

# Inductors And Common Mode Chokes

For Use in ADSL POTS Low Pass Filters



- Excellent longitudinal balance
- Inductors also available in surface mount packages
- Customized inductance values available
- Inductance is stable within  $\pm 10\%$  with DC current from 0 to 100mA

Electrical Specifications @ 25°C - Operating Temperature -40°C to +125°C

| RoHS-5<br>Compliant<br>Part No. | RoHS-6<br>Compliant<br>Part No. | Inductance<br>(each winding)<br>(mH) | DC Resistance<br>(each winding)<br>( $\Omega$ MAX) | Isolation Voltage<br>(between windings)<br>(Vrms) | Function                                  | Mounting |
|---------------------------------|---------------------------------|--------------------------------------|----------------------------------------------------|---------------------------------------------------|-------------------------------------------|----------|
| B2005                           | B2005NL                         | $9.0 \pm 30\%$                       | 0.60                                               | 1500                                              | Common Mode Choke                         | THT      |
| B2013 <sup>3</sup>              | B20013NL <sup>3</sup>           | $9.0 \pm 30\%$                       | 1.00                                               | 1500                                              | Common Mode Choke                         | SMT      |
| B2023                           | -                               | $6.0 \pm 5\%$                        | 4.00                                               | 1500                                              | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2024                           | -                               | $4.0 \pm 5\%$                        | 3.00                                               | 1500                                              | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2025                           | -                               | $3.0 \pm 5\%$                        | 2.50                                               | 1500                                              | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2026                           | -                               | $10.0 \pm 5\%$                       | 4.50                                               | 1500                                              | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2086 <sup>3</sup>              | B2086NL <sup>3</sup>            | $4.0 \pm 10\%$                       | 3.60                                               | 1250                                              | Coupled Inductor for POTS Low Pass Filter | SMT      |
| B2113                           | -                               | $2.25 \pm 10\%$                      | 2.25                                               | 500                                               | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2114                           | -                               | $1.425 \pm 10\%$                     | 2.25                                               | 500                                               | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2116                           | -                               | $1.65 \pm 10\%$                      | 2.25                                               | 500                                               | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2117                           | -                               | $1.35 \pm 10\%$                      | 2.25                                               | 500                                               | Coupled Inductor for POTS Low Pass Filter | THT      |
| B2118                           | -                               | $0.8 \pm 10\%$                       | 2.00                                               | 500                                               | Coupled Inductor for POTS Low Pass Filter | THT      |
| B8098 <sup>3</sup>              | B8098NL <sup>3</sup>            | $4.0 \pm 10\%$                       | 3.60                                               | 1250                                              | Coupled Inductor for POTS Low Pass Filter | SMT      |

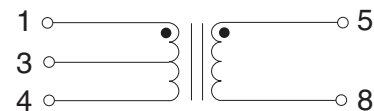
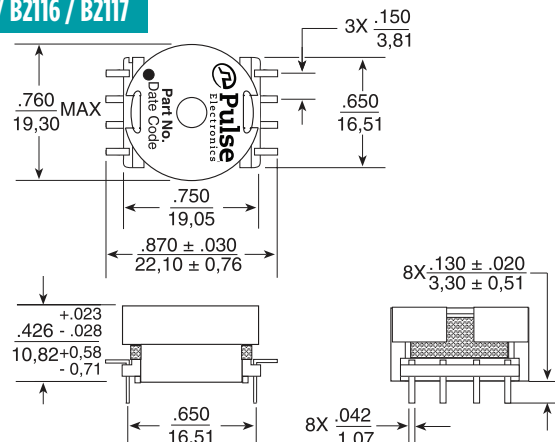
1. 100kHz, 20mVrms. 2. 1.0kHz, 1.0Vrms, 0 mA (each winding). 3. For Tape & Reel packaging, add the suffix "T" to this part number (B2013T or B2013NLT)

**Notes:** The B2005 and B2013 are common mode chokes that reduce common mode voltages in the low frequency range that may be caused by telephone ringing signals or by interference from radio transmitters in the ADSL frequency range. The chokes are also designed to accommodate DC currents up to 100mA.

