



# SMT Balun and Coupler for DOCSIS 3.1 and 4.0



- Designed for DOCSIS 3.1/4.0 Broadband or Cable TV (CATV) network
- Compact and low-profile surface mount package
- 1:1 transmission line balun and 23 dB coupling ratio coupler

**Core material** Ferrite

**Environment** RoHS compliant, halogen free

**Terminations** RoHS compliant tin-silver-copper over silver-platinum-glass frit. Other terminations available at additional cost.

**Weight** ZB1200 0.106 g, ZB1201 0.189 g

**Ambient temperature**  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

**Maximum part temperature**  $+140^{\circ}\text{C}$

**Storage temperature** Component:  $-40^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$ .

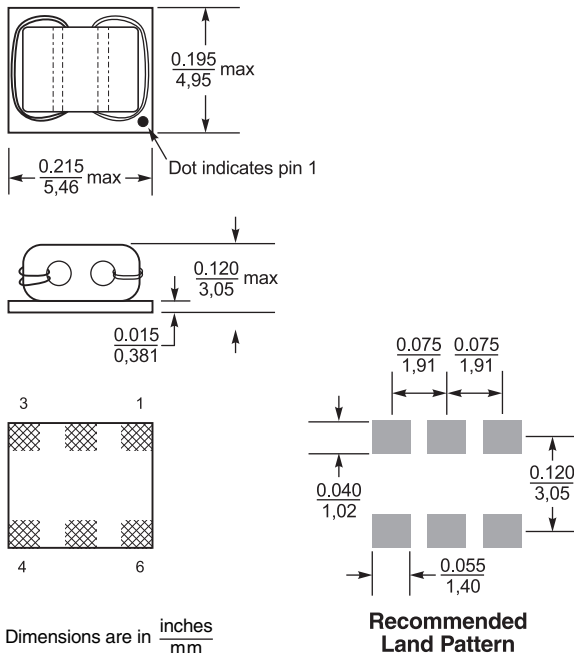
Tape and reel packaging:  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

**Resistance to soldering heat** Max three 40 second reflows at  $+260^{\circ}\text{C}$ , parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at  $<30^{\circ}\text{C}$  / 85% relative humidity)

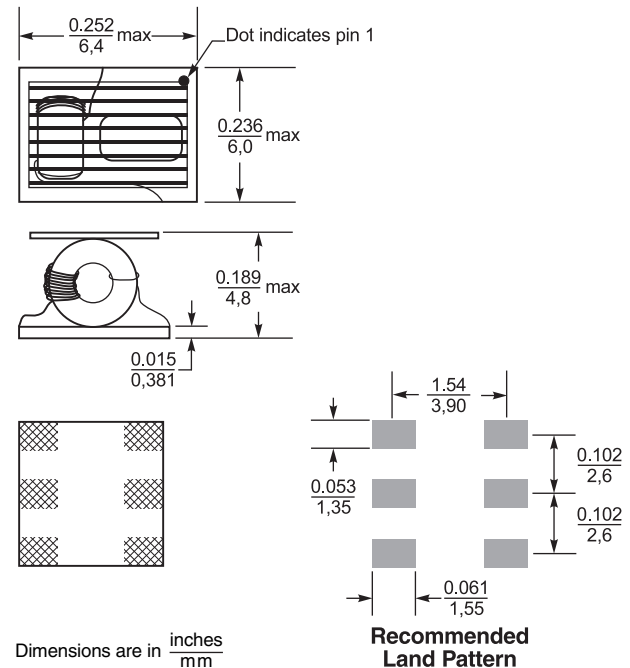
**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).

## Dimensions – ZB1200-DE



**Packaging ZB1200** 700/7" reel; 2500/13" reel Plastic tape: 12 mm wide, 0.40 mm thick, 8 mm pocket spacing, 3.1 mm pocket depth

## Dimensions – ZB1201-CE



**Packaging ZB1201** 250/7" reel; 1000/13" reel Plastic tape: 16 mm wide, 0.35 mm thick, 12 mm pocket spacing, 5.0 mm pocket depth



# SMT Balun for DOCSIS 3.1 and 4.0 – ZB1200-DE



Part number <sup>1</sup>	Impedance ratio pri:sec	Bandwidth (MHz)	Insertion loss max (dB)	L min <sup>2</sup> (μH)	DCR max <sup>3</sup> (mOhm)	Input Power max (W)
ZB1200-DE_	1:1	0.1 – 2500	0.6	30	65	1.5

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

**ZB1200-DEC**

**Termination:** **E** = RoHS compliant tin-silver-copper over silver-platinum-glass frit.  
Special order: **S** = non-RoHS tin-lead (63/37).

