

Compact SMD Ethernet DC/DC Converters

Ethernet

Valor's DC/DC converters for compact SMD Ethernet applications are available in 5V or 12V inputs with 9V output for use with all coaxial transceiver chips for 10Base-2 applications. The components provide compact, very low profile solutions in an SMD (surface mount device) package. The basis for each of these converters is a Royer oscillator operating at 130kHz.

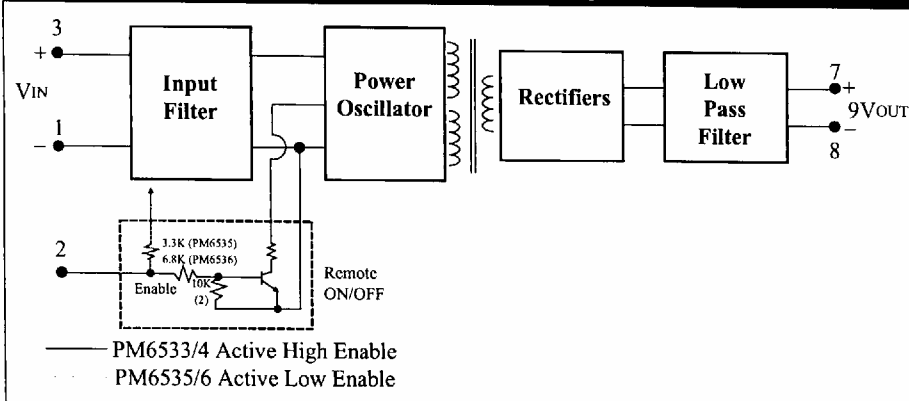
Filtering is provided by monolithic ceramic capacitors while an output balun choke reduces conducted EMI to levels compatible with FCC/VE level "B" requirements. The PM6533 through PM6536 models include additional circuitry to enable/disable the oscillator with a logic signal.

Features:

- SURFACE MOUNTABLE
- 70% EFFICIENCY TYPICAL
- REMOTE ON/OFF OPTIONAL
- COMPACT FOOTPRINT
- LOW PROFILE, 0.29" PACKAGE HEIGHT



Schematic Drawings



Electrical Specifications

Input Specifications

	Model	Conditions	Min	Typ	Max	Units
Input Voltage-Range	PM6531/3/5		4.75	5.0	5.25	Vdc
Input Voltage-Range	PM6532/4/6		11.4	12.0	12.6	Vdc
Input Voltage-Absolute Max	PM6531/3/6		--	--	+7.0	Vdc
Input Voltage-Absolute Max	PM6532/4/6		--	--	+15.0	Vdc
Input Current-Full Load Max	PM6531/3/5	V _{IN} = 5.25Vdc I _{OUT} = 200mA	--	--	580	mA
Input Current-Full Load Max	PM6532/4/6	V _{IN} = 12.6Vdc I _{OUT} = 200mA	--	--	260	mA
Input Current Disabled	PM6533/4	Output Disabled	--	--	50	μA
Input Current Disabled	PM6535/6	Output Disabled	--	--	6	mA

Output Specifications

	Model	Conditions	Min	Typ	Max	Units
Output Voltage-Initial Tolerance		V _{IN} = NOM, I _{OUT} = 200mA	8.55	9.0	9.45	V
Output Regulation		See Regulation Graphs				
Output Current-Full Load Rating		Continuous 0° to 70°C	50	--	200	mA
Output Current-Peak Rating		60 Seconds, 0° to 70°C	--	--	250	mA
Ripple and Noise		20MHz BW, Full Load	--	40	100	mVpp
Remote ON/OFF	PM6533/4	Pin 2 Voltage for ON (0.4mA@5V)	2.0	--	15	Vdc
Active Hi Enable/TTL Compatible	PM6533/4	Pin 2 Voltage for OFF (or Open)	-0.6	--	0.8	Vdc
Active Lo Enable/TTL Compatible	PM6535/6	Pin 2 Voltage for ON (-2mA)	-0.6	--	0.8	Vdc
Active Lo Enable/TTL Compatible	PM6535/6	Pin 2 Voltage for OFF	2.0	--	15	Vdc
Temperature Coefficient		0° to 70°C	--	--	±0.03	%/°C
Overloads and Short Circuit			1	--	--	Sec.

General Specifications

	Model	Conditions	Min	Typ	Max	Units
Efficiency		V _{IN} = NOM, I _{OUT} = 200mA	68	72	--	%
Input/Output Isolation Voltage			2000	--	--	Vac
Switching Frequency	All models	V _{IN} = NOM, I _{OUT} = 200mA	--	130	--	kHz
Failures in Time (FIT) (Failures/Billions Hours)		Bellcore TR-NWT-000332 40°C, I _{OUT} = 200mA	--	85	--	FIT

Environmental Specifications

	Model	Conditions	Min	Typ	Max	Units
Operating Temperature Range			0	--	70	°C
Storage Temperature Range			-55	--	125	°C
Humidity	All models	Non-condensing	5	--	95%	R.H.
ESD		MIL-STD-883, Method 3015.7	Class 3	--	--	--

All specifications at 25° C unless otherwise noted.

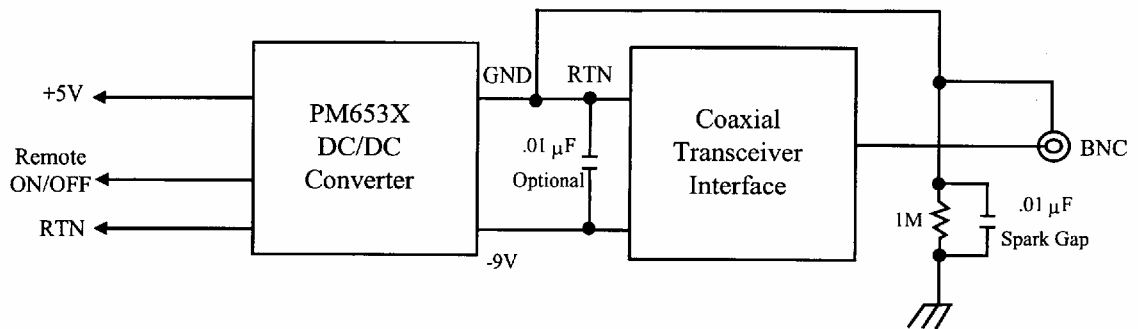
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Application Information

The Remote ON/OFF function makes these converters ideal for use with today's "jumperless" network interface card designs and "combo" interface control ICs. This function also conserves power when used in LANs featuring automatic power-down when not in use. The Remote ON/OFF inputs to the PM6533 through PM6536 are low current, TTL-compatible circuits that are also appropriate for CMOS applications. In the OFF state, all power conversion is disabled.

Utilization of only monolithic ceramic capacitors in this family of converters makes them well-suited to applications with high temperature environments.

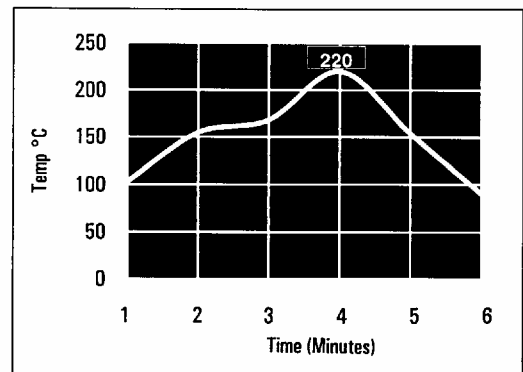
Part Number	Input Voltage	Remote ON/OFF	Remote Enable
PM6531	5		No
PM6532	12		No
PM6533	5	✓	High
PM6534	12	✓	High
PM6535	5	✓	Low
PM6536	12	✓	Low



IR Process

The PM6531 through PM6536 converters will successfully complete multiple passes through the IR profile. However, lower temperatures are recommended due to the considerably lower thermal mass of the smaller components on the application PC board.

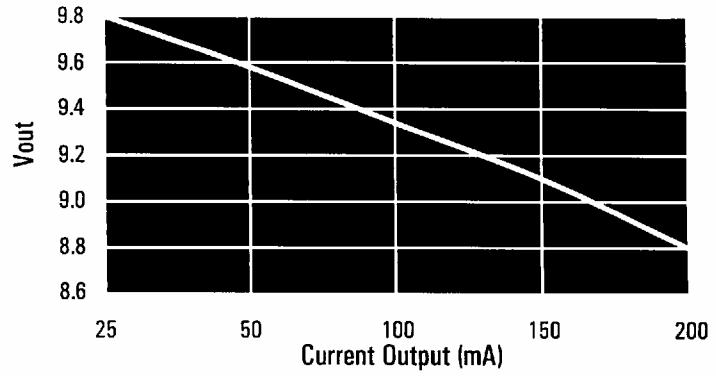
Maximum IR Process



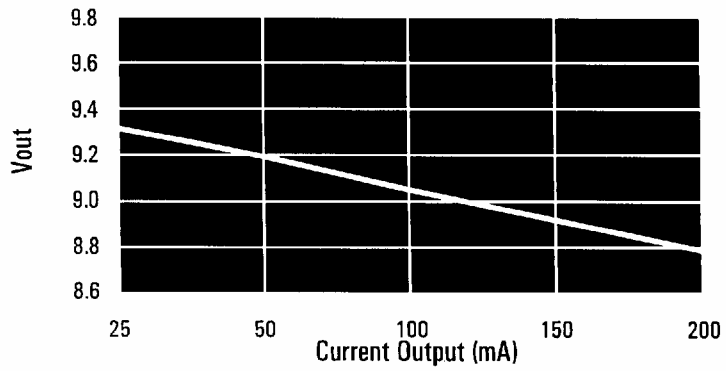
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Typical Performance Data

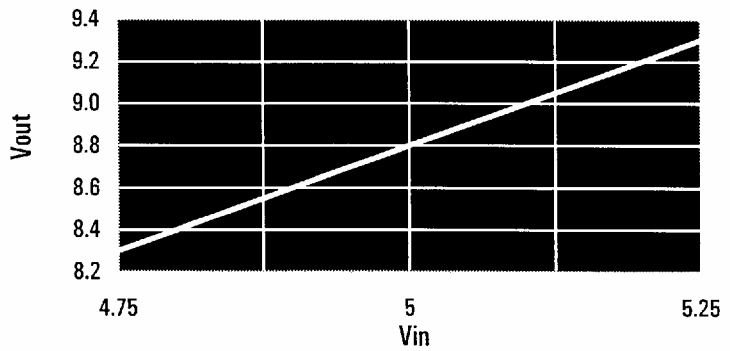
Load Regulation at 5Vin



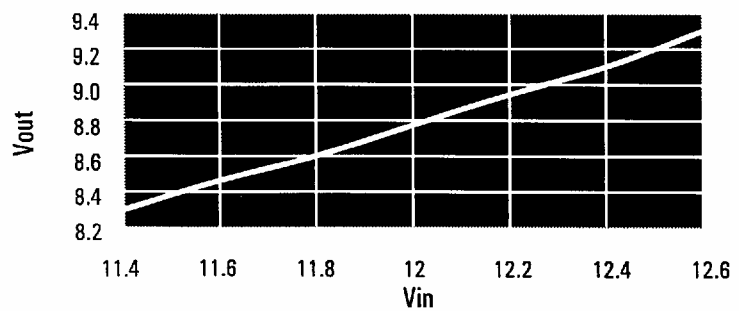
Load Regulation at 12Vin



*5V Line Regulation
Load = 200mA*

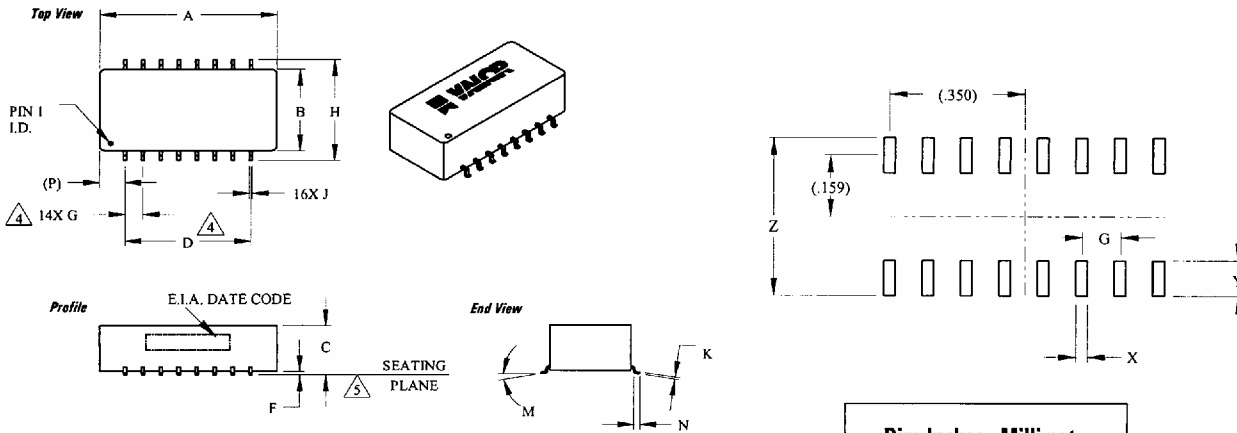


*12V Line Regulation
Load = 200mA*



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PM6531 thru PM6536



Dim	Inches		Millimeters	
	Min	Max	Min	Max
A	.985	1.005	25.02	25.53
B	.448	.468	11.38	11.89
C	.268	.288	6.81	7.32
D	.695	.705	17.65	17.91
F	.015	.025	.38	.64
G	.095	.105	2.41	2.67
H	.545	.575	13.84	14.61
J	.016	.020	.41	.51
K	.008	.012	.20	.30
M	0°	8°	0°	8°
N	.020	.045	.051	1.14
(P)	.127	.167	3.23	4.24

Dim	Inches	Millimeters
X	.030	.76
Y	.092	2.34
G	.100	2.54
Z	.605	15.37

Pin Designation		
Pin	PM6531 & 2	PM6533 thru PM6536
1	-Vin	-Vin
2	N/C	Remote ON/OFF
3	+Vin	+Vin
4-6	N/C	N/C
7	+Vout	+Vout
8	-Vout	-Vout
9-14	N/C	N/C
15	Not installed	Not installed
16	N/C	N/C

NOTES:

- Case: Black plastic self-extinguishing per UL94V-0.
- Lead: Solderability per MIL-STD-202, Method 208.
- Dimensions are exclusive of solder.
- Applies when unit installed, leads within .005 radius of true position at gauge plane with maximum material condition.
- Coplanarity: .004/.10mm.

Shipped in tape and reel
(Request part number with -001 suffix)
Pitch: 50 pkts/m, 20mm/pkt
Length: 11m minimum
Quantity: 300/reel
Width: 44mm
Leader: .5m minimum
Trailer: .5m minimum
Reel: 13" diameter



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

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