ripple and Noise	All	20MHz BW, Full Load	--	6	100	mVpp
Remote ON/OFF: Active LO Enable	PM721X	Pin 3 Voltage for ON (-.5mA)	-0.6	--	0.8	Vdc
TTL Compatible	PM721X	Pin 3 Voltage for OFF (or Open)	2.0	--	15	Vdc
Remote ON/OFF: Active HI Enable	PM722X	Pin 22 Voltage for ON (0.4 mA @ 5V)	2.0	--	15	Vdc
TTL Compatible	PM722X	Pin 22 Voltage for OFF (or Open)	-0.6	--	0.8	Vdc
Temperature Coefficient	All	TA=0° to 70°C	--	--	± 0.02	%/°C
Overloads and Short Circuit	All		Indefinite	--	--	--

General Specifications

Parameter	*Model*	*Conditions*	*Min*	*Typ*	*Max*	*Units*
Efficiency	PM72X2/X3	Vin=5.0V, Io=200mA	70	74	--	%
Efficiency	PM72X4/X5	Vin=12.0V, Io=200mA	74	78	--	%
Input/Output Isolation Voltage	All		2000	--	--	Vac
Failures in Time (FIT)	PM7202	Bellcore TR-NWT-000332	--	260	--	FIT
(Failures/Billions Hours)	PM7224	40°C, Iout=200mA	--	340	--	FIT

Environmental Specifications

Parameter	*Model*	*Conditions*	*Min*	*Typ*	*Max*	*Units*
Operating Temperature Range	All		0	--	70	°C
Storage Temperature Range	All		-55	--	105	°C
Humidity	All	Non-condensing	5	--	95%	R.H.
ESD	All	MIL-STD-883, Method 3015.7	Class 3	--	--	--

Valor's DC/DC Converters for Ethernet applications provide a low cost solution in 5V or 12V inputs with 9V output for use with all coaxial transceiver chips. The new, improved PM7202 product series provides a drop-in replacement to the PM7102 with additional features and a lower price.

The unregulated DC/DC converters of this product group feature a low component count. The PM7212 through PM7215 units incorporate circuitry for an active LO enable function to power the device on and off.

The PM7222 through PM7225 converters provide an active HI enable function. The logic levels for both of these groups are TTL compatible and will work with CMOS chips due to their exceptionally low logic currents.

Features:

- FULL FEATURED, COST-EFFECTIVE DESIGN
- REMOTE ON/OFF AVAILABLE WITH ACTIVE HI OR LO ENABLE
- CONTINUOUS SHORT CIRCUIT AND OVERLOAD PROTECTION
- 2000VAC ISOLATION STANDARD
- TWO INDUSTRY STANDARD PIN-OUTS

VALOR

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	Input Pin-Out			*Remote ON/OFF*		
Input Voltage	*+Vin*	*-Vin*	*None*	*Active LO Enable*		*Active HI Enable*
5V	1 & 24	12 & 13	PM7202	PM7212		PM7222
12V	1 & 24	12 & 13	PM7204	PM7214		PM7224
5V	1 & 2	23 & 24	PM7203	PM7213		PM7223
12V	1 & 2	23 & 24	PM7205	PM7215		PM7225
Controller Chip Manufacturer			All	AMD	Intel	National
Part Number			All	PCnet-ISA AM79C960	82595	AT/LANTIC DP83905

Application Information

The PM7202, PM7203, PM7204 and PM7205 are drop-in replacements for their counterparts from the PM7102 series. The remaining components in this product family are designed to take full advantage of the new "combo" controller chips by providing a direct interface that can power the converter ON/OFF. This eliminates the need for external transistors/FETs to perform this function which degrades regulation and efficiency.

The PM7202 series offers several new features in addition to those provided by its predecesor, the PM7102. Current limiting allows the converter to continue operating after the removal of an output overload or short circuit. Efficiencies in the PM7202 series have been increased to approximately 75%, resulting in cooler operation and lower input current. (Efficiencies in the low 80% range can also be provided by special request.) The lead-trim on these converters has been reduced to 0.110±.005" to eliminate the need for post-solder trimming operations.

The isolation voltage of this series has been increased to 2000Vac for both pin-outs. This exceeds the IEEE 802.3 requirements for 10Base-2 (500Vac) and 10Base-5 (1500Vac) applications and benefits board level ESD immunity. The PM7203/13/23 and PM7205/15/25 use an industry-standard pin-out that is common to most regulated Valor converters. This pin-out places input and output at opposite ends of the package, optimizing isolation voltage, ESD immunity, EMI rejection and board layout. The more common pin-out utilized in the PM7202/12/22 and PM7204/14/24 places input and output pins adjacent to each other (11 and 12, 13 and 14). Careful attention must be paid to these pads/traces to fully utilize the 2000Vac capability of these parts.

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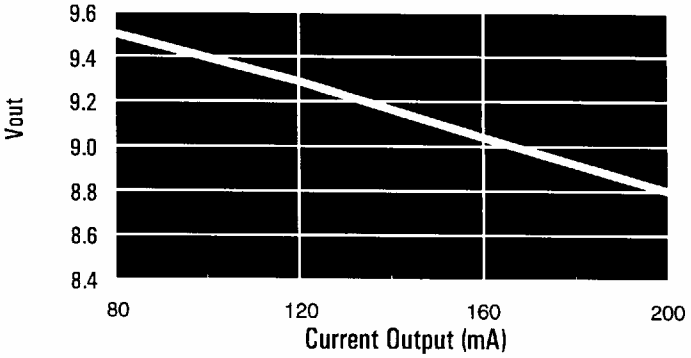
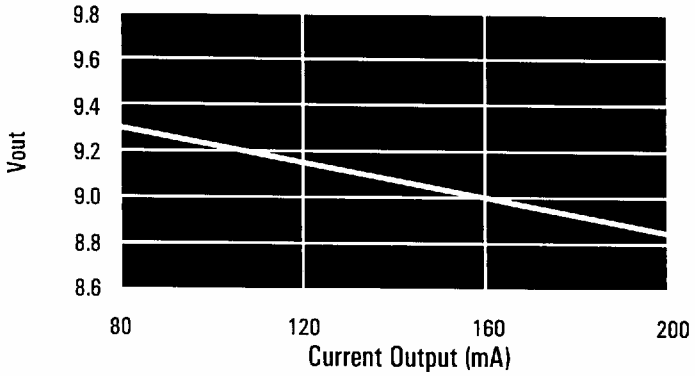
Typical Performance Data