**Packaging:** **C** = 7" machine-ready reel. EIA-481 embossed plastic tape (700 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

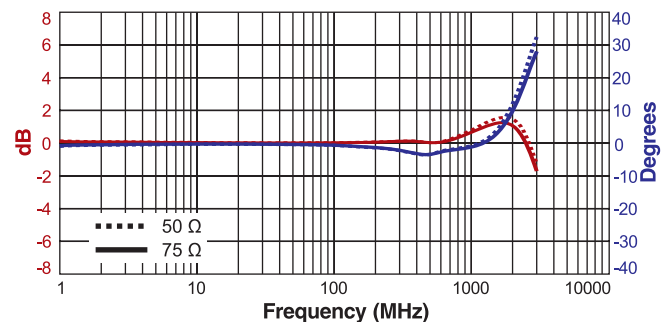
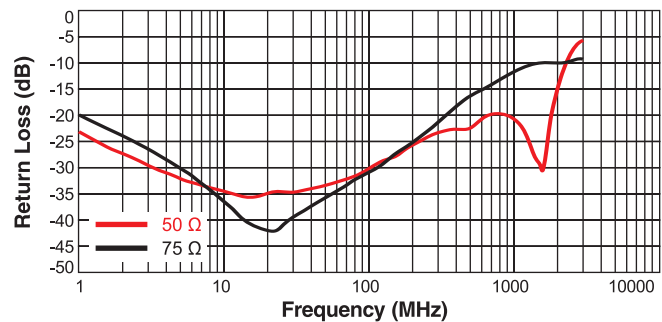
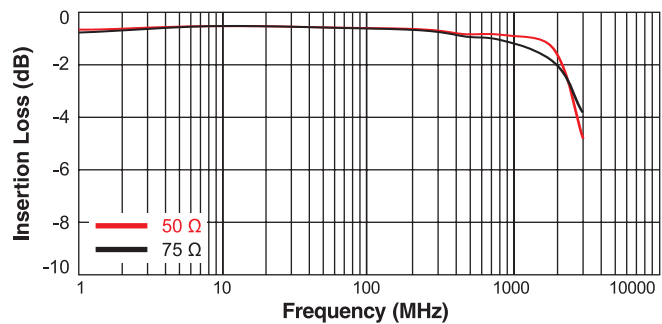
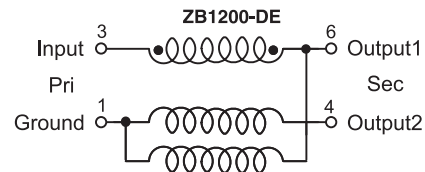
**D** = 13" machine-ready reel. EIA-481 embossed plastic tape (2500 parts per full reel). Factory order only, not stocked.

2. Inductance measured per winding (pins 1-6, 1-4, 3-6) at 100 kHz, 0.1 V, 0 Adc on an Agilent/HP 4192 or equivalent.

3. DCR measured per winding (pins 1-6, 1-4, 3-6) on a micro-ohmmeter.

4. Electrical specifications at 25°C. Measurements are referenced to 50 Ohms. Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

## Schematic





# SMT Coupler for DOCSIS 3.1 and 4.0 – ZB1201-CE

Part number <sup>1</sup>	Coupling ratio (dB)	Bandwidth (MHz)	Insertion loss max (dB)	Pins 1-6, Pins 3-4		Pins 2-4, Pins 2-6		Input Power max (W)
				L min <sup>2</sup> (μH)	DCR max <sup>3</sup> (mOhm)	L min <sup>2</sup> (μH)	DCR max <sup>3</sup> (mOhm)	
ZB1201-CE_	23	1.2 – 2500	0.3	0.012	23	2.7	145	1.5

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

ZB1201-CEC

**Termination:** **E** = RoHS compliant tin-silver-copper over silver-platinum-glass frit.

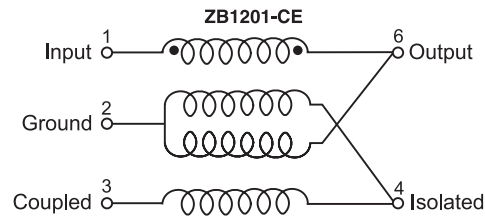
Special order: **S** = non-RoHS tin-lead (63/37).

