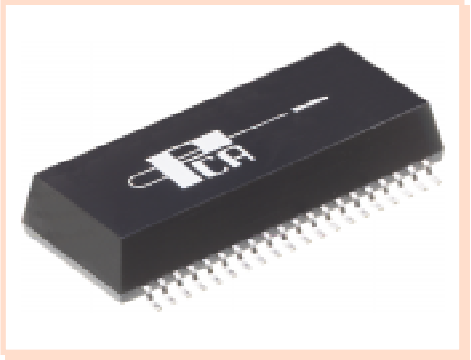
PCA ELECTRONICS INC.

Enhanced Common Mode Multiport Module for Switched Hub Transceivers

EPE6277S

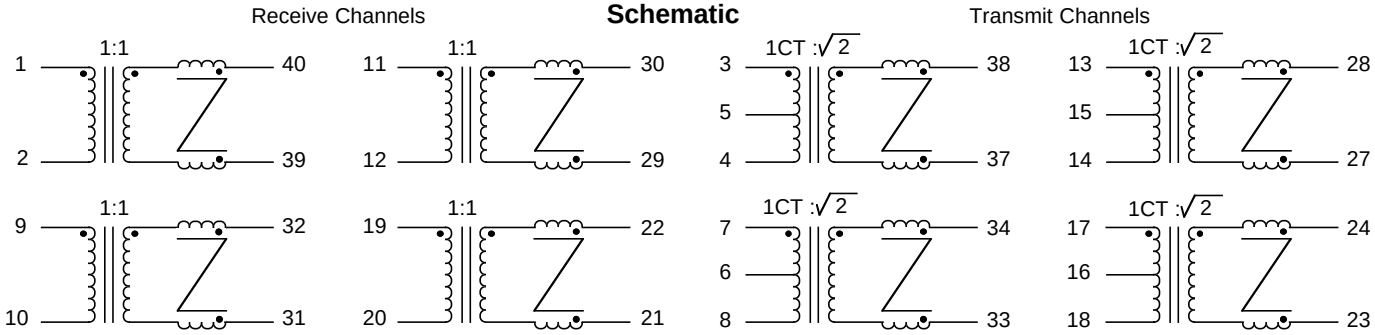


- Optimized for TNETE2004 Switched Hub Chip
- Also recommended for Level One LXT901, 915, & 944
- Robust design allows for toughest soldering processes
- Transmit sides are provided with superior common mode attenuation
- Complies with or exceeds IEEE 802.3, 10 Base-T Requirements

Electrical Parameters @ 25° C

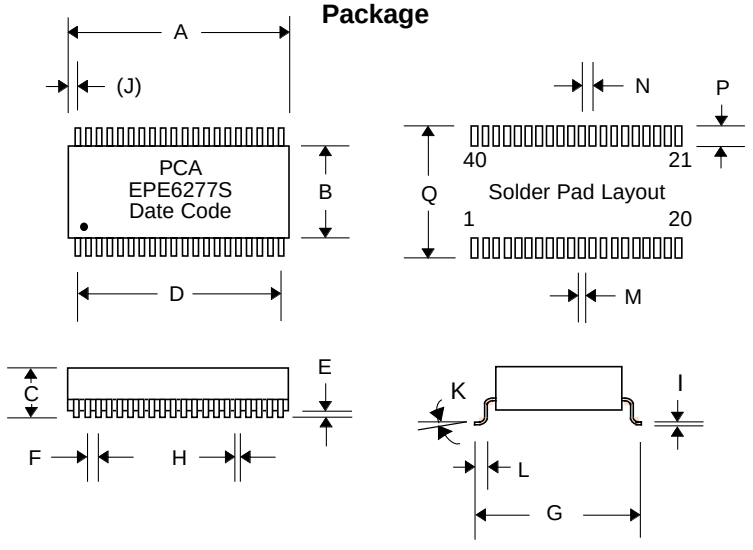
Inductance (µH Min.)	Interwinding Capacitance (pF Max.)	Leakage Inductance (µH Max.)	CMRR (dB Min.)								Return Loss (dB Min.)		Hipot (Vrms)	Crosstalk (dB Min.)
@ 100KHz, 0.1 Vrms	@ 100KHz, 0.1 Vrms	@ 100KHz, 0.1 Vrms	10 MHz		50 MHz		100 MHz		200 MHz		5-10 MHz @ 100Ω	5-10 MHz @ 85Ω, 115Ω		1-10 MHz
			Xmit	Rcv	Xmit	Rcv	Xmit	Rcv	Xmit	Rcv				
150	12	0.3	-50	-20	-40	-20	-35	-20	-25	-20	-20	-15	1500	-45

Schematic



Pins 25, 26, 35 and 36 not connected.

