

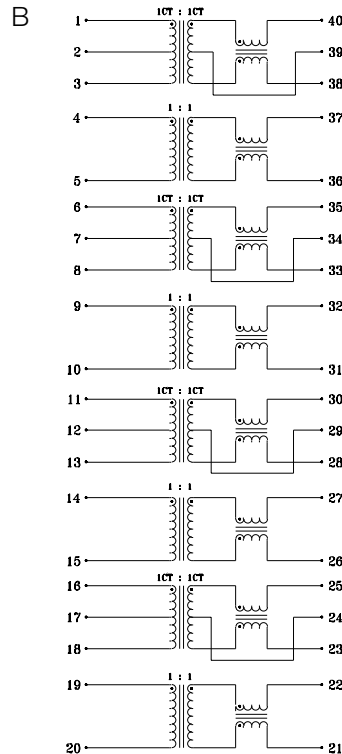
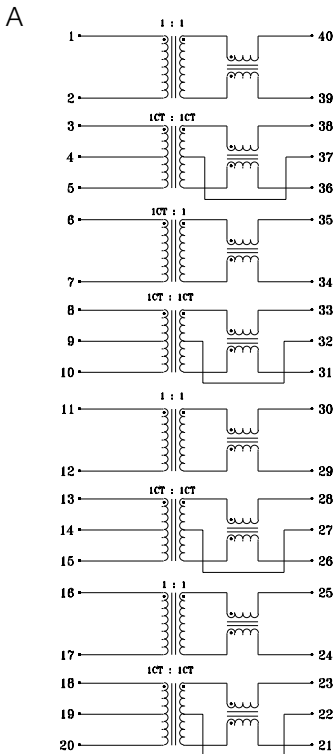
# HIGH SPEED LAN MAGNETICS

- Quad, 4-port designs offer best design layout and per port cost efficiencies
- Tested for use with multiple 10/100 Mbps and 100 Mbps PHY transceivers requiring 1:1 Tx and Rx transformers
- Impedance matched common mode termination not required
- Internal crossover design optimizes board layout for use with stacked RJ-45 connectors
- Low profile, SMT packaging, rated to withstand 225°C peak IR reflow temperature
- 2000 Vrms isolation

## ELECTRICALS AT 25°C

Part No.	Insertion Loss (dB) Typ 1MHz-100MHz	Return Loss (dB) Min 1MHz-30MHz	Return Loss (dB) Min 30MHz-60MHz	Return Loss (dB) Min 60MHz-80MHz	Crosstalk (dB) Min 1MHz-100MHz	Common to Diff Mode Rej (dB) Min		Common to Common Mode Rej (dB) Min		Schematic
						30MHz	100MHz	30MHz	100MHz	
S558-5999-74	-1.0	-16	16-20log(f/30MHz)	-10	-35	-50	-40	-40	-30	B
S558-5999-B2	-1.0	-16	16-20log(f/30MHz)	-10	-35	-50	-40	-40	-30	C
S558-5999-C0	-1.0	-16	16-20log(f/30MHz)	-10	-35	-50	-40	-40	-30	A

## SCHEMATICS

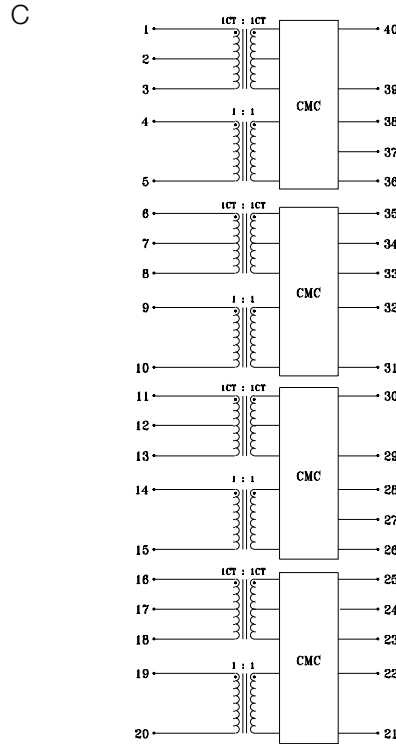


Specifications subject to change without notice.

