



# “PoE Plus” Magnetics

The **ETH1-230L**<sub>1</sub> is developed for high power PoE applications in support of the goals of the IEEE 802.3at-2009 standard. This module is designed for 2-pair cabling plants at 30 Watts and two modules may be used for 4-pair cabling in 60 Watt applications. It exceeds the return loss requirements of Gbit Ethernet.

It has a minimum open-circuit inductance of 350  $\mu$ H 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.

Request free evaluation samples by contacting Coilcraft or visiting [www.coilcraft.com](http://www.coilcraft.com).

1. When ordering, please specify **packaging** code:

**ETH1-230LD**

**Packaging:** **D** = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (400 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.

**Core material** Ferrite

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

**Weight** 3.0 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

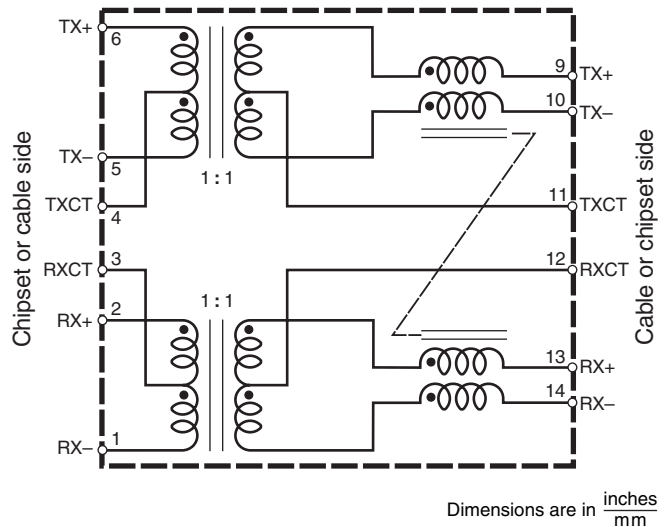
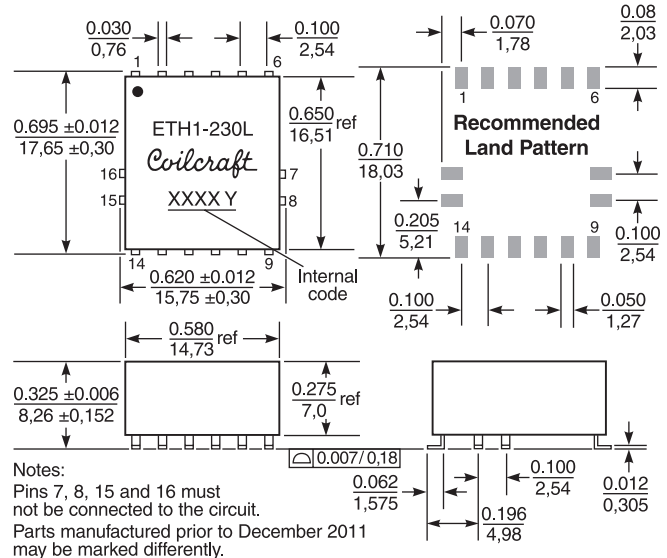
**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**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** 400/13" reel; Plastic tape: 32 mm wide, 0.5 mm thick,

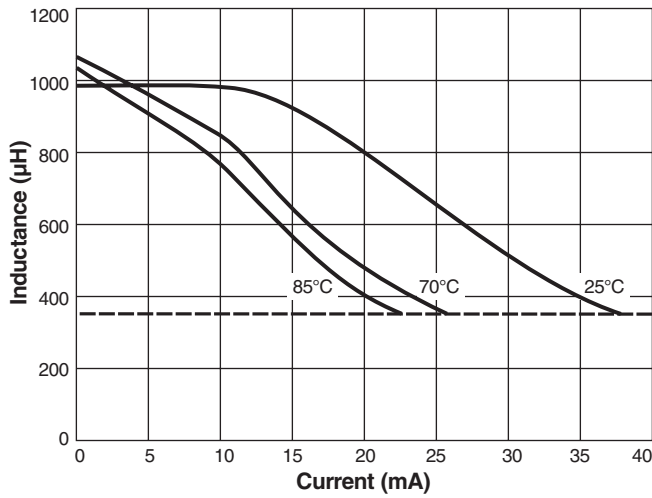
**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).