## Mechanical

## Schematic

B2024 / B2025 / B2113 / B2114 / B2116 / B2117



Weight .....9.5 grams

Tray .....30/tray

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

USA 858 674 8100

Germany 49 7032 7806 0

Singapore 65 6287 8998

Shanghai 86 21 62787060

China 86 755 33966678

Taiwan 886 3 4356768

# Inductors And Common Mode Chokes

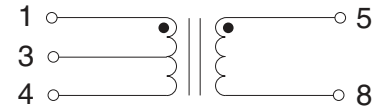
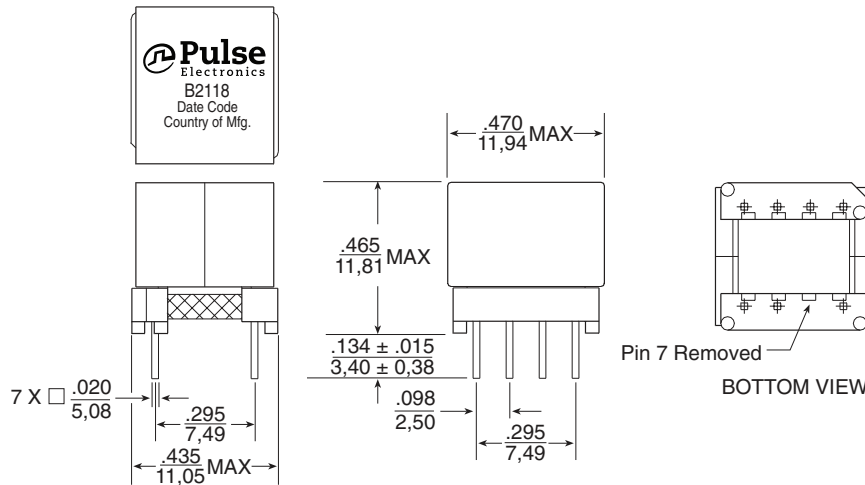
For Use in ADSL POTS Low Pass Filters



## Mechanicals

## Schematics

### B2118



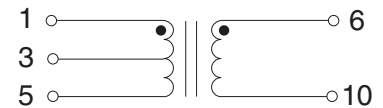
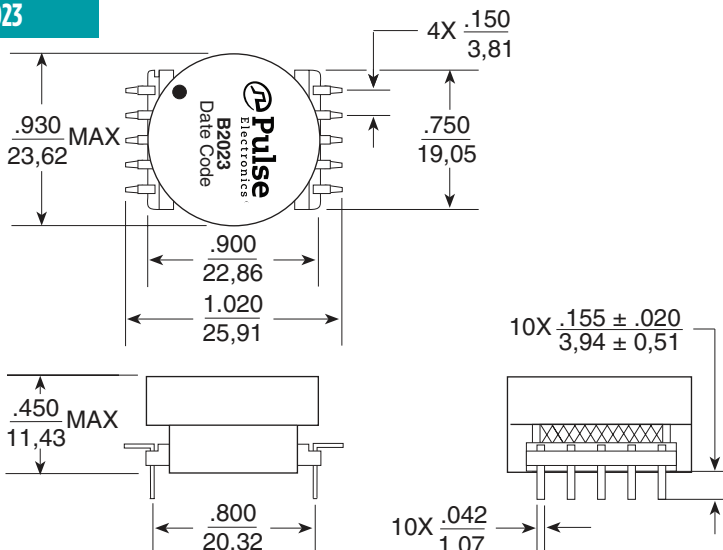
Weight .....3.6 grams

Tray .....75/tray

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

### B2023



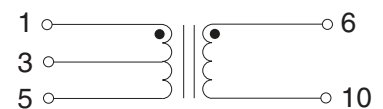
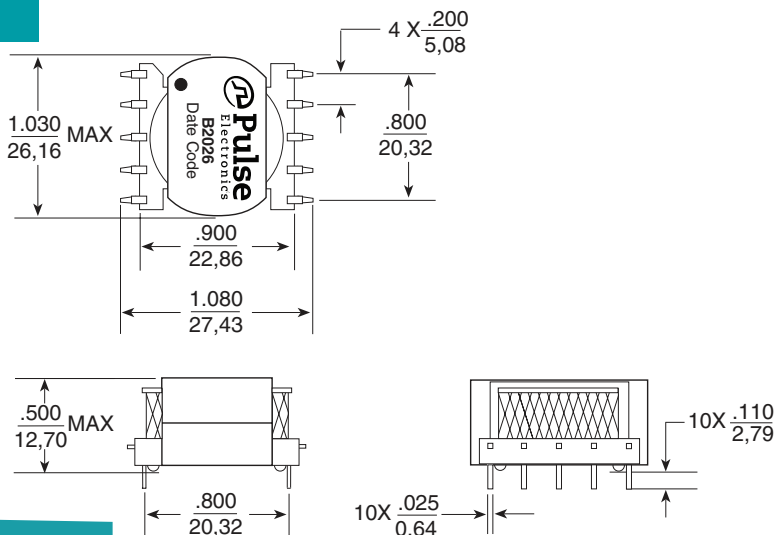
Weight .....15.0 grams

