






10BASE-T THROUGH HOLE INTERFACE MODULES

For 802.3 10Base-T LAN Applications



-  Meet or exceed IEEE 802.3 10Base-T specifications
-  For MAUs, hubs, and motherboard applications
-  High performance for maximum EMI suppression
-  Minimum 1500 Vrms isolation per IEEE 802.3 requirement
-  Compatible with multiple 10Base-T chips

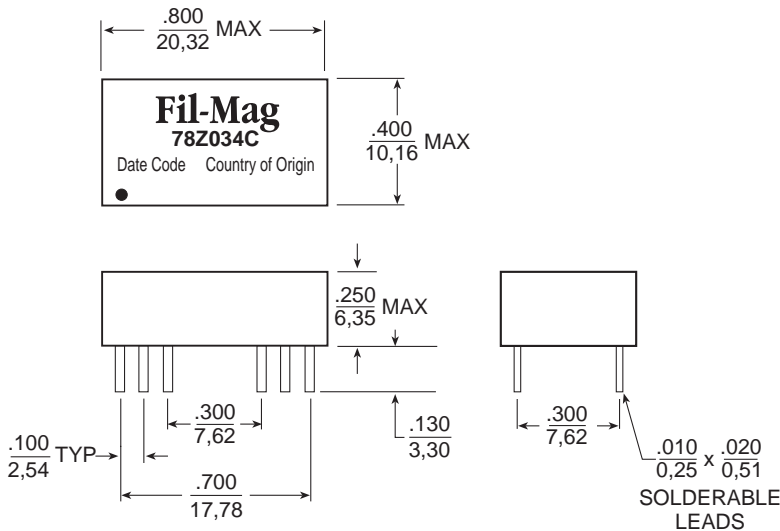
Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

Part Number	Package Type (Pins)	Insertion Loss 1 to 10 MHz (dB MAX)	Attenuation (dB MIN)				Return Loss 1 to 10 MHz 100 Ω ± 15 Ω (dB MIN)	Crosstalk 1 to 30 MHz (dB MIN)	Common Mode Rejection (dB MIN)	
			30-50 MHz		50-100 MHz				50 MHz	100 MHz
			TX	RX	TX	RX				
78Z034C	DIL (16)	-1.0	-30	-15	-35	-20	-15	-30	-35	-30
78Z1120B-01	DIL (16)	-1.0	-32	-20	-25	-25	-15	-30	-30	-25
78Z1122B-01	DIL (16)	-1.0	-30	-15	-35	-20	-15	-30	-35	-30
E2010	DIL (16)	-6.0	-27	-15	-27	-15	-15	-30	-45	-30
PE-68012AS	SIL (16)	-5.5	-30	-20	-30	-20	-15	-30	-55	-45
PE-68017S	SIL (10)	-1.0	-25	-10	-27	-30	-15	-30	-55	-45

Mechanical

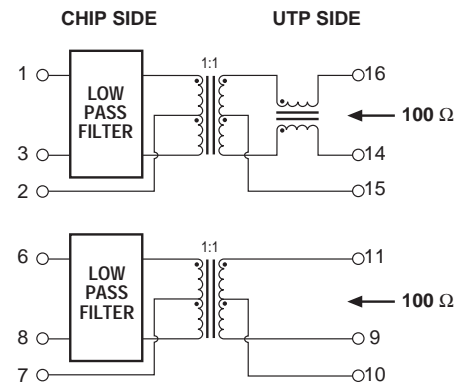
Schematic

78Z034C



Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified, all tolerances are $\pm \frac{.010}{0,25}$

Weight2.5 grams
 Tube29/tube



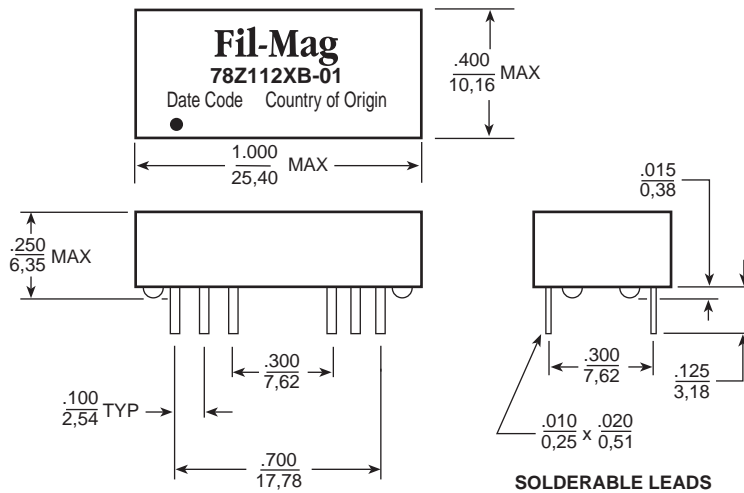
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Mechanical