Package



Dimensions

Dim.	(Inches) Min.	Max.	Nom.	(millimeters) Min.	Max.	Nom.
A	1.110	1.13		28.19	28.70	
B	.470	.490		11.94	12.45	
C	.230	.250		5.84	6.35	
D	.950	Typ.		24.13	Typ.	
E	.005	.015		.127	.381	
F	.050	Typ.		1.27	Typ.	
G	.620	.640		15.75	16.26	
H	.016	.022		.406	.559	
I	.010	Typ.		.254	Typ.	
(J)	.075	.095		1.91	2.41	
K	0°	8°		0°	8°	
L	.025	.045		.635	1.14	
M			.030			.762
N			.050			1.27
P			.090			2.29
Q			.670			17.78

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CSE6277S Rev. 1 2/13/97

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The circuit below is a guideline for interconnecting PCA's EPE6277S with Texas Instrument's TNETE2004 10 Base-T switched hub chip over UTP cable. This part is also recommended for Level One LXT915, LXT944 and some other transceivers requiring 1:$\sqrt{2}$ turns ratio on the transmit side. Further details of system design, such as chip pin-out, etc. can be obtained from the specific chip manufacturer.

This is a part derived from the parent EPE6267S and meant for those applications where stiffer EMI containment is required such as compliance with FCC/CSPR class B. In such a case, common mode attenuation achievable by using EPE6267S may not suffice. Users will find relief in using EPE6277S instead.

Typical insertion loss of the isolation transformer/common mode choke is 0.5dB. This parameter covers the spectrum of the encoded signals in 10 Base-T protocol. This is low enough to allow designers to cever the entire range of permissible voltage range at the cable. Note that the receiver side termination circuit varies among transceivers. Follow the latest circuit and values suggested by your chosen transceiver design house.

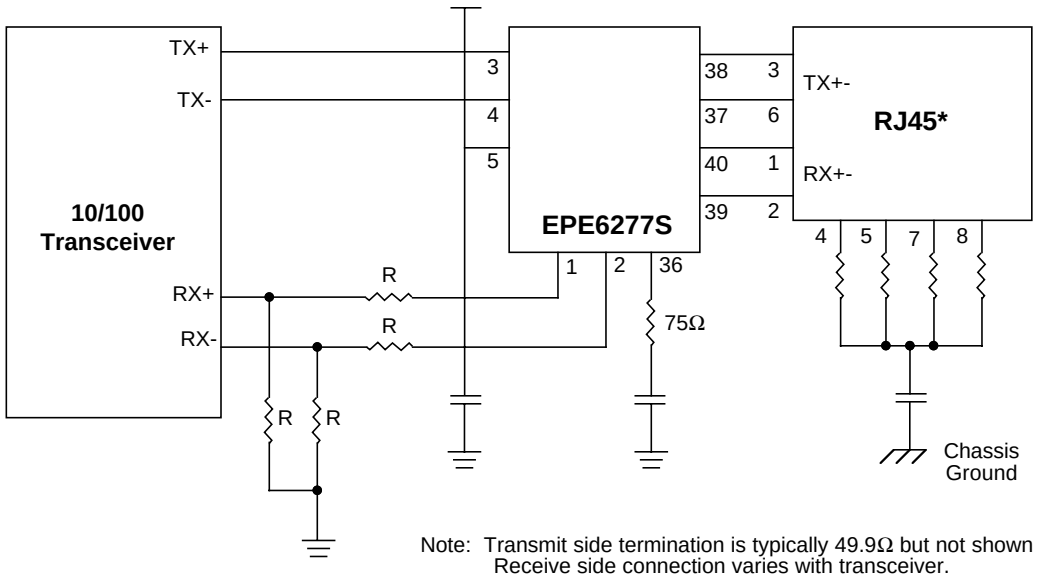
System designers may ground the chip side center taps via a low voltage capacitor. In some cases, it is suggested to use the secondary center tap for further EMI containment. EMC designer need to try out values that suit their particular board layout and rules. Putting a 2KV rated capacitor is most widely practiced.

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 EPE6277S. 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 switched hub application. Only one port is shown



Note: Transmit side termination is typically 49.9Ω but not shown here.
Receive side connection varies with transceiver.
Consult manufacturers for latest circuit & values.

* Connection shown for DCE such as a Hub, Switch, ect.

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