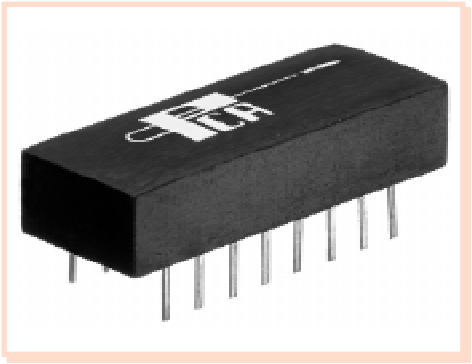
10 Base-T Module with Enhanced Common Mode Attenuation

EPE6030



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

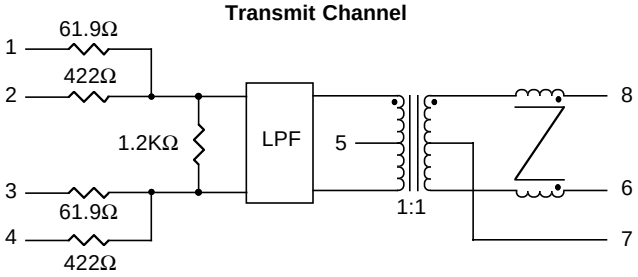
Electrical Parameters @ 25° C

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		@ 50-70 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	-18	-18	-7	-5	-18	-11	-30	-16	-33	-26	-30	-30	-30	-30	-20	-20	-35	-35

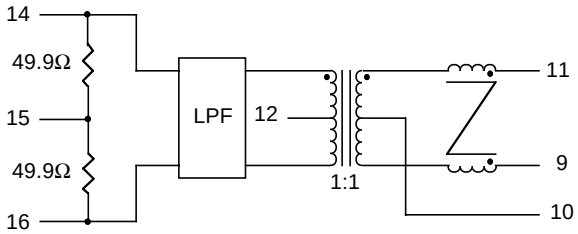
- **Isolation** : meets or exceeds 802.3 IEEE Requirements • **Characteristic Filter Impedance** : 100 Ω •
- Referenced to the filter output @ 5 MHz for filter only, excluding resistor network •

Schematic

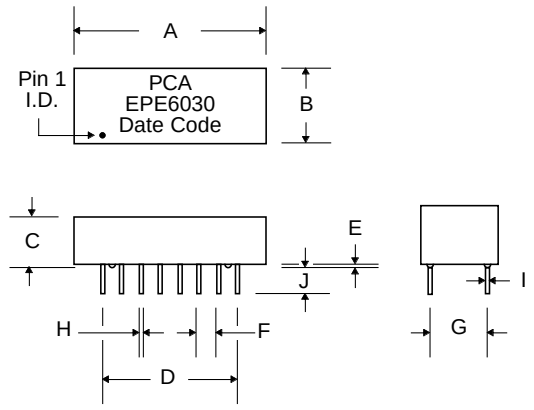
Transmit Channel



Receive Channel



Package



Dimensions

Dim.	(Inches) Min.	Max.	Nom.	(Millimeters) Min.	Max.	Nom.
A	.970	1.00		24.64	25.40	
B	.380	.400		9.65	9.91	
C	.240	.250		6.60	7.11	
D	.700	Typ.		17.78	Typ.	
E	.020	.023		.508	.584	
F	.100	Typ.		2.54	Typ.	
G	.290	.310		7.37	7.87	
H	.016	.020		.406	.508	
I	.016	.020		.406	.508	
J	.125	.150		3.17	3.81	

PCA ELECTRONICS, INC.
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CSE6030a Rev. A 10/7/96

Product performance is limited to specified parameters. Data is subject to change without prior notice.

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The circuit below is a guideline for interconnecting PCA's EPE6030 with AMD 79C96X and -970, PCnet chip family as reference controllers. Further details of system design, such as chip pin-out, etc. can be obtained from the specific 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, user 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.

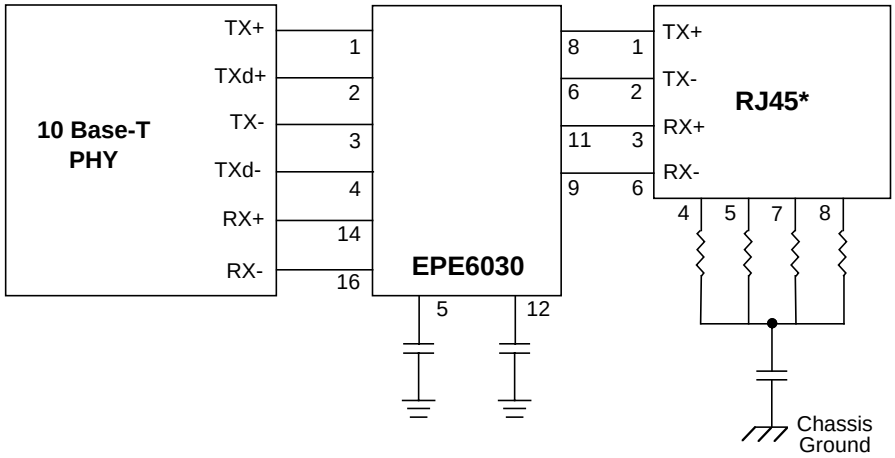
A quick calculation of the effective Thevenin's termination impedance for the filter follows:
R(termination)= 2(61.9//422)//1.2K≈100Ω.
Thus, when measuring the return loss of these parts on the bench, it is not necessary to provide a shunting resistor across the four outputs.

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 EPE6030. 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



Notes : * Pin-outs shown are for NIC configurations.
For Hubs and Repeaters swap pins 1-2 with pins 3-6.

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