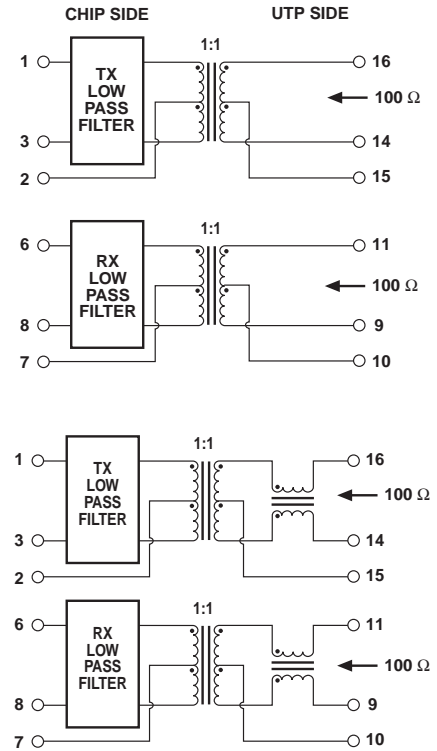
78Z1120B-01, 78Z1122B-01



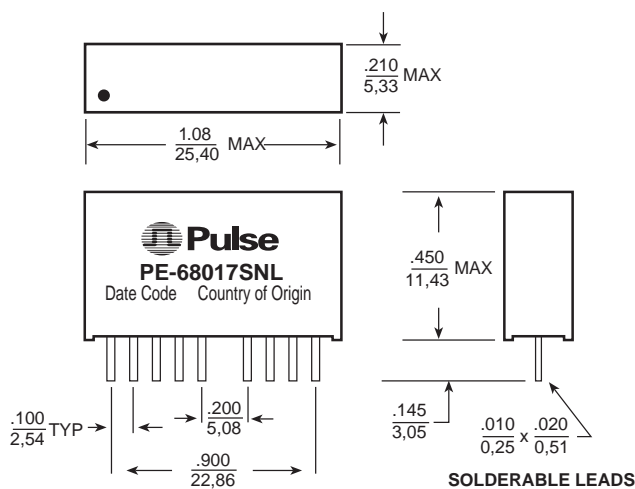
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified, all tolerances are $\pm \frac{.010}{0,25}$

Weight 2.8 grams
 Tube23/tube

Schematic

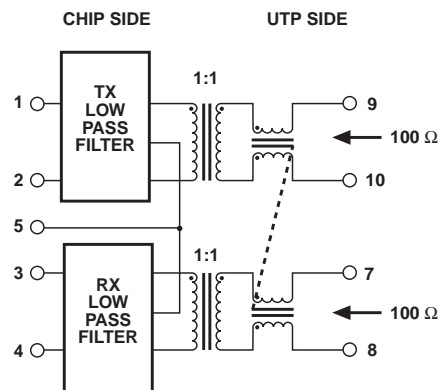


PE-68017SNL



Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified, all tolerances are $\pm \frac{.010}{0,25}$

