



PoE+/PoE++ Magnetics for 30 W/60 W signal path

The **ETH1-230L**¹ is developed to meet the IEEE 802.3at-2009 and IEEE 802.3bt Type 3 standard for PoE+ and PoE++ applications. This module is designed for 2-pair cabling plants at 30/60 Watts and two modules may be used for 4-pair cabling in 60/120 Watt applications. It exceeds the return loss requirements of Gbit Ethernet.

It has a minimum open-circuit inductance of 350 μ 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.

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). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

B = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to D.

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

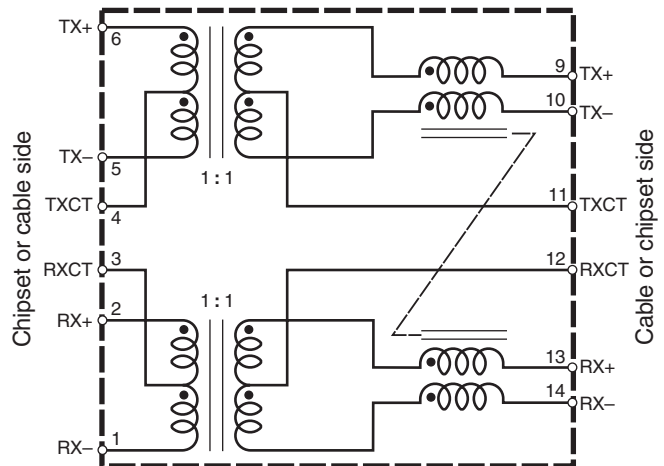
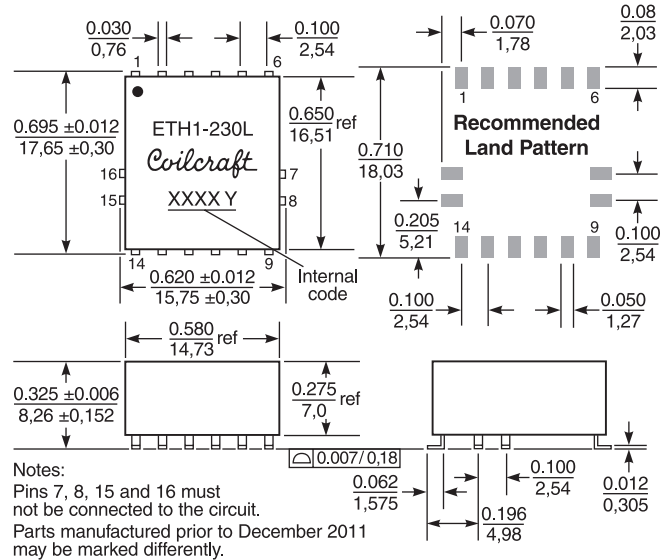
Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30°C / 85% relative humidity)

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](#).