**Packaging:** **C** = 7" machine-ready reel. EIA-481 embossed plastic tape (700 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

**D** = 13" machine-ready reel. EIA-481 embossed plastic tape (2500 parts per full reel). Factory order only, not stocked.

- Inductance measured per winding at 100 kHz, 0.1 V, 0 Adc on an Agilent/HP 4192 or equivalent.
- DCR measured per winding on a micro-ohmmeter.
- Electrical specifications at 25°C. Measurements are referenced to 50 Ohms. Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

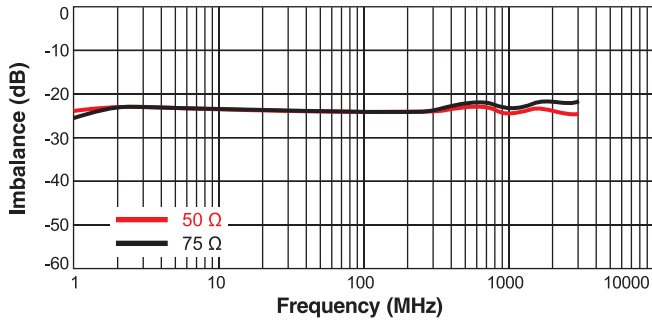
## Schematic



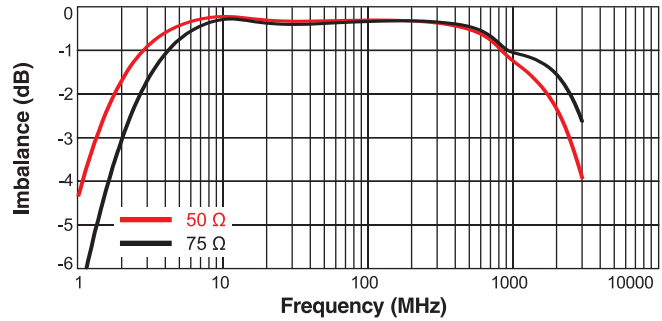


# SMT Balun and Coupler for DOCSIS 3.1 and 4.0 – ZB1201-CE

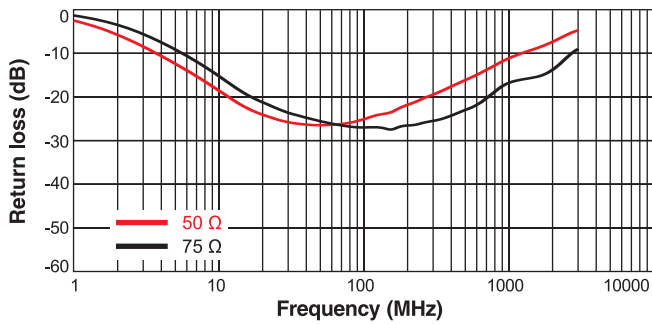
## Coupling (Pin 1 – 3)



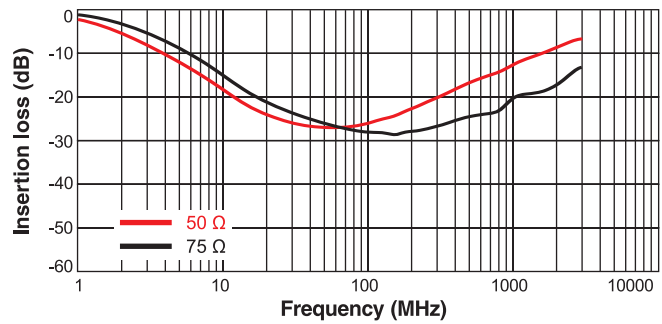
## Main line loss (Pin 1 – 6)



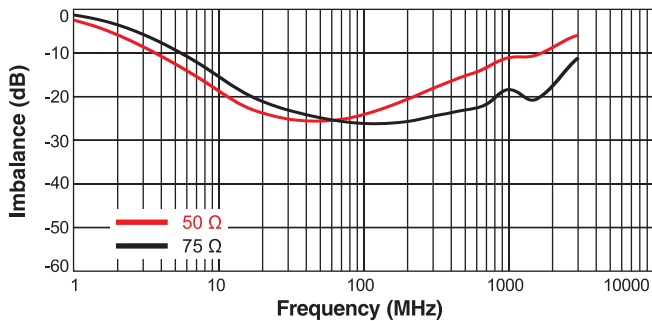
## Return loss: Input (Pin 1)



## Return loss: Output (Pin 6)



## Return loss: Coupling (Pin 3)



## Isolation (Pin 1 – 4)