Weight 3.9 grams
 Tube23/tube



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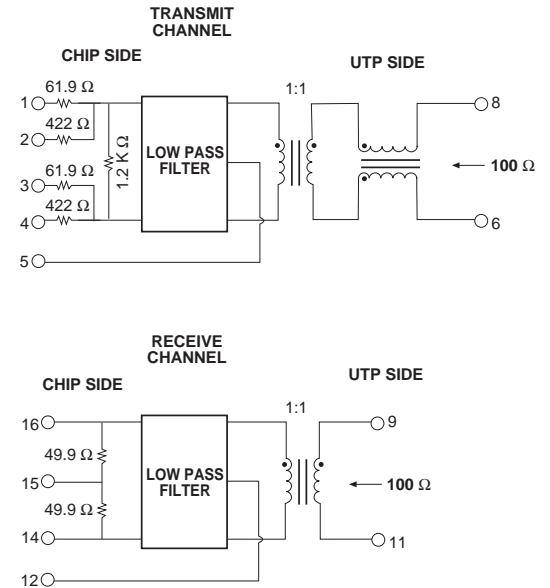
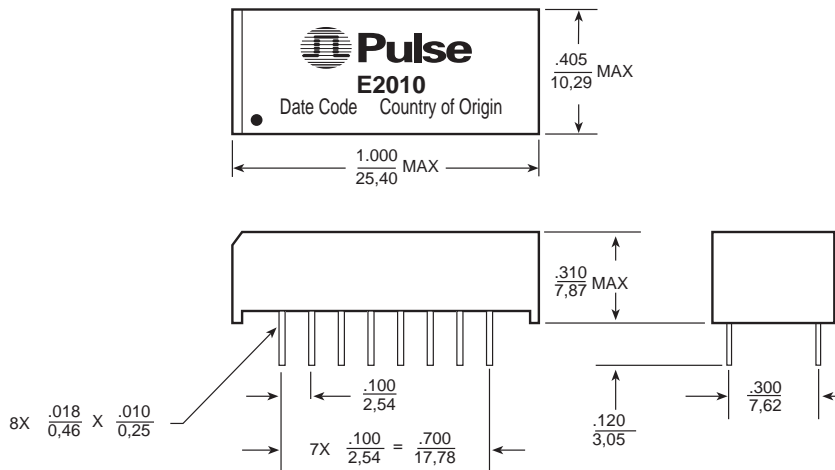
For 802.3 10Base-T LAN Applications



Mechanicals

Schematics

E2010



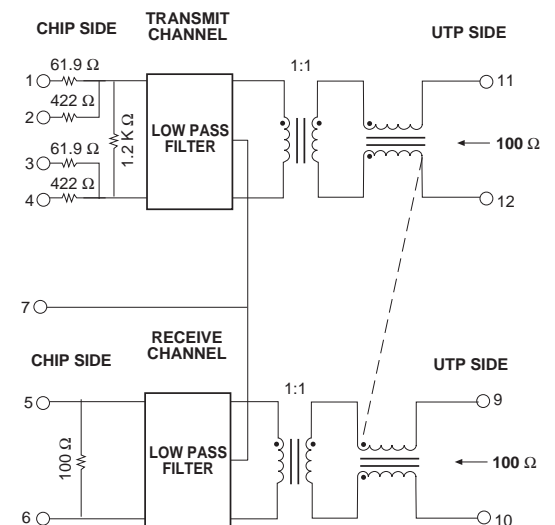
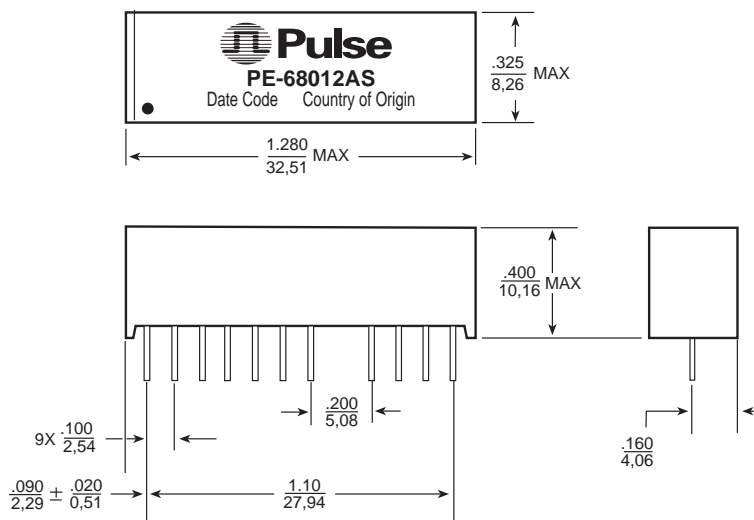
Dimensions: $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified, all tolerances are $\pm \frac{.010}{0,25}$

Weight 3.0 grams

Tube23/tube

PE-68012AS



Dimensions: $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified, all tolerances are $\pm \frac{.010}{0,25}$

Weight 4.3 grams

Tube15/tube

U.S.A: TEL 619 674 8100 • EUROPE: TEL 441 483 428 877 • ASIA: TEL 886 7 821 3141 • WEB: <http://www.pulseeng.com>

E104.6 (#/! *)

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Application Notes

Pulse's interface modules provide the complete analog solution for 10Base-T multiport applications in various packages. Each module includes low pass filters, isolation transformers, and may contain common mode chokes. The E2010 contains data and pre-equalization resistors on the transmit channel; and the receive channel is terminated with impedance matching resistors.

