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 802.3.bt 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 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.

Request free evaluation samples by contacting Coilcraft or visiting www.coilcraft.com.

1. When ordering, please specify packaging code:

   - 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  
Terminations  
Weight  
Ambient temperature  
Storage temperature  
Resistance to soldering heat  
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.

Notes:
Pins 7, 8, 15 and 16 must not be connected to the circuit.
Parts manufactured prior to December 2011 may be marked differently.

Dimensions are in inches / 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

Crosstalk

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

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

Please check web site for latest information.