



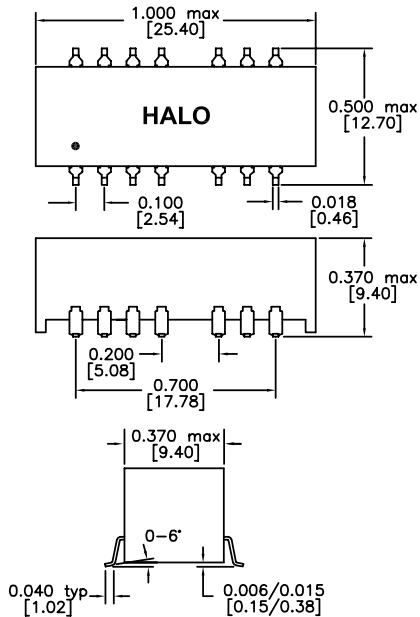
HALO ELECTRONICS, INC. SMD 10/100 Isolation Modules

HALO Electronics has developed this standard series of high performance Fast Ethernet Isolation Modules to specifically address the isolation, insertion loss and return loss requirements of IEEE 802.3u. Also compatible with ATM155 applications. All HALO isolation transformers are UL/EN60950 and DEMKO recognized. Available in industry standard and low profile packages. Isolation Modules are available for most LAN IC manufacturer's products. To select the correct Isolation Module please refer to the HALO Electronics [10/100 Selector Guide](#).



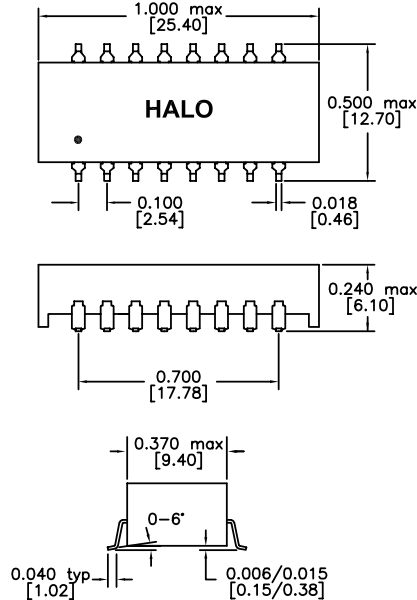
MECHANICAL DIMENSIONS

PACKAGE ND



DIMENSIONS : Inch[mm]
CO-PLANARITY : 0.004[0.10]

PACKAGE NL



DIMENSIONS : Inch[mm]
CO-PLANARITY : 0.004[0.10]

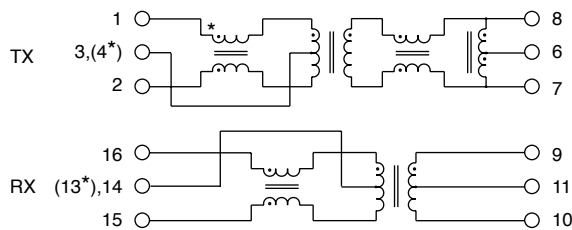
Patented Construction

US Pat Nbrs: 5,656,985 6,297,721 B1
6,297,720 B1 6,320,489 B1
6,344,785 B1 6,662,431 B1

Electrical Specifications @ 25°C

Isolation Voltage: 1,500 Vrms
OCL (100KHz, 0.1Vrms, 8mA): 350 μ H Min.
Leakage Inductance (1MHz): 0.4 μ H Max.
Cw/w: 15 pF Typ.
DCR: 0.9 Ω Max.
Rise Time: 2.5 nS Typ.
Insertion Loss (0.1-100MHz): -1.1 dB Max.
Cross Talk (0.1-100 MHz): -38 dB Min.
CMR (0.1-100MHz): S010 -45 dB Typ.
S012 -40 dB Typ.

SCHEMATIC



*TG22-S010ND ONLY



Part Number	Turns Ratio		Return Loss			Package
	TX	RX	0.1-40MHz	50MHz	60-80MHz	
TG22-S010NDRL	1CT:1CT	1CT:1CT	-15.5dB Min.	-13.6dB Min.	-12dB Min.	ND*
TG22-S012NDRL	1CT:1CT	1CT:1CT	-15.5dB Min.	-13.6dB Min.	-12dB Min.	ND
TG22-S012NLRL	1CT:1CT	1CT:1CT	-15.5dB Min.	-13.6dB Min.	-10dB Min.	NL

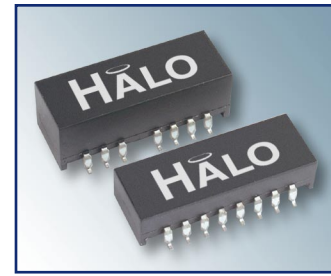
Note: Please contact the factory for detailed data sheets.

