

# HIGH SPEED LAN MAGNETICS

960004A

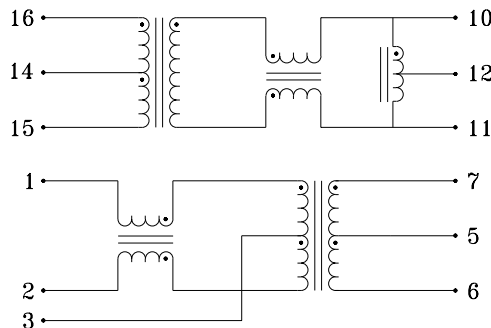
- Tested and qualified for use with National Semiconductor's DP83840 Ethernet PHY and DP 83223 TP chipset
- Designed for 10/100 Base-TX over Cat-5 cable
- Low profile, surface mount packaging available
- IR reflow rating to 225°C peak
- Excellent EMI and common mode noise suppression
- 350µH OCL (inductance) with 8mA bias applied
- 2000 Vrms isolation
- Consult short form catalog for part use with other PHY transceivers

## ELECTRICALS AT 25°C

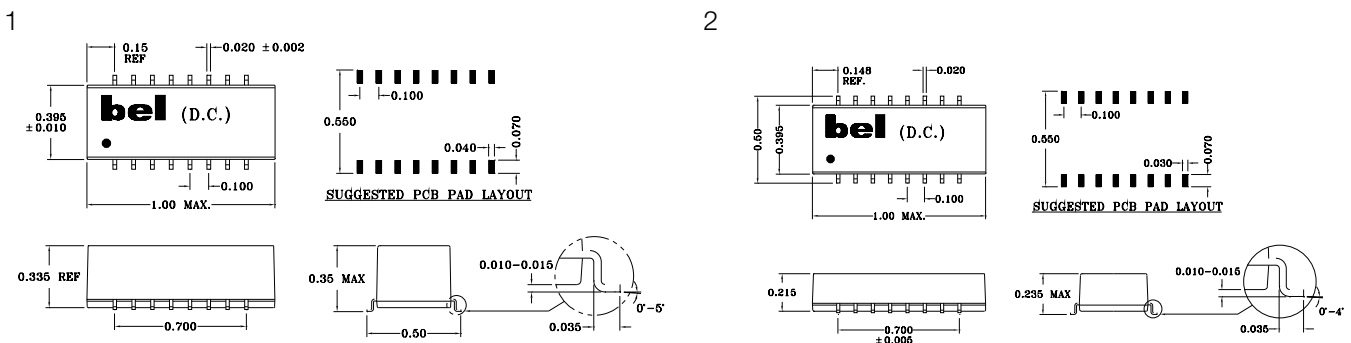
Part No.	Insertion Loss	Return Loss	Return Loss	Return Loss	Crosstalk	Common to Diff		Common to Common		Package Style
	(dB) Typ 1MHz-100MHz	(dB) Min 1MHz-30MHz	(dB) Min 30MHz-60MHz	(dB) Min 60MHz-80MHz	(dB) Min 1MHz-100MHz	Mode Rej (dB) Min 30MHz	Mode Rej (dB) Min 100MHz	Mode Rej (dB) Min 30MHz	Mode Rej (dB) Min 100MHz	
S558-5999-39	-1.0	-16	16-20log(f/30MHz)	-10	-35	-50	-40	-40	-30	1
S558-5999-46	-1.0	-16	16-20log(f/30MHz)	-10	-35	-50	-40	-40	-30	2
S558-5999-95*	-1.0	-16	16-20log(f/30MHz)	-10	-35	-50	-40	-40	-30	1

\*Same as S558-5999-39 except pins #4 and #13 are omitted.

## SCHEMATIC



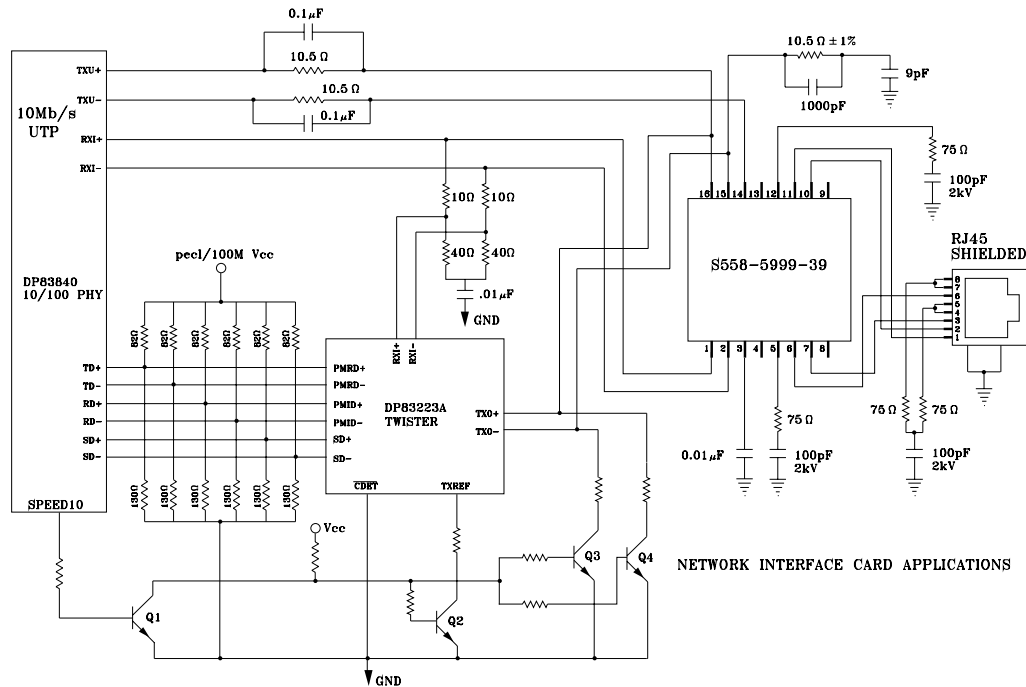
## MECHANICALS



NOTE: Pins 4, 8, 9, and 13 are no-connects.

Specifications subject to change without notice.

## APPLICATION CIRCUIT



NETWORK INTERFACE CARD APPLICATIONS

## APPLICATION NOTES

- These Bel part types have been designed for use in 100 Mbps or 10/100 Mbps data transmission systems over category 5 UTP/STP cable. Each Bel part type contains an impedance matching common mode termination from a center tapped core, which is located on the media side of the transmit channel. Good circuit balance on the board layout, along with precise selection of the values and tolerances for the discrete components used in conjunction with this center tap is critical for proper functionality. Refer to Bel's application note for proper implementation of the impedance matched common mode termination and possible design considerations to eliminate its use. Each Bel module provides superior EMI noise suppression, high voltage isolation, wave shaping and fast, but controlled rise times. All parts meet the IEEE 802.3 standards, which includes 350μH OCL (inductance) when 8mA of DC bias is applied.
- These three Bel part types have been tested and qualified for use with the National Semiconductor DP83223 TP-Transceiver and DP83840 10/100 Mbps PHY device, as well as similar 10/100 Mbps PHY transceivers listed in the Bel short form catalog.
- These three Bel part types have identical electrical design implementations. The only differences are the physical height of the packages (.350" vs .235") and the lead frame configuration (16 pins vs 14 pins). Pins 4, 8, 9, and 13 on all parts are "no connects."
- 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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