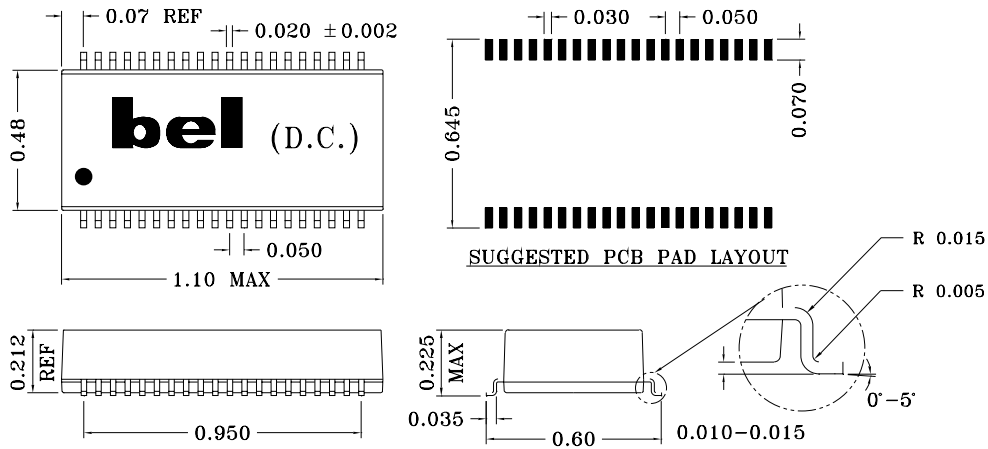
## HIGH SPEED LAN MAGNETICS

960008A

### SCHEMATICS (CONT'D)



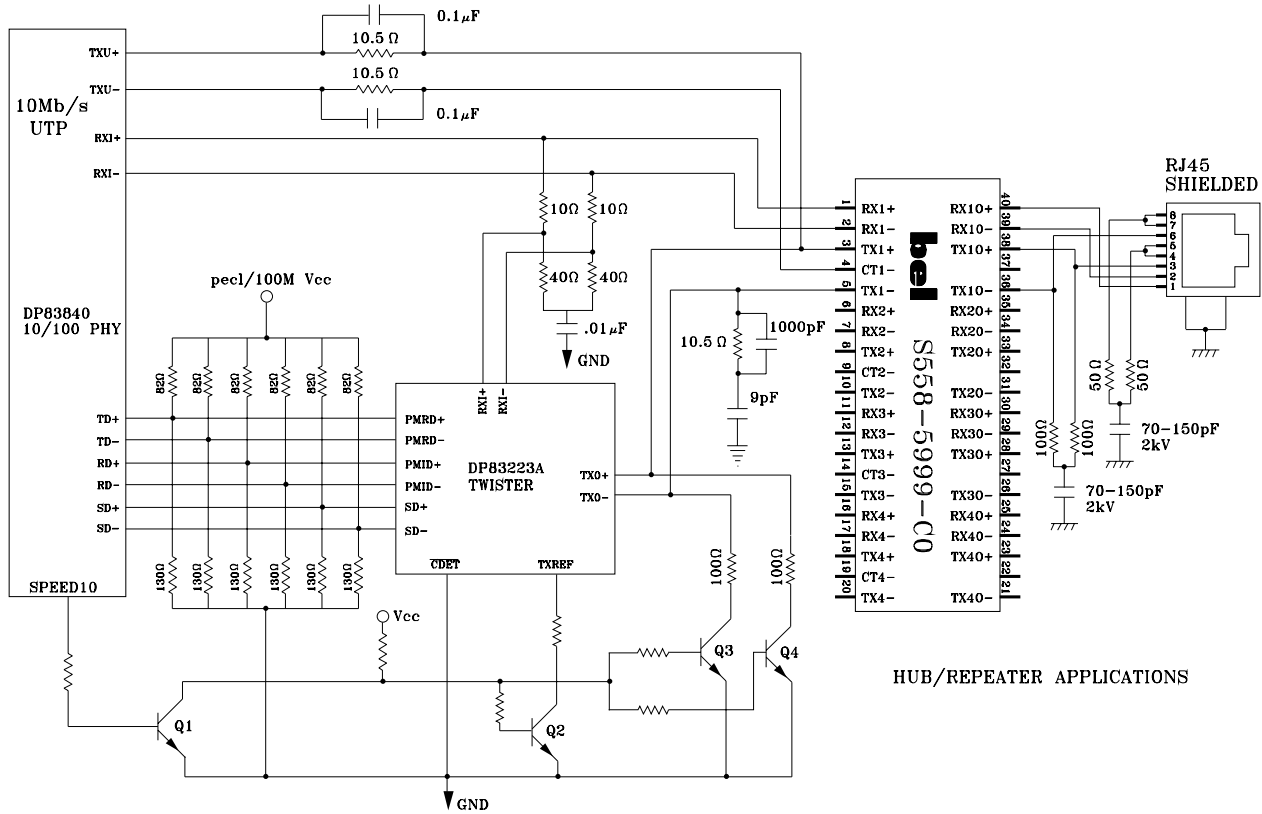
### MECHANICAL



Specifications subject to change without notice.

# HIGH SPEED LAN MAGNETICS

## APPLICATION CIRCUIT



HUB/REPEATER APPLICATIONS

**NOTE:** It is recommended for the above application to leave the secondary side center taps unconnected. For applications with other IC's, please consult the factory for recommendations on center tap termination and layout schematic.



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## HIGH SPEED LAN MAGNETICS

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### APPLICATION NOTES

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- Bel has designed these part types for use in either 100 Mbps or 10/100 Mbps multi-port applications, where the PHY device requires 1:1 transmit and receive isolation transformer ratios. Please refer to the Bel short form catalog for recommendations of mating semiconductors. These quad, 4-port devices provide high isolation transformers, signal wave shaping, fast but controlled rise times, EMI and common mode noise suppression. All part types meet IEEE 802.3 standards, which includes a requirement for 350 $\mu$ H OCL (inductance) at 8mA DC bias applied. Use of these Bel part types provides optimum space and cost per port efficiency with no sacrifice in performance versus similar single port devices.
- The S558-5999-B2 was specifically designed for use with stacked RJ-45 connectors. The S558-5999-B2 performs the necessary trace crossovers internal to the magnetics module, which are normally found directly on the user's PC board. This unique crossover magnetics design approach has no performance degradation versus the straight through approach, allows for elimination of layers and via holes on the user's PC board, and may enhance noise suppression.
- Refer to Bel's application note on the background and proper use of the impedance matched common mode termination, which can be eliminated with use of the parts listed in this data sheet.
- Bel's low profile, surface mount packaging is ideal for high speed pick and place machinery. Parts can be shipped on tape and reel for high speed placement. Construction processes have been implemented for thermal compatibility with high temperature IR reflow assembly processing. Post dipping of leads assist with PC board solderability. Each part is optically inspected to meet rigid coplanarity requirements.

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