Tray .....45/tray

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

### B2026



Weight .....17.5 grams

Tray .....25/tray

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

# Inductors And Common Mode Chokes

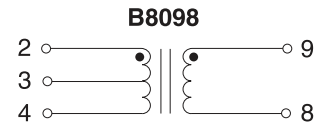
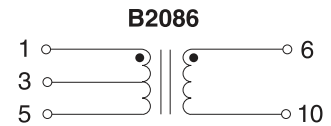
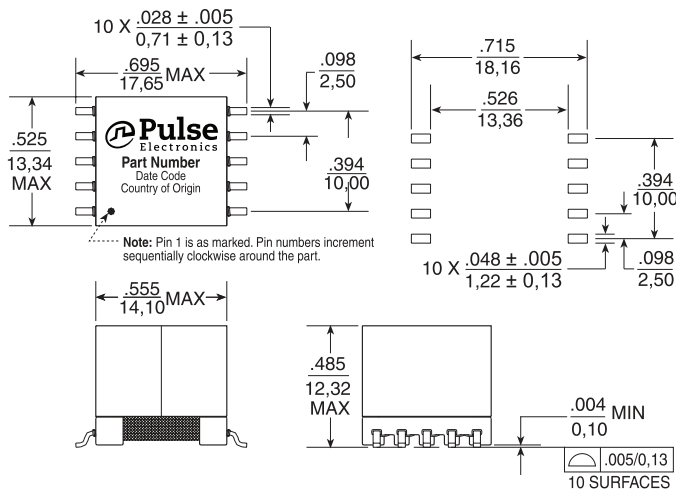
For Use in ADSL POTS Low Pass Filters



## Mechanicals

## Schematics

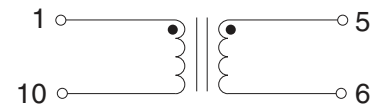
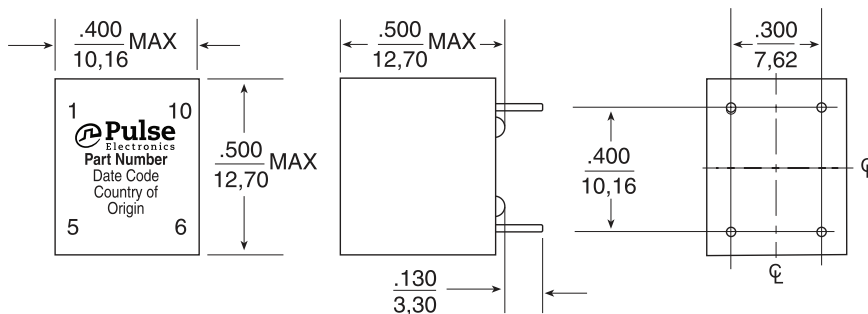
### B2086 / B2086NL / B8098 / B8098NL



Weight .....6.2 grams  
Tape & Reel .....150/reel  
Tray .....60/tray  
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

