

10 Base-T Card Bus Module with Integrated Predistortion Resistors

EPE6138A

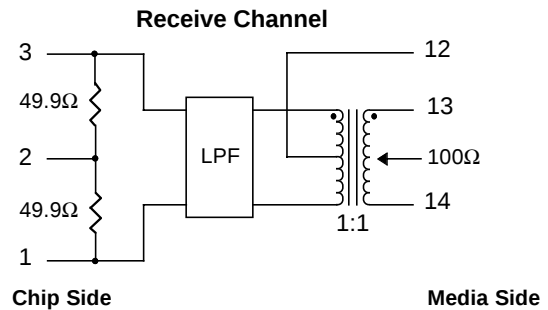
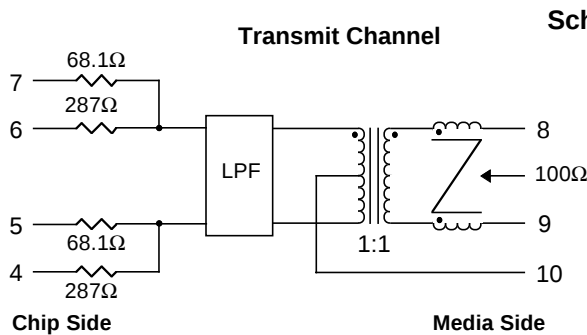


- For Card Bus ASIC solutions requiring predistortion • (similar to AT&T T7240)
- Robust design allows for toughest soldering processes •
- Complies with or exceeds IEEE 802.3, 10 Base-T Requirements •

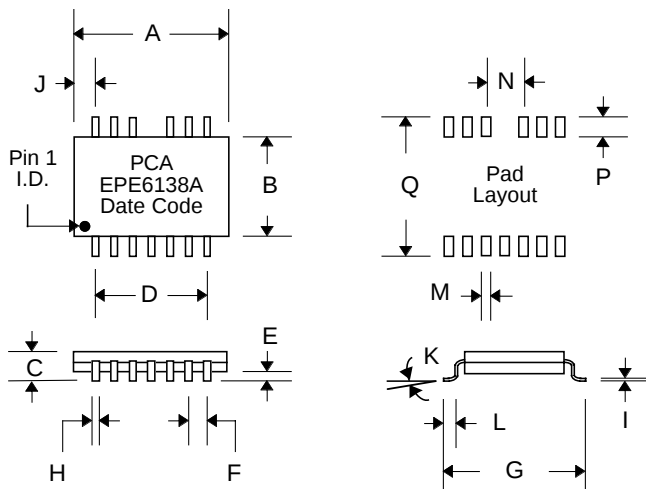
Electrical Parameters @ 25° C

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		@ 40 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	-35	-18	-35	-18	-45	-40	-35	-30	-30	-25	-50	-50

- **Isolation** : meets or exceeds 802.3 IEEE Requirements •
- **Characteristic Filter Impedance** : 100 ohms •
- *Excluding resistor networks •



Package



Dimensions

Dim.	(Inches)			(Millimeters)		
	Min.	Max.	Nom.	Min.	Max.	Nom.
A	.780	.800		19.81	20.32	
B	.510	.530		12.95	13.46	
C	.074	.084		1.88	2.13	
D	.600	Typ.		15.24	Typ.	
E	.003	.010		.076	.254	
F	.100	Typ.		2.54	Typ.	
G	.650	.670		16.51	17.02	
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

The circuit below is a guideline for interconnecting PCA's EPE6138A with ASICS for 10 Base-T PHY chip over UTP cable. Further details of system design, such as chip pin-out, etc. can be obtained from the Card Bus 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.

Thevenin's equivalent termination impedance provided by the transmitt outputs is $2 \times (287 // 68.1)$ ohms or approx. 110 ohms. Thus, bench testing for return loss will assume an output impedance less than 1 ohms on each of the driver output. Note that some systems have auto polarity detection and some do not. If not, be certain to follow the proper polarity.

It is recommended that system designers ground the chip side center taps via a low voltage capacitor. Taking the cable side center taps to chassis via capacitors, is not recommended, as this will add cost without containing EMI. This may worsen EMI, specifically if the primary "common mode termination" is pulled to ground as shown.

The pulldown resistors used 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 EPE6138A. There need not be any ground plane beyond this point.

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

Typical Application Circuit for UTP PC Card

