



# RFID Transponder Coils – 4308RV



Coilcraft's 4308RV antenna coils are high performance devices intended for RFID applications at 125 kHz.

These low profile parts have an extended length that allows longer read ranges. An encapsulated top ensures reliable pick and place operations. Core construction and encapsulation are rated for 125°C, which makes these transponders ideal for higher temperature applications. For harsh environments, please consider the 4312RV or 5315TC, which were developed for tire pressure monitoring systems.

The 4308RV transponders coils are available in 5% and 2% tolerances. In addition to the standard models shown, Coilcraft can design coils to operate at other frequencies.

Coilcraft **Designer's Kit C383** contains four samples of all 5% inductance tolerance parts. To order, contact Coilcraft or visit <http://order.coilcraft.com>.

| Part number <sup>1</sup> | Inductance<br>at 125 kHz <sup>2</sup><br>(mH) | Tolerance <sup>3</sup> | Q<br>min <sup>2</sup> | Read<br>distance <sup>4</sup><br>(in./cm) | Sensitivity <sup>5</sup><br>(mV/μT) | Matching<br>capacitor <sup>6</sup><br>(pF) | DCR<br>max <sup>7</sup><br>(Ohms) | SRF<br>typ <sup>8</sup><br>(kHz) | Color code             |
|--------------------------|-----------------------------------------------|------------------------|-----------------------|-------------------------------------------|-------------------------------------|--------------------------------------------|-----------------------------------|----------------------------------|------------------------|
| 4308RV-374X_L_           | 0.37                                          | <b>5,2</b>             | 26                    | 22/55.9                                   | 9.82                                | 4380                                       | 6.5                               | 1800                             | Orange Violet Yellow   |
| 4308RV-404X_L_           | 0.40                                          | <b>5,2</b>             | 26                    | 23/58.4                                   | 10.38                               | 4050                                       | 7.1                               | 5000                             | Yellow Black Yellow    |
| 4308RV-704X_L_           | 0.70                                          | <b>5,2</b>             | 20                    | 25/63.5                                   | 13.96                               | 2320                                       | 19                                | 6600                             | Violet Black Yellow    |
| 4308RV-904X_L_           | 0.90                                          | <b>5,2</b>             | 22                    | 26/66.0                                   | 16.06                               | 1800                                       | 21                                | 4800                             | White Black Yellow     |
| 4308RV-115X_L_           | 1.08                                          | <b>5,2</b>             | 24                    | 30/76.2                                   | 17.78                               | 1500                                       | 24                                | 4300                             | Brown Brown Green      |
| 4308RV-205X_L_           | 1.97                                          | <b>5,2</b>             | 28                    | 34/86.4                                   | 24.90                               | 823                                        | 31                                | 1750                             | Red Black Green        |
| 4308RV-245X_L_           | 2.38                                          | <b>5,2</b>             | 30                    | 37/94.0                                   | 28.21                               | 681                                        | 34                                | 1700                             | Red Yellow Green       |
| <b>4308RV-295X_L_</b>    | <b>2.89</b>                                   | <b>5,2</b>             | <b>30</b>             | <b>37/94.0</b>                            | <b>32.12</b>                        | <b>561</b>                                 | <b>42</b>                         | <b>1900</b>                      | <b>Red White Green</b> |
| 4308RV-335X_L_           | 3.30                                          | <b>5,2</b>             | 30                    | 38/96.5                                   | 34.96                               | 491                                        | 48                                | 1425                             | Orange Orange Green    |
| 4308RV-415X_L_           | 4.15                                          | <b>5,2</b>             | 27                    | 39/99.1                                   | 41.35                               | 391                                        | 70                                | 1620                             | Yellow Brown Green     |
| 4308RV-495X_L_           | 4.90                                          | <b>5,2</b>             | 26                    | 38/96.5                                   | 47.17                               | 331                                        | 93                                | 1150                             | Yellow White Green     |
| 4308RV-685X_L_           | 6.80                                          | <b>5,2</b>             | 28                    | 41/104.1                                  | 61.71                               | 238                                        | 110                               | 1080                             | Blue Gray Green        |
| 4308RV-715X_L_           | 7.10                                          | <b>5,2</b>             | 27                    | 42/106.7                                  | 65.60                               | 228                                        | 114                               | 1050                             | Violet Brown Green     |
| 4308RV-725X_L_           | 7.20                                          | <b>5,2</b>             | 28                    | 40/101.6                                  | 66.67                               | 225                                        | 114                               | 965                              | Violet Red Green       |
| 4308RV-815X_L_           | 8.10                                          | <b>5,2</b>             | 28                    | 42/106.7                                  | 75.08                               | 200                                        | 125                               | 965                              | Gray Brown Green       |
| 4308RV-905X_L_           | 9.00                                          | <b>5,2</b>             | 30                    | 40/101.6                                  | 84.64                               | 180                                        | 125                               | 725                              | White Black Green      |

1. When ordering, please specify **tolerance** and **packaging** codes:

**4308RV-905XJLD**

**Tolerance:** G = 2% J = 5% (Table shows stock tolerances in bold.)

**Packaging:** D = 13" machine-ready reel. EIA-481 embossed plastic tape (3000 parts per full reel).

B = Less than full reel. In tape, but not machine ready.  
To have a leader and trailer added (\$25 charge), use code letter D instead.

2. Inductance and Q measured using Agilent/HP 4192A impedance analyzer.

3. Tolerances in bold are stocked for immediate shipment.

4. Read distance measured using the KEELