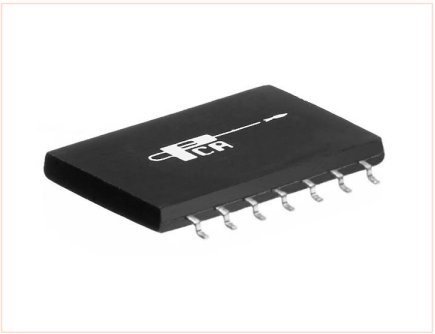
PCA ELECTRONICS INC.

10 Base-T Interface Module for PC Card Applications

EPE6051G



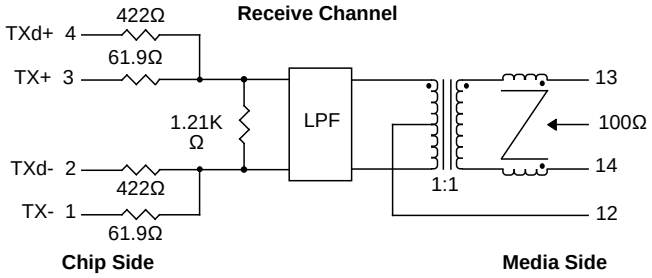
- Optimized for AMD/PHY type chip for Card Bus
- Robust construction allows for IR/VP processes
- Complies with or exceeds IEEE 802.3, 10 Base-T Requirements

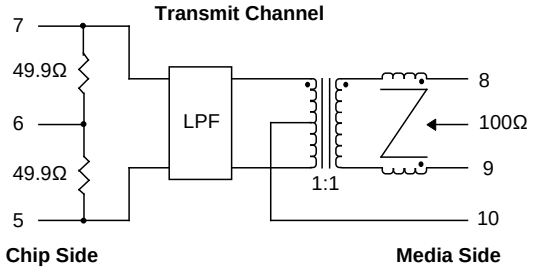
Electrical Parameters @ 25° C

Cut-off Frequency (MHz)		Insertion Loss (dB Max.)		Return Loss (dB Min.)		Attenuation (dB Min.)								Common Mode Rejection (dB Min.)						Crosstalk (dB Min.)	
± 1.0 MHz		1-10 MHz		5-10 MHz		@ 20 MHz		@ 25 MHz		@ 30 MHz		@ 4 MHz		@ 50 MHz		@ 100 MHz		@ 200 MHz		@ 1-10 MHz	
Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv
17	17	-1	-1	-15	-15	-7	-5	-18	-11	-30	-18	-35	-26	-30	-30	-30	-30	-20	-20	-30	-30

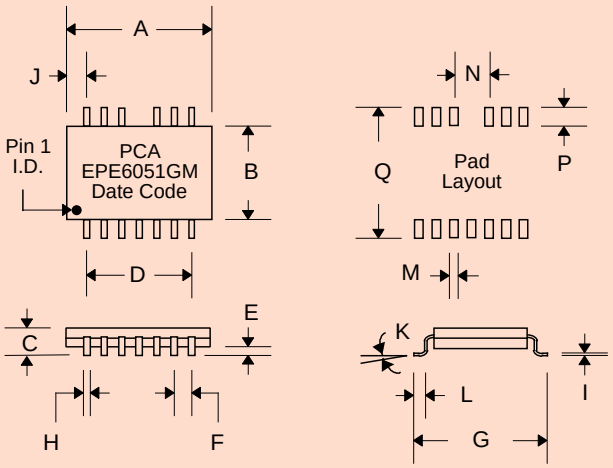
- **Isolation** : meets or exceeds 802.3 IEEE Requirements
- **Characteristic Filter Impedance** : 100 Ω
- Referenced to the filter output @ 5 MHz for filter only, excluding resistor network

Schematic





Package



Dimensions

Dim.	(Inches) Min.	Max.	Nom.	(Millimeters) Min.	Max.	Nom.
A	.790	.810		22.86	23.62	
B	.510	.530		9.40	.991	
C	.088	.094		2.24	2.39	
D	.600	Typ.		15.24	Typ.	
E	.003	.010		.076	.254	
F	.100	Typ.		2.54	Typ.	
G	.670	Typ.		17.02	Typ.	
H	.016	.020		.406	.508	
I	.010	Typ.		.254	Typ.	
J	.100	Typ.		2.54	Typ.	
K	0°	8°		0°	8°	
L	.030	.050		.762	1.27	
M			.030			.762
N			.200			5.08
P			.085			2.16
Q			.700			17.78

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CSE6051GMa Rev. A 10/7/96

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The circuit below is a guideline for interconnecting PCA's EPE6051GM with AMD/PHY type chip family as reference controllers. Further details of system design, such as chip pin-out, etc. can be obtained from the specific or similar chip manufacturer.

Typical insertion loss of the isolation transformer/filter is 0.7dB. This parameter covers the entire spectrum of the encoded signals in 10 Base-T protocols. However, the predistortion resistor network introduces some loss which has to be taken into account in determining how well your design meets the Standard Template requirements.

Users are encouraged to verify if this network best suits their application needs with the chip manufacturer before choosing a specific set of values. Additionally, use should make sure that these resistor values provide 802.3 Return Loss specification complaince at either extremes of the cable impedance, namely; 85Ω to 115Ω. Implement only those parts in the design that will meet this requirement.

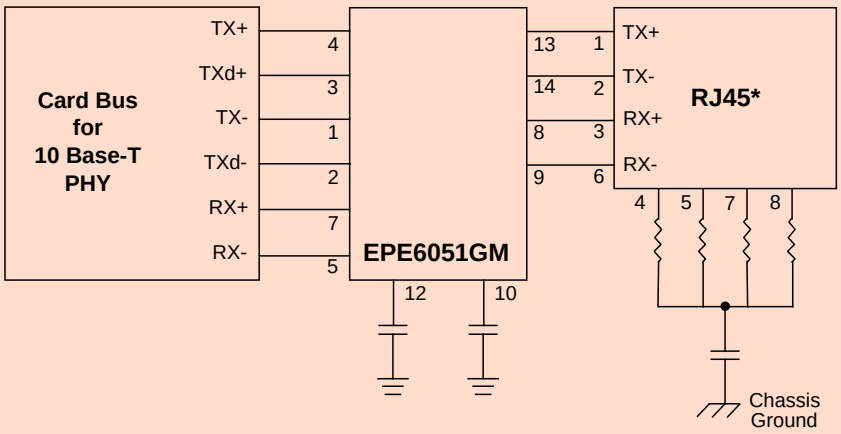
A quick calculation of the effective Thevenin's termination impedance for the filter follows:
R(termination)= 2(61.9//422)//1.2K≈100Ω. Thus, when measuring the return loss of these parts on the bench, it is not necessary to provide a shunting resistor across the four outputs.

The phantom resistors shown around the RJ45 connector have been known to suppress unwanted radiation that unused wires pick up from the immediate environment. Their placement and use are to be considered carefully before a design is finalized.

It is recommended that there be a neat separation of ground planes in the layout. It is generally accepted practice to limit the plane off at least 0.08 inches away from the chip side pins of EPE6051GM. There need not be any ground plane beyond this point.

For best results, PCB designer should design the outgoing traces preferably to be 50Ω, balanced and well coupled to achieve minimum radiation from these traces.

Typical Application Circuit for UTP PC Card



Notes : * Pin-outs shown are for NIC configurations.

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