

# 100BASE-T4 LAN MAGNETICS MODULES

Designed for 10/100 Mbps Transmission  
Over UTP-3 Cable Using the 100Base-T4  
Standard



- Conform to 802.3u standard
- Filter modules replace 68 discrete components
- Surface mount, 235°C peak IR reflow temperature rating
- Voltage or current driver modules available
- Designed to work with AT&T/Lucent and BroadCom 100Base-T4 chipsets

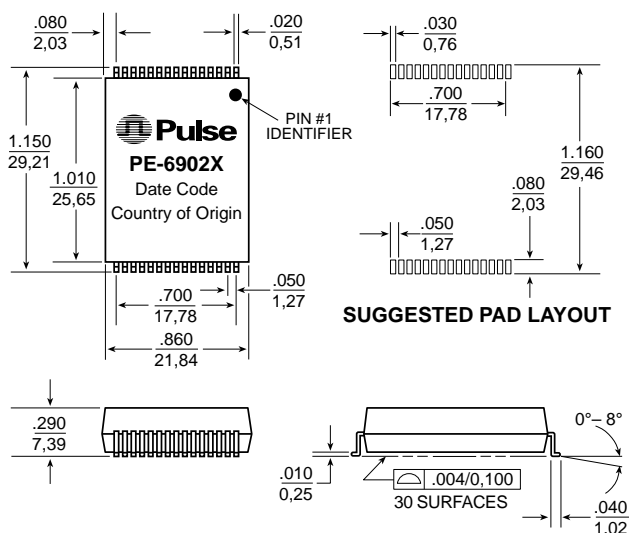
## Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

Part Number	Insertion Loss (TYP)		Return Loss 1 to 12.5 MHz (dB MAX)	Crosstalk 1 to 12.5 MHz (dB MIN)	Common Mode Rejection (dB TYP)		Isolation Voltage (Vrms MIN)
	1-12.5 MHz	30-50 MHz			.1-30 MHz	30-60 MHz	
PE-69024	-1.0 dB	-30 dB	-20	-40	-60	-50	1500
PE-69025	-1.0 dB	-35 dB	-20	-40	-60	-50	1500
PE-69025-001	-1.0 dB	-35 dB	-20	-40	-60	-50	1500
78Z9022SM*	-1.0 dB	-35 dB	-20	-40	-30	-20	1500

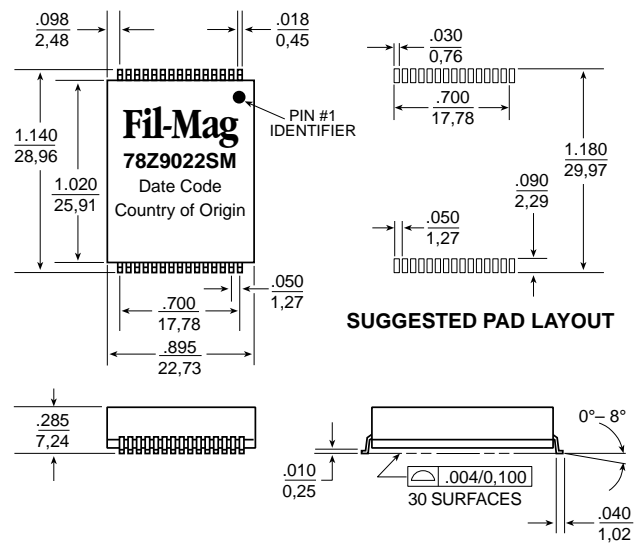
\*Fil-Mag Legacy Product

## Mechanicals

### PE-69024, PE-69025, PE-69025-001



### 78Z9022SM



Weight . . . . .7.6 grams  
Tape & Reel . . . . .160/reel  
Tube . . . . .20/tube

Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are ± .010  
0,25

Weight . . . . .7.6 grams  
Tape & Reel . . . . .160/reel  
Tube . . . . .24/tube