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www.haloelectronics.com • info@haloelectronics.com • This Datasheet: [smdspim.pdf](#) Rev. 09/12



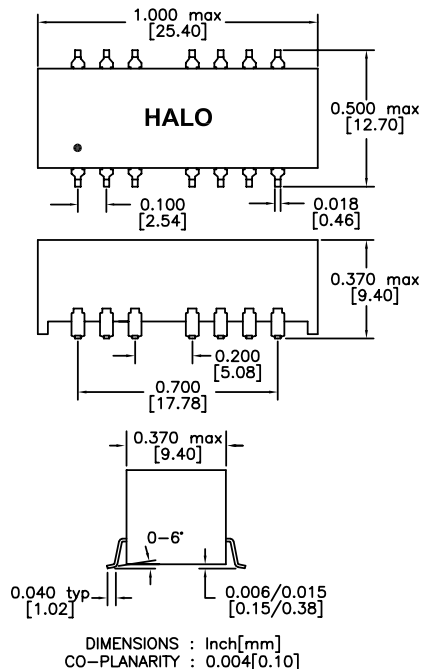
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MECHANICAL DIMENSIONS

PACKAGE ND



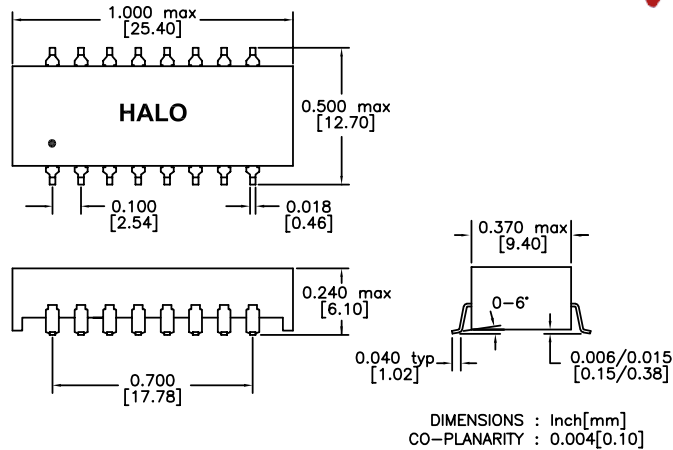
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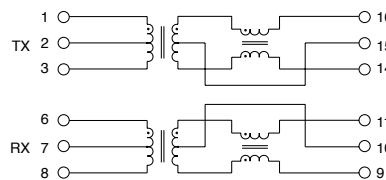
Electrical Specifications @ 25°C

Isolation Voltage: 1,500 Vrms
OCL (100KHz, 0.1Vrms, 8mA): 350 μ H Min.
Cw/w: 20 pF Typ.
DCR: 0.9 Ω Max.
Rise Time: 2.5 nS Typ.
Cross Talk (0.1-100 MHz): -38 dB Min.

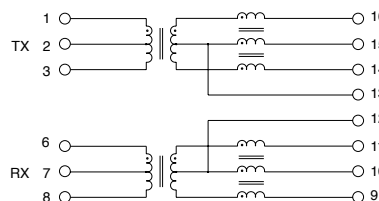
PACKAGE NL



SCHEMATIC A



SCHEMATIC B



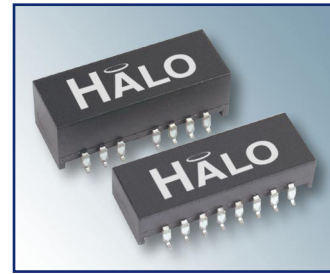
Part Number	Turns Ratio		LL (μ H Max.)	(CMR Typ.) (0.1-100MHz)	Schematic	Package
	TX	RX				
TG22-S131NDRL	$\sqrt{2}$ CT:1CT	1CT:1CT	0.40	-40dB	A	ND
TG22-S131NLRL	$\sqrt{2}$ CT:1CT	1CT:1CT	0.40	-40dB	A	NL
TG22-S133NLRL	$\sqrt{2}$ CT:1CT	1CT:1CT	0.40	-35dB	B	NL
TG22-S136NLRL	1.25CT:1CT	1CT:1CT	0.35	-35dB	B	NL
TG22-S139NDRL	1.25CT:1CT	1CT:1CT	0.35	-40dB	A	ND
TG22-S139NLRL	1.25CT:1CT	1CT:1CT	0.35	-40dB	A	NL

Note: Please contact the factory for detailed data sheets.