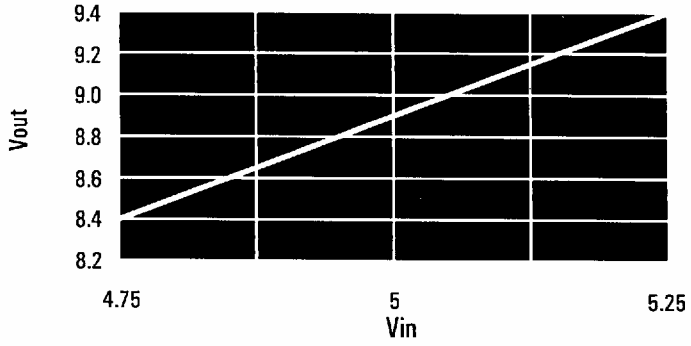
Load Regulation at 5Vin



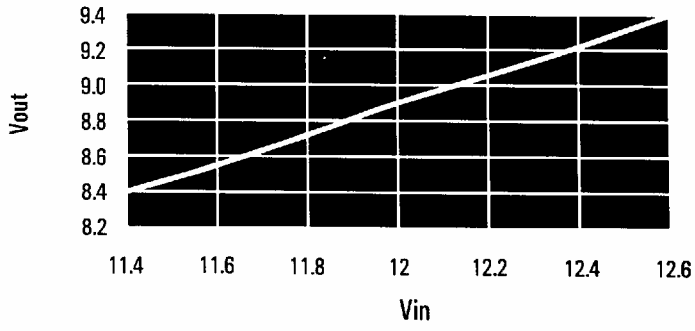
Load Regulation at 12Vin



5V Line Regulation
Load = 200mA



12V Line Regulation
Load = 200mA



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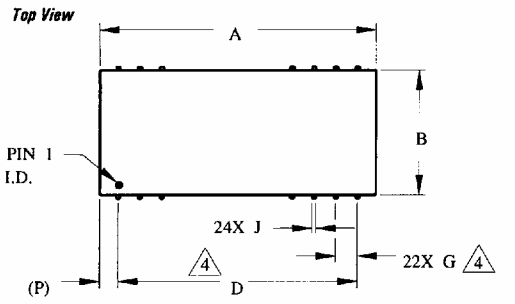
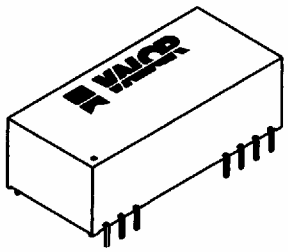
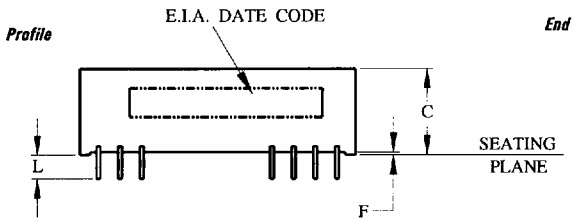
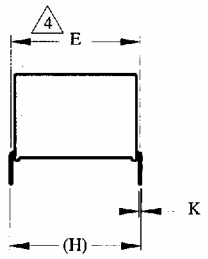
All models







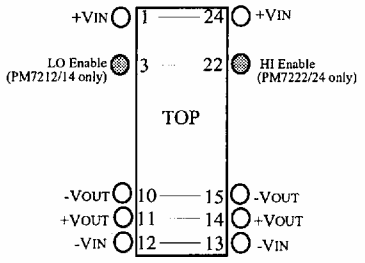


	Inches		Millimeters	
Dim	Min	Max	Min	Max
A	1.250	1.280	31.75	32.51
B	.550	.580	13.97	14.73
C	.380	.400	9.65	10.16
D	1.095	1.105	27.81	28.07
E	.590	.610	14.99	15.49
F	.008	.018	.20	.46
G	.095	.105	2.41	2.67
(H)	.597	.623	15.16	15.82
J	.016	.020	.41	.51
K	.007	.013	.18	.33
L	.105	.115	2.67	2.92
(P)	.075	.105	1.91	2.67

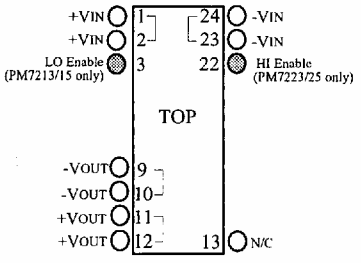
Notes:

1. Case: Black plastic self-extinguishing per UL94V-0.
2. Lead: Solderability per MIL-STD-202, Method 208.
3. Dimensions are exclusive of solder.
4. Applies when unit installed, leads within .005 radius of true position at gauge plane with maximum material condition.

Pin Designations



PM7202/04
PM7212/14
PM7222/24



PM7203/05
PM7213/15
PM7223/25

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