

# WIDEBAND RF TRANSFORMERS

## Upstream Transformers for Set-Top Box and Cable Modem Applications



- ⊕ Optimized for 5-80 MHz operating frequency
- ⊕ Less than 20 dB return loss
- ⊕ Excellent insertion loss
- ⊕ Operating temperature of -40°C to +85°C

### Electrical Specifications @ 25°C — Operating Temperature -40°C to +85°C

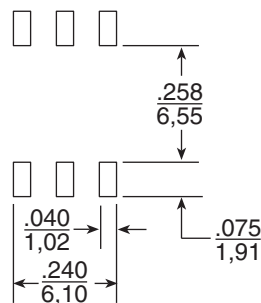
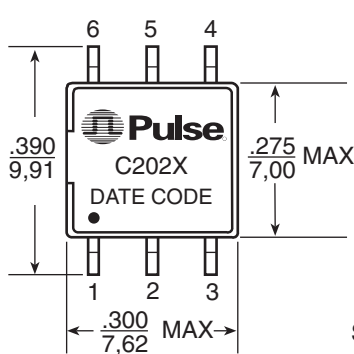
Part Number	Impedance Ratio <sup>1</sup> Pri:Sec (±2%)	Turns Ratio Pri:Sec (±2%)	Bandwidth <sup>2,3</sup> (MHz TYP)			Insertion Loss @ Midband (dB TYP)	OCL Primary (μH MIN)	Return Loss <sup>4</sup> 5 MHz - 65 MHz (dB TYP)	Schem.	Primary Pins
			3 dB	2 dB	1 dB					
C2020	1CT:1CT	1CT:1CT	.150-210	.200-150	.350-90	.54	35	>20 dB	A	1-3
C2022	1:4CT	1:2CT	.100-500	.150-390	.300-220	.45	50	>20 dB	B	1-3

NOTE: Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (ex: C2020T).

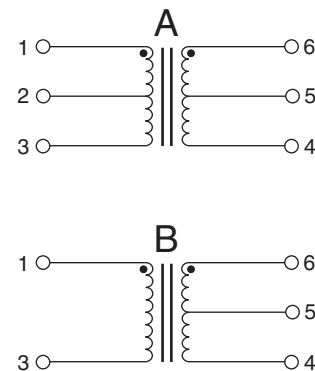
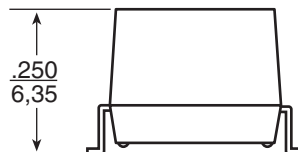
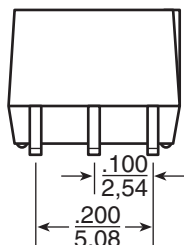
### Mechanical

### Schematics

LS



SUGGESTED PAD LAYOUT



Weight .....0.6 grams  
Tape & Reel .....500/reel  
Tube .....70/tube

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

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

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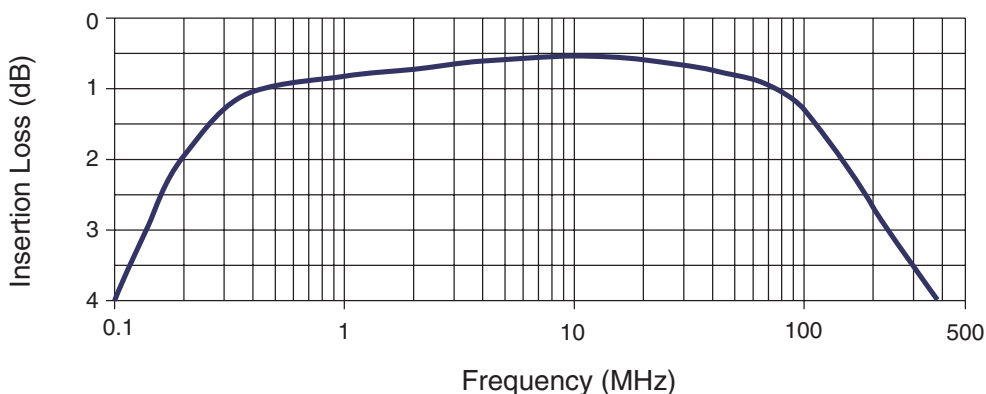
### Application Notes

- A. These transformers have been optimized for use in the upstream interface for cable modems and set-top box applications. The 5-80 MHz frequency range is well-suited for MCNS-DOCSIS, Euro-DOCSIS/Davic/DVB product development.
- B. Bandwidth specifications are for a 75  $\Omega$  system.
- C. Materials used in the products are UL94-V0 recognized. Products meet the requirements of IEC 695-2-2 (Needle Flame Test).

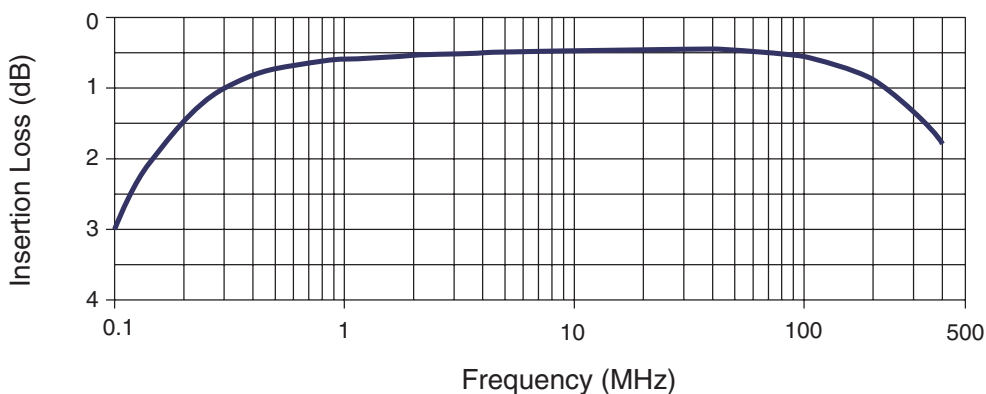
### Notes from Tables

- 1. Impedance and turns ratios are specified primary:secondary. (CT=Center Tap).
- 2. Bandwidth is referenced to midband loss.
- 3. The insertion loss of these transformers is verified from -40°C to +85°C. Insertion loss over this temperature range is less than 1 dB from 5-80 MHz (relative to midband loss).
- 4. Return loss performance changes with change in temperature.

C2020 - Typical Insertion Loss



C2022 - Typical Insertion Loss



### For More Information :

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**PRELIMINARY C200.P (2/00)**