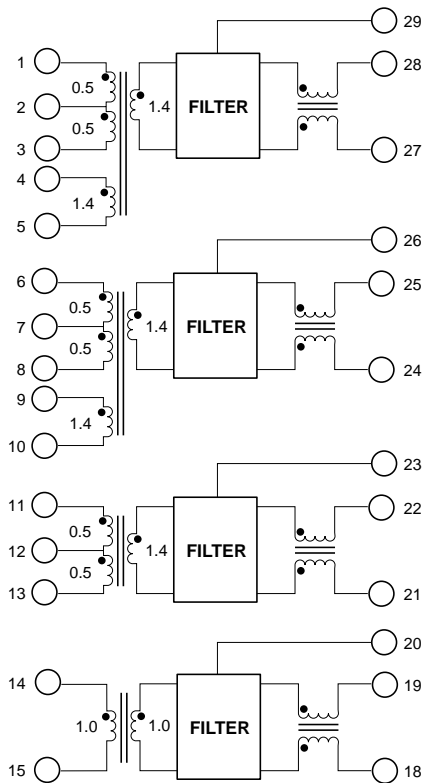
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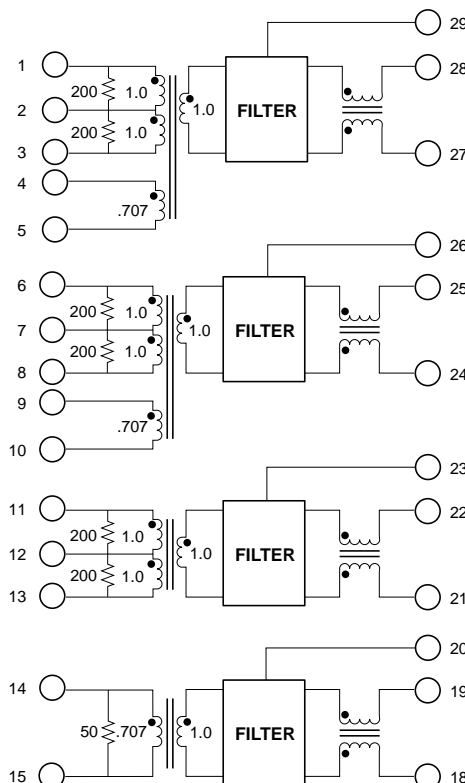


## Schematics

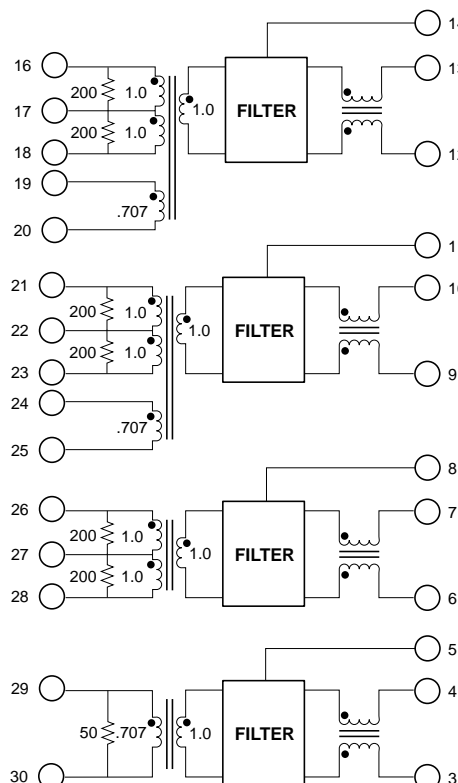
**PE-69024 - Voltage Driver**



**PE-69025 - Current Driver**



**78Z9022SM and PE-69025-001**



## Application Notes

The PE-69024, PE-69025, PE-69025-001, and 78Z9022SM magnetics modules have been specifically designed for implementation of the 100 Mbps 100Base-T4 data links over voice-grade unshielded twisted pair UTP-3 cable. The modules provide excellent EMI filtering and are targeted for multiport concentrators and adapter card applications. In designing these parts, Pulse has worked closely with the Fast Ethernet Alliance to develop an analog interface that provides isolation and EMI filtering for 100Base-T4 transceivers.