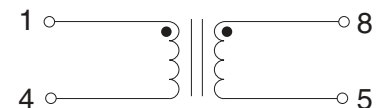
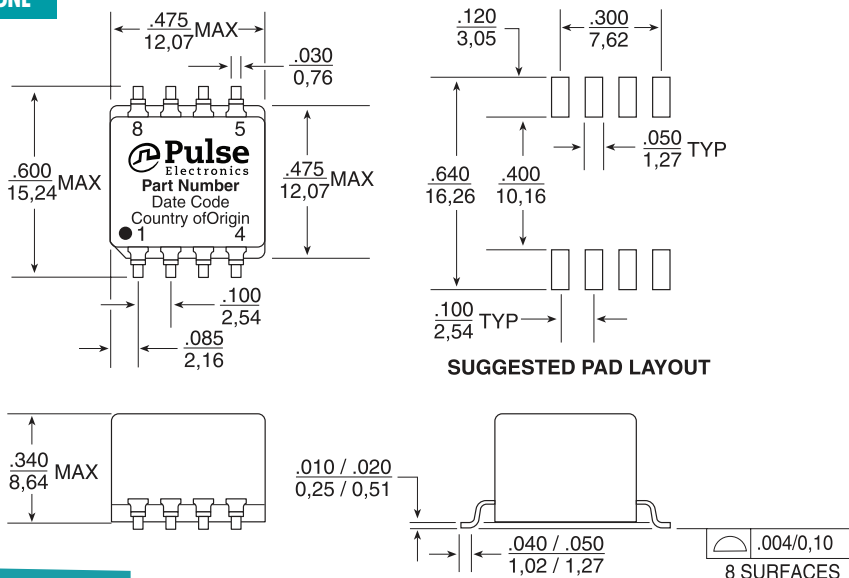
### B2005 / B2005NL



Weight .....3.7 grams  
Tray .....40/tray  
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

### B2013 / B2013NL



Weight .....2.5 grams  
Tape & Reel .....250/reel  
Tray .....40/tray  
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0,25}$

# Inductors And Common Mode Chokes

For Use in ADSL POTS Low Pass Filters

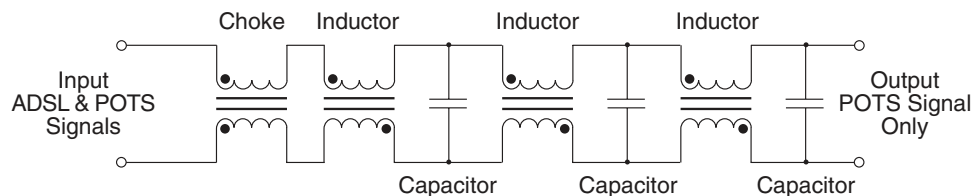
## Performance Description

The series of coupled inductors shown on this data sheet are current and temperature, high self-resonant frequency, low ideal for use in Asymmetrical Digital Subscriber Line (ADSL) applications where a low pass filter is required to separate the voice frequencies from the data frequencies that are carried on an ADSL line. In spite of their small footprint and low profile, these coupled inductors provide excellent electrical performance. They have stable inductance with varying DC current and temperature, high self-resonant frequency, low coupling capacitance, and excellent balance. The common mode chokes were developed to reduce common mode voltages in the low frequency range that is used for voice transmission. The chokes are also designed to accommodate DC currents up to 100 mA.

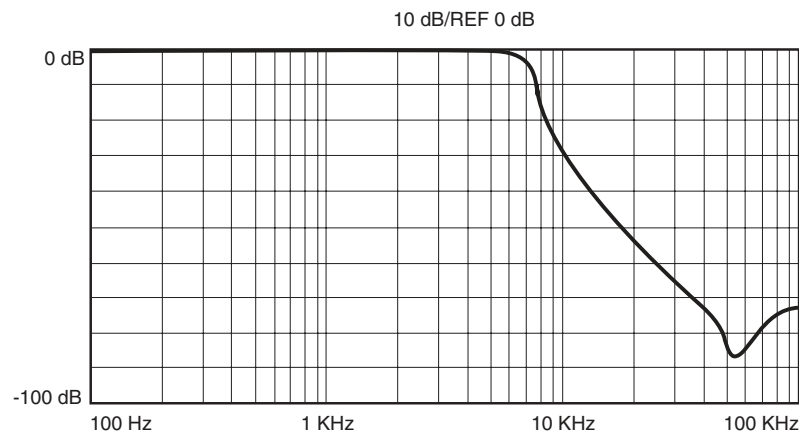
## Application Circuit

The following schematic depicts a typical LC filter that incorporates the use of a common mode choke in addition to the LC network. As shown in the frequency response graph below, at low frequencies, the amplitude of the output signal is roughly equal to the amplitude of the

input signal. At higher frequencies, the amplitude of the output decreases. Thus, the network passes low frequency voice signals with only a small degree of attenuation, while it suppresses high frequency signals and acts as a low pass filter.



## Frequency Response



## For More Information

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