The ETH1-460L is developed to meet the IEEE 802.3at-2009 and IEEE 802.3.bt Type 4 standard for PoE+ and PoE++ applications. This module is designed for 4-pair cabling plants at 60 / 120 Watts. It exceeds the return loss requirements of Gbit Ethernet.

This single component solution may be used in place of two ETH1-230 parts, saving valuable board space.

It has a minimum open-circuit inductance of 350 µH at an offset current of 35 mA at 25°C ambient temperature, and can handle 22.5 mA minimum dc offset at 85°C. Typical temperature rise from 25°C ambient is 7°C with 800 mA and 10°C with 1000 mA dc current applied to one center tap of each isolation transformer. Winding to winding isolation is 1500 Vrms. Ambient temperature range: –40°C to +85°C with 1 A current.

1. When ordering, please specify packaging code:
   - ETH1-460LD
   - D = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (250 parts per full reel).
   - B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added ($25 charge), use code letter D instead.

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**Core material**  Ferrite

**Terminations**  RoHS compliant tin-silver-copper over tin over nickel over phos bronze

**Weight**  3.6 g

**Ambient temperature**  –40°C to +85°C

**Storage temperature**  Component: –40°C to +85°C. Tape and reel packaging: –40°C to +80°C

**Resistance to soldering heat**  Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)**  1 (unlimited floor life at <30°C / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

60 per billion hours / 16,666,667 hours, calculated per Telcordia SR-332

**Packaging**  250/13” reel; Plastic tape: 32 mm wide, 0.5 mm thick, 24 mm pocket spacing, 10.6 mm pocket depth

**PCB washing**  Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

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**Dimensions are in inches / mm**

<table>
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<th>Dimensions</th>
<th>Value</th>
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<tbody>
<tr>
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</tbody>
</table>

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"PoE Plus" Magnetics – ETH1-460

Insertion Loss

![Insertion Loss Graph](image1)

Return Loss

![Return Loss Graph](image2)

802.3af specification:
1.0 min dB from 0.1 MHz to 100 MHz
1.2 min dB at 125 MHz

802.3af specification:
18 dB min from 1 MHz to 40 MHz
16 dB min at 50 MHz
12 dB min at 80 MHz
10 dB min at 100 MHz

L vs Offset Current

![L vs Offset Current Graph](image3)