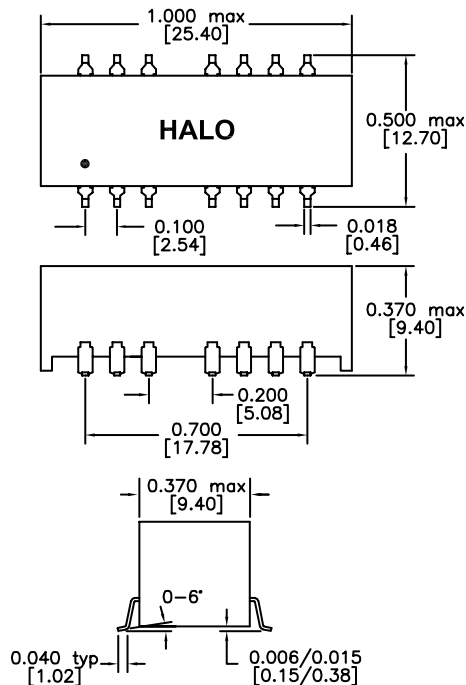
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MECHANICAL DIMENSIONS

PACKAGE ND

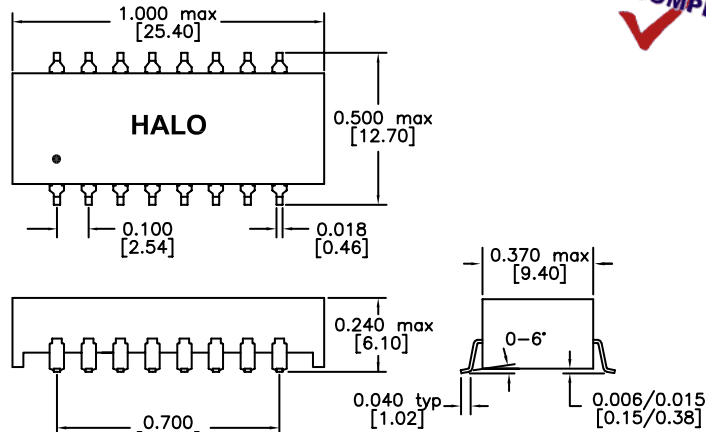


DIMENSIONS : Inch[mm]
CO-PLANARITY : 0.004[0.10]

Electrical Specifications @ 25°C

Isolation Voltage: 1,500 Vrms
OCL (100KHz, 0.1Vrms, 8mA): 350 μ H Min.
Cw/w: 20 pF Typ.
DCR: 0.9 Ω Max.
Rise Time: 2.5 nS Typ.
Cross Talk (0.1-100 MHz): -38 dB Min.
CMR (0.1-100MHz): -40 dB Typ.

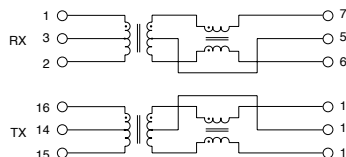
PACKAGE NL



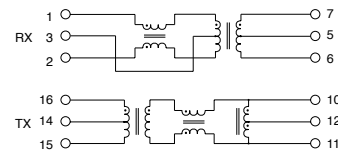
DIMENSIONS : Inch[mm]
CO-PLANARITY : 0.004[0.10]



SCHEMATIC A



SCHEMATIC B



Patented Construction

US Pat Nbrs: 5,656,985 6,297,721 B1
6,297,720 B1 6,320,489 B1
6,344,785 B1 6,662,431 B1



Part Number	Turns Ratio		LL (μ H Max.)	(CMR Typ.)	
	TX	RX		Schematic	Package
TG22-S132NDRL	$\sqrt{2}$ CT:1CT	1CT:1CT	0.40	A	ND
TG22-S132NLRL	$\sqrt{2}$ CT:1CT	1CT:1CT	0.40	A	NL
TG22-S134NDRL	1.25CT:1CT	1CT:1CT	0.35	A	ND
TG22-S134NLRL	1.25CT:1CT	1CT:1CT	0.35	A	NL
TG22-S137NDRL	1.25CT:1CT	1CT:1CT	0.35	B	ND
TG22-S137NLRL	1.25CT:1CT	1CT:1CT	0.35	B	NL
TG22-S141NDRL	1CT: $\sqrt{2}$ CT	1CT:1CT	0.40	A	ND
TG22-S143NDRL	1CT: $\sqrt{2}$ CT	1CT:1CT	0.40	B	ND