The transformers used in the modules provide high voltage isolation, wide band width and fast rise times. Each channel includes a low pass filter which reduces over-shoot and ringing on the transmitted waveform and decreases susceptibility to noise picked up by the cable. The filter and magnetic

characteristics are also suitable for 10 Mbps transmission allowing the module to be shared for 10/100 Mbps ports (Check transceiver specifications for 10/100 Mbps capability). The low pass corner frequency has been optimized to provide high attenuation in the stop band. The modules provide over -27 dB of attenuation at 30 MHz to filter signal harmonics and reduce EMI.

The modules interface to either a current source (PE-69025 and 78Z9022SM) or a voltage source (PE-69024) transceiver. The PE-69024, PE-69025, PE-69025-001, and 78Z9022SM are 30 pin surface mount packages including filter and magnetics for all four channels or one module per data link.

For more information on Fast Ethernet, ATM, and TP-FDDI solutions, contact Pulse's HS LAN marketing group at (619) 674-8100.

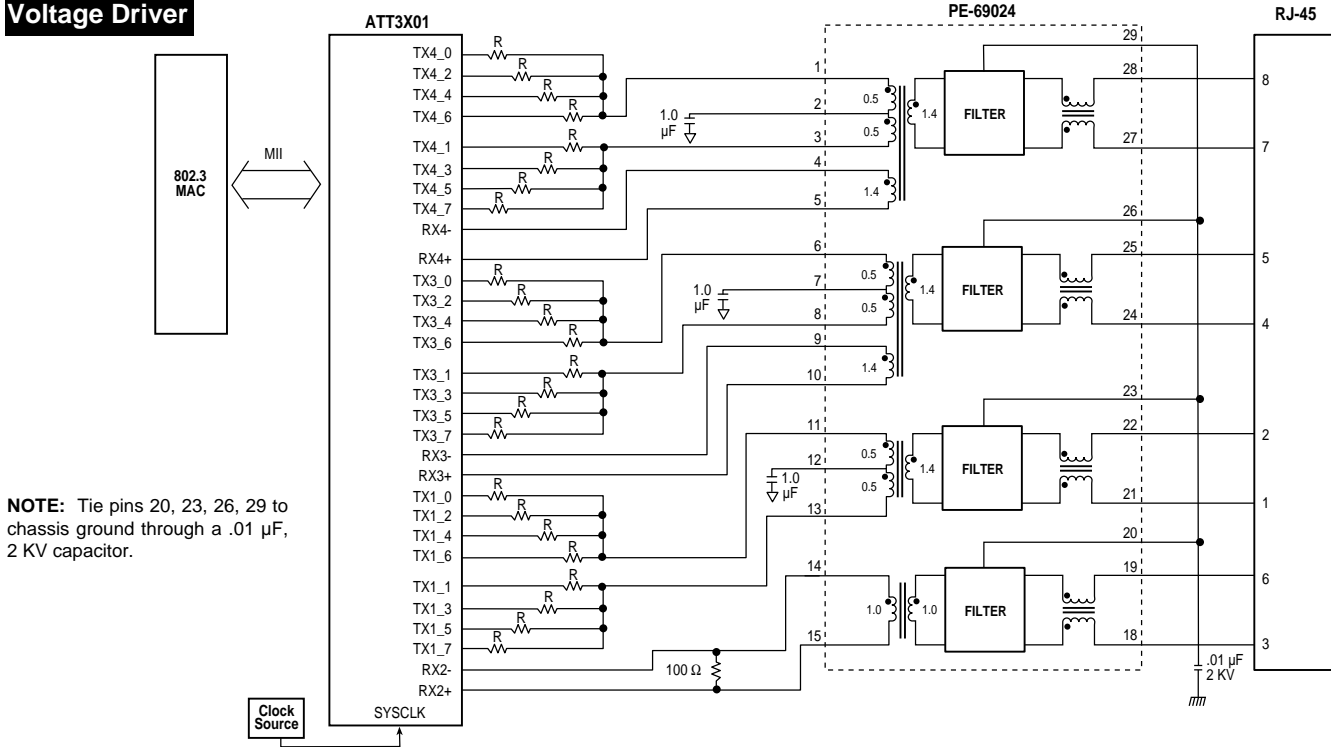
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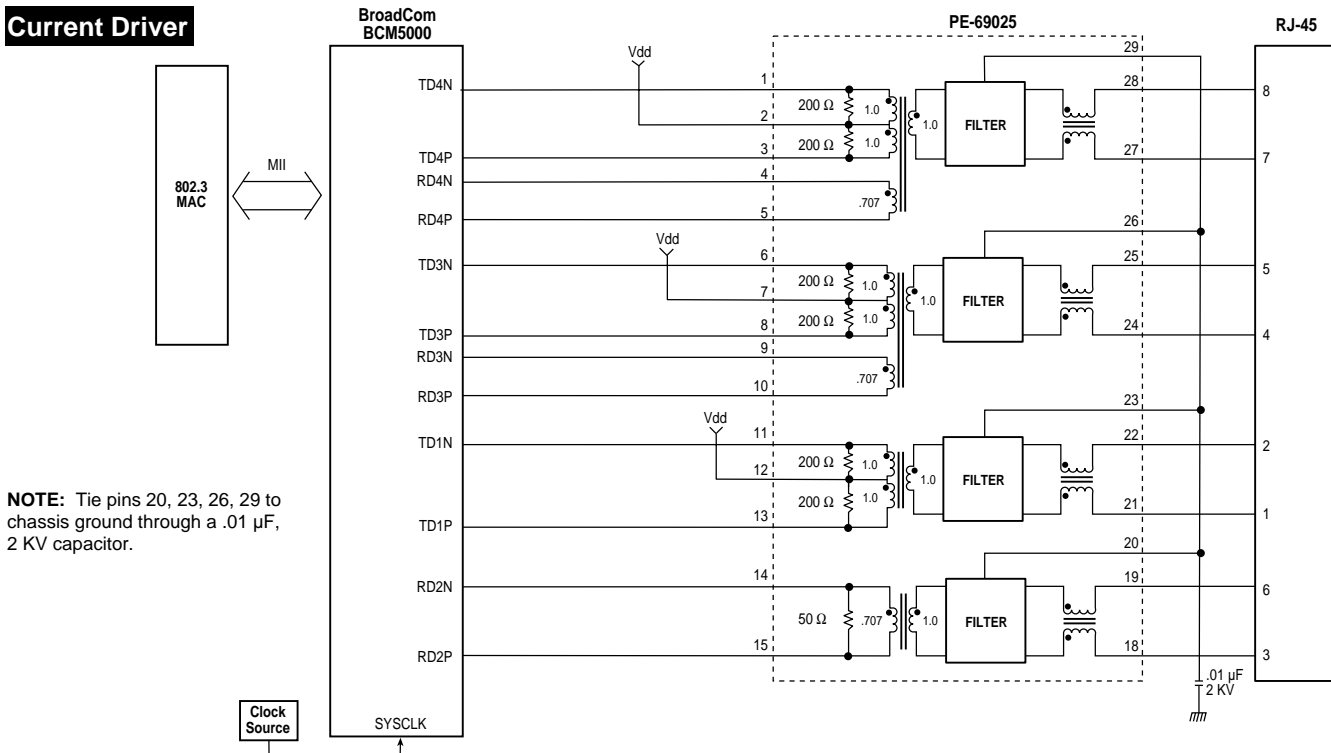