Electrical Functions Include:

- 1. Impedance Matching** - The low pass filters, in conjunction with selected resistor values, effectively match the impedance characteristics of the IC to those of the transmission line. Precision wound inductors help control passband impedances and lower return loss parameters. The proper cut-off frequency minimizes insertion loss and delay distortion while maximizing attenuation in the stopband.
- 2. EMI Suppression** - The filter module is designed to control signal harmonics and jitter, reflections, crosstalk interferences,

and common mode noise, which may contribute to radiated and conducted emissions. High impedance common mode chokes significantly minimize their effects.

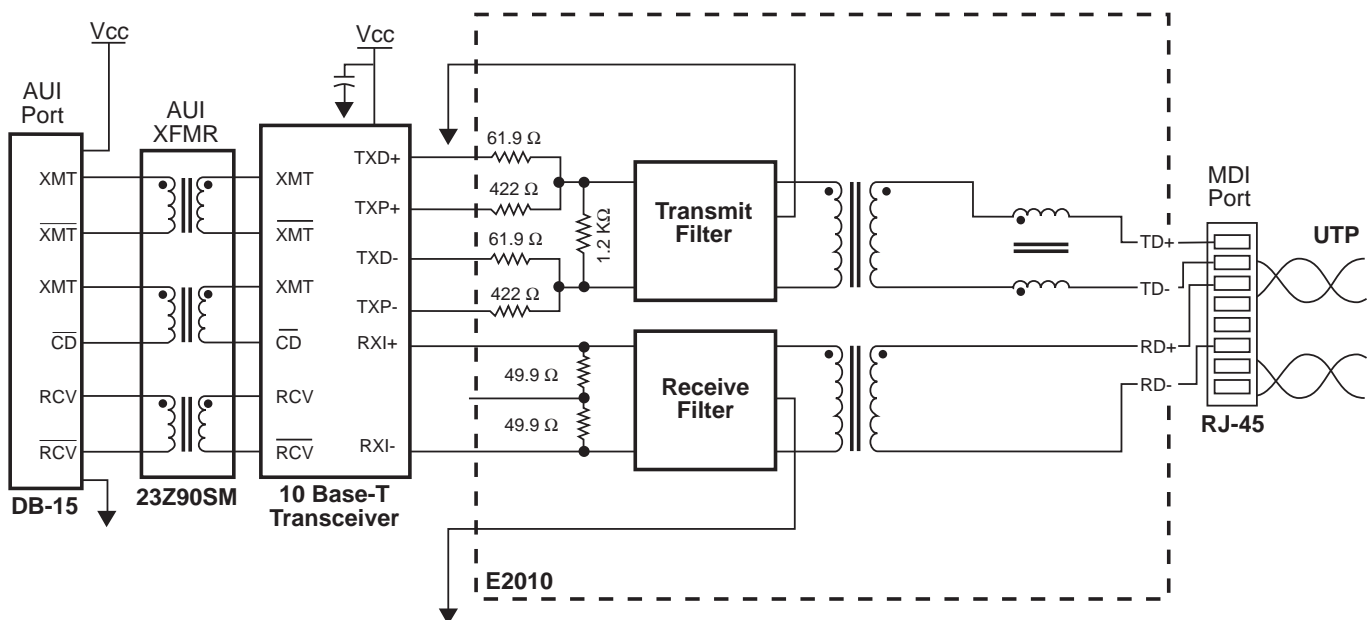
- 3. Equipment Isolation** - The transformer is designed to withstand 2000 Vrms, ensuring protection from static charge on the twisted pair line. Each module is fully tested to ensure compliance with IEEE 802.3 1993 standards.

In some applications, such as multiport repeaters, many channels are in close proximity. User compliance with FCC/CISPR22 Class B requirements can be achieved by applying rigorous design guidelines to suppress noise mechanisms. Attention to high frequency signal paths, good PCB grounding techniques, and component placements are critical.

A typical Network Interface Card Application is featured below.

Note: Modules are packaged in tubes.

Typical Application Circuit



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