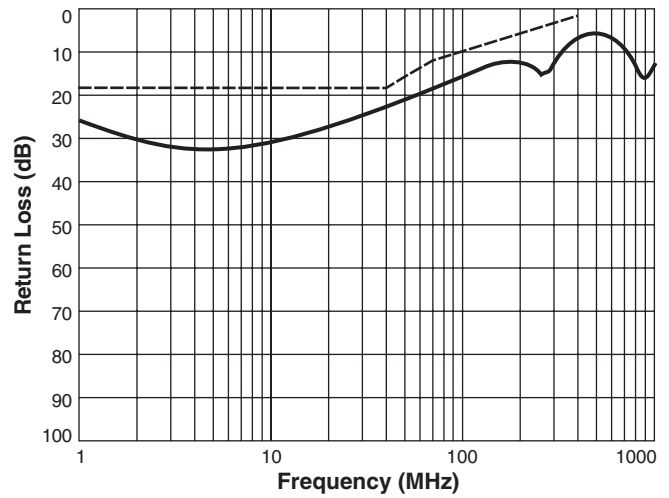


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## L vs Offset Current

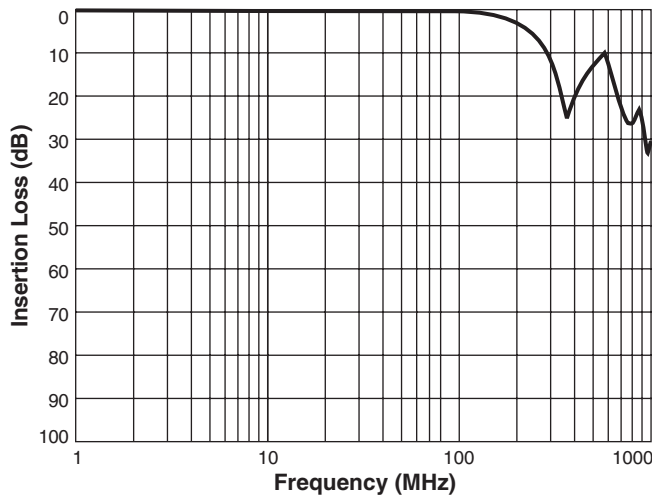


## Return Loss



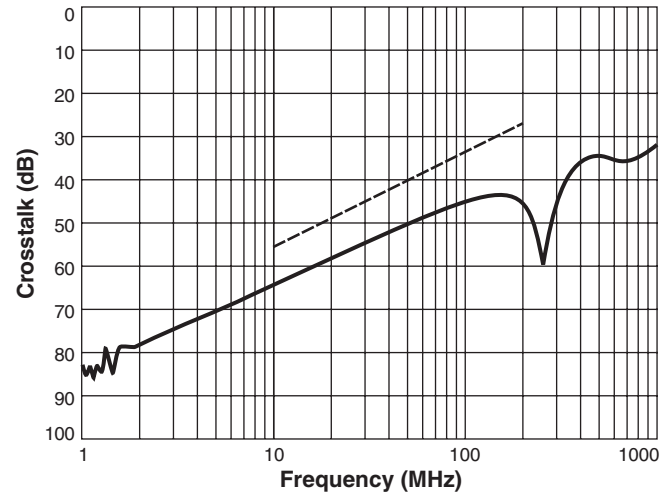
802.3af specification:  
 18 dB min from 1 MHz to 40 MHz  
 16 dB min at 50 MHz  
 12 dB min at 80 MHz  
 10 dB min at 100 MHz

## Insertion Loss



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

## Crosstalk



802.3af specification:  
 45 dB min at 30 MHz  
 40 dB min at 60 MHz  
 33 dB min at 100 MHz



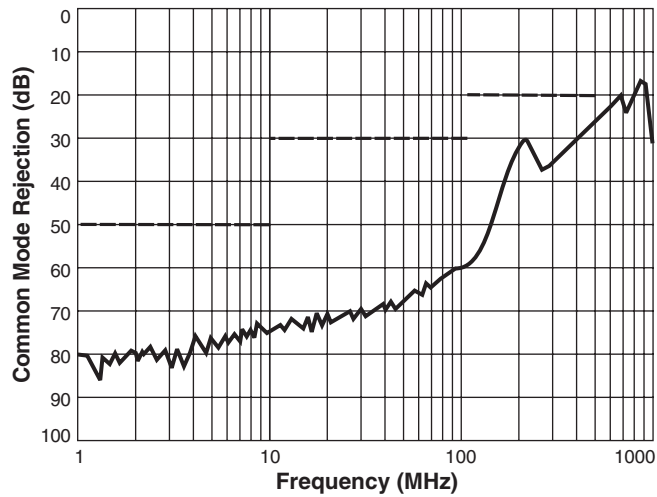
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Document 538-2 Revised 11/02/11  
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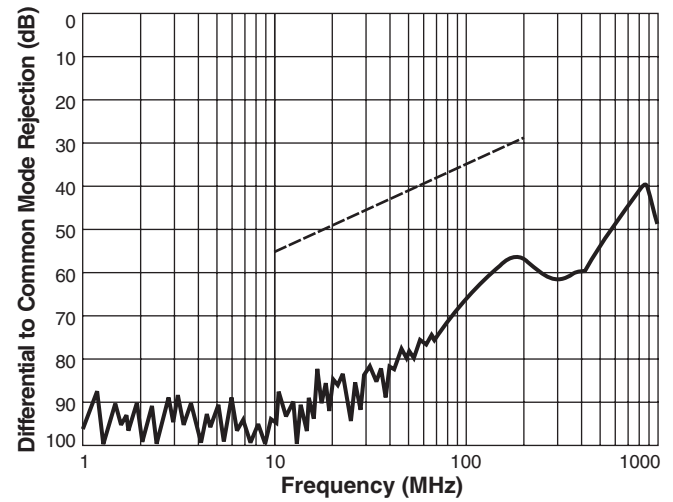
# “PoE Plus” Magnetics

## Common Mode Rejection



802.3af specification:  
 50 dB min from 1 MHz to 10 MHz  
 30 dB min from 10 MHz to 125 MHz  
 20 dB min from 125 MHz to 500 MHz

## Differential to Common Mode Rejection



802.3af specification:  
 45 dB min at 30 MHz  
 40 dB min at 60 MHz  
 35 dB min at 100 MHz



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Document 538-3 Revised 11/02/11

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