## Typical Application Circuits

### Voltage Driver



### Current Driver



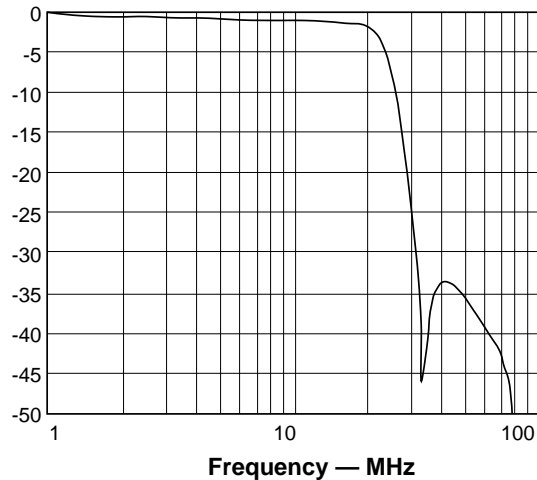
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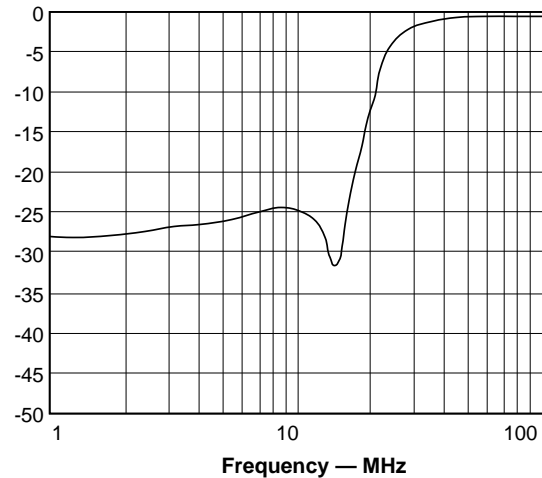


## Typical Performance Characteristics for PE-69025

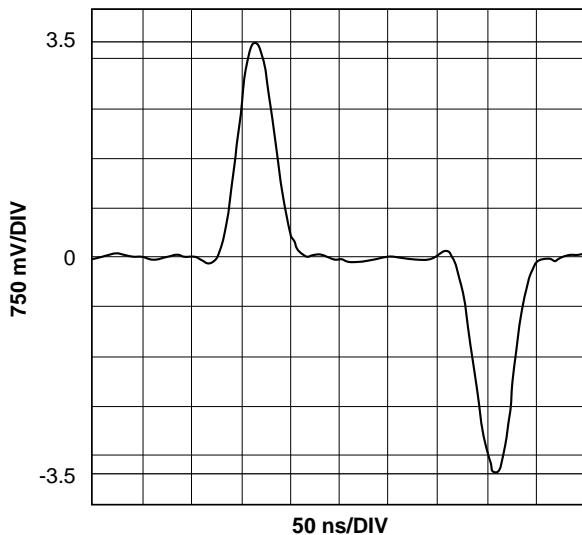
**Insertion Loss**



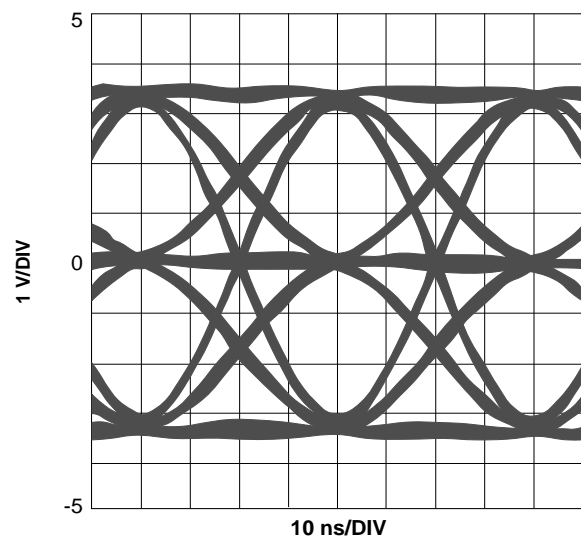
**Return Loss**



**Impulse Response**



**Eye Pattern**



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