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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package Type (Pins)</th>
<th>Insertion Loss 1 to 10 MHz (dB MAX)</th>
<th>Attenuation (dB MIN) 30-50 MHz TX</th>
<th>TX RX</th>
<th>50-100 MHz TX RX</th>
<th>Return Loss 1 to10 MHz 100 Ω ± 15 Ω (db MIN)</th>
<th>Crosstalk 1 to 30 MHz (db MIN)</th>
<th>Common Mode Rejection (db MIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>78Z034C</td>
<td>DIL (16)</td>
<td>-1.0</td>
<td>-30</td>
<td>-15</td>
<td>-35 -20</td>
<td>-15</td>
<td>-30</td>
<td>50 MHz</td>
</tr>
<tr>
<td>78Z1120B-01</td>
<td>DIL (16)</td>
<td>-1.0</td>
<td>-32</td>
<td>-20</td>
<td>-25 -25</td>
<td>-15</td>
<td>-30</td>
<td>100 MHz</td>
</tr>
<tr>
<td>78Z1122B-01</td>
<td>DIL (16)</td>
<td>-1.0</td>
<td>-30</td>
<td>-15</td>
<td>-35 -20</td>
<td>-15</td>
<td>-30</td>
<td>50 MHz</td>
</tr>
<tr>
<td>PE-68012AS</td>
<td>SIL (16)</td>
<td>-5.5</td>
<td>-30</td>
<td>-20</td>
<td>-30 -20</td>
<td>-15</td>
<td>-30</td>
<td>50 MHz</td>
</tr>
<tr>
<td>PE-68017S</td>
<td>SIL (10)</td>
<td>-1.0</td>
<td>-25</td>
<td>-10</td>
<td>-27 -30</td>
<td>-15</td>
<td>-30</td>
<td>100 MHz</td>
</tr>
</tbody>
</table>

Mechanical

Dimensions: Inches

- Weight: 2.5 grams
- Tube: 29/tube

WEB: http://www.pulseeng.com
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**Mechanical**

**Schematic**

**78Z1120B-01, 78Z1122B-01**

**Fil-Mag**

Dimensions: **Inches**

- **Weight**: 2.8 grams
- **Tube**: 23/tube

**PE-68017S**

Dimensions: **Inches**

- **Weight**: 3.9 grams
- **Tube**: 23/tube

Unless otherwise specified, all tolerances are ± 0.25
10BASE-T THROUGH HOLE INTERFACE MODULES
For 802.3 10Base-T LAN Applications

Mechanicals

Dimensions: Inches

Weight: 3.0 grams
Tube: 23/tube

Schematics

Dimensions: Inches

Weight: 4.3 grams
Tube: 15/tube
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Application Notes

Pulse's interface modules provide the complete analog solution for 10Base-T multipart 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

For More Information:

<table>
<thead>
<tr>
<th>Corporate</th>
<th>Europe</th>
<th>Asia</th>
<th>Distributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>12220 World Trade Drive, San Diego, CA 92128</td>
<td>Millpool house, Mill Lane, Godalming, Surrey GU7 1EY</td>
<td>P.O. Box 26-11, KEPZ 6 Central Sixth Road, KEPZ, Kaohsiung, Taiwan, R.O.C.</td>
<td></td>
</tr>
<tr>
<td>Tel: 619 674 8100</td>
<td>TEL: 441 483 428 877</td>
<td>Tel: 886 7 821 3141</td>
<td></td>
</tr>
<tr>
<td>Fax: 619 674 8262</td>
<td>FAX: 441 483 416 011</td>
<td>Fax: 886 7 841 9707</td>
<td></td>
</tr>
<tr>
<td><a href="http://www.pulseeng.com">http://www.pulseeng.com</a></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Quick-Facts 619 674 9672</td>
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