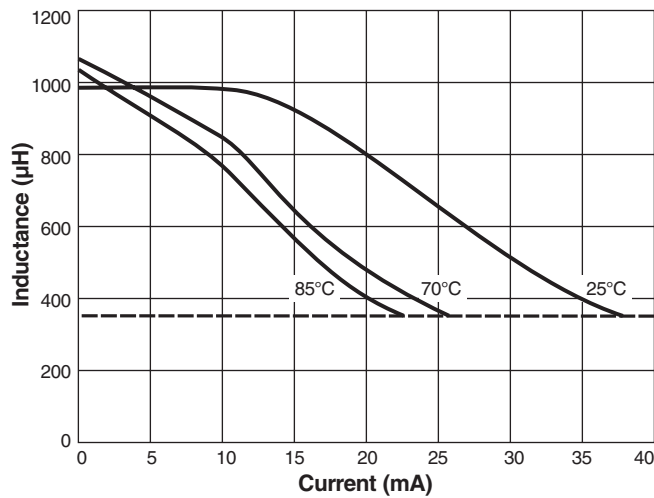


Dimensions are in $\frac{\text{inches}}{\text{mm}}$

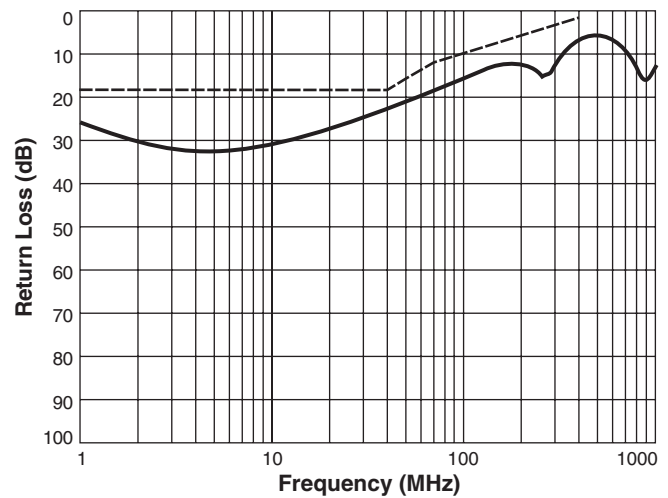


“PoE Plus” Magnetics

L vs Offset Current

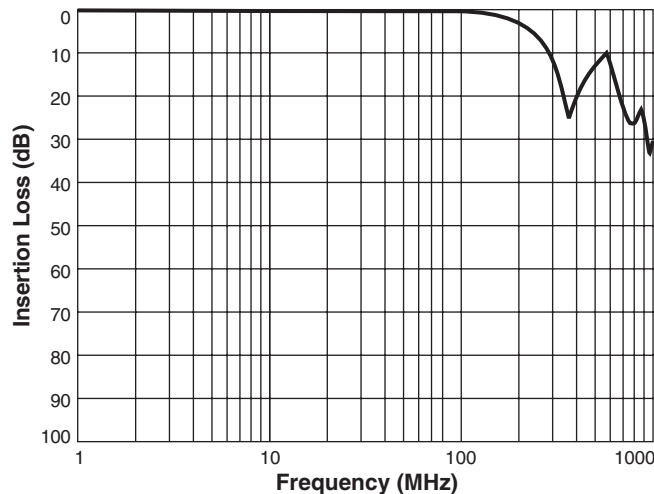


Return Loss



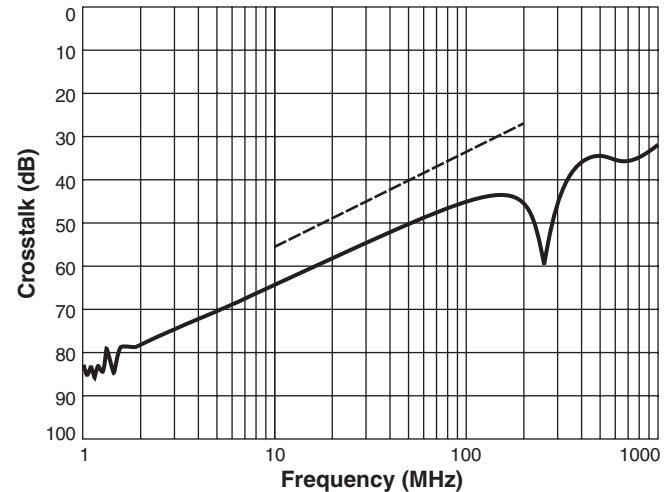
802.3af specification:
 18 dB min from 1 MHz to 40 MHz
 16 dB min at 50 MHz
 12 dB min at 80 MHz
 10 dB min at 100 MHz

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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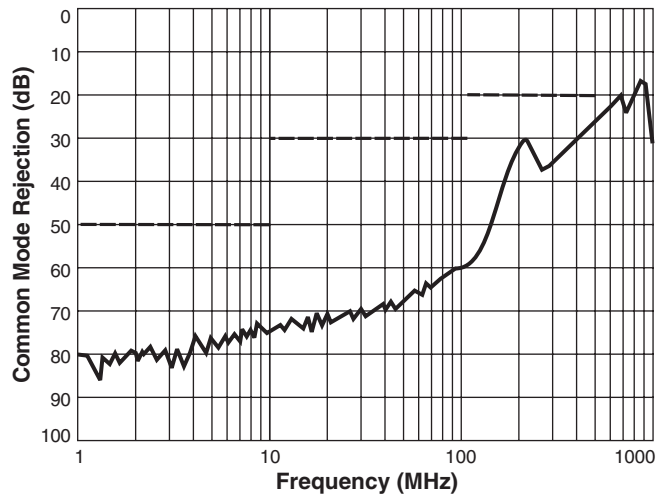
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“PoE Plus” Magnetics

Common Mode Rejection



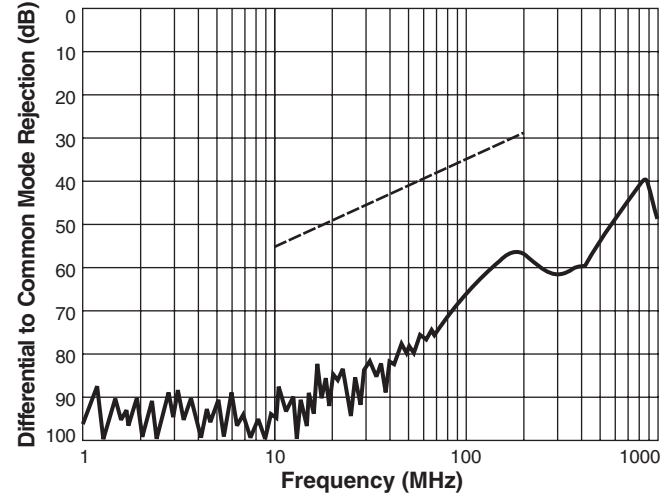
802.3af specification:

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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