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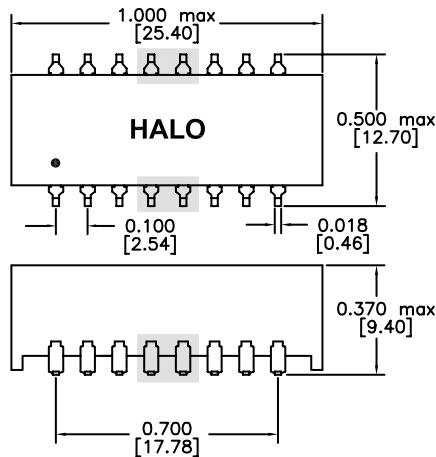
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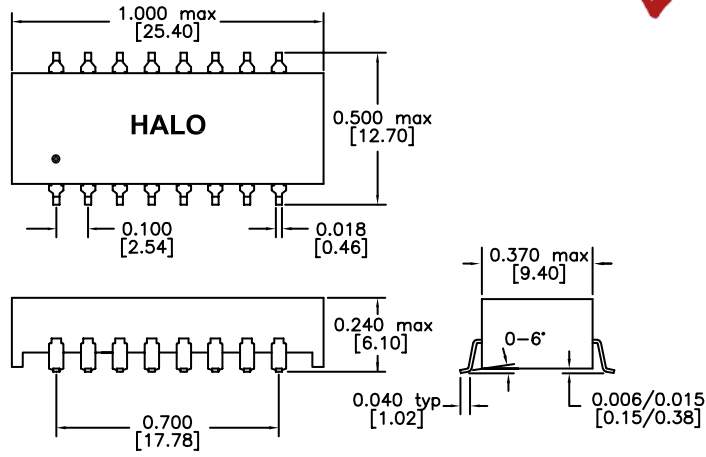
MECHANICAL DIMENSIONS



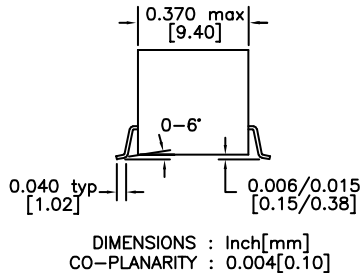
PACKAGE ND



PACKAGE NL



DIMENSIONS : Inch[mm]
CO-PLANARITY : 0.004[0.10]



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CO-PLANARITY : 0.004[0.10]

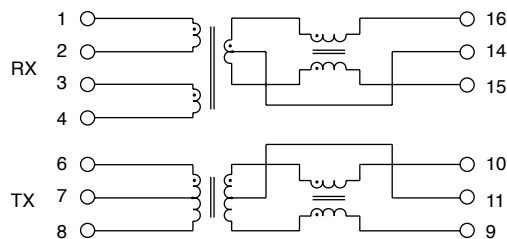
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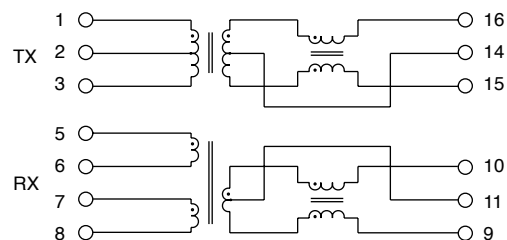
Electrical Specifications @ 25°C

Isolation Voltage: 1,500 Vrms
OCL (100KHz, 0.1Vrms, 8mA): 350 μ H Min.
Cw/w: 20 pF Typ.
DCR: 0.9 Ω Max.
Rise Time: 2.5 nS Typ.
Cross Talk (0.1-100 MHz): -38 dB Min.

SCHEMATIC A



SCHEMATIC B



Part Number	Turns Ratio TX	Package RX	Schematic	Package	Description
TG110-S045NDRL	2CT:1CT	1 : 1 :1CT	A	ND	Pins 5 & 12 omitted
TG110-S045NLRL	2CT:1CT	1 : 1 :1CT	A	NL	-
TG110-S048NDRL	2CT:1CT	1 : 1 :1CT	B	ND	Pins 4 & 13 omitted
TG110-S048NLRL	2CT:1CT	1 : 1 :1CT	B	NL	-

Note: Please contact the factory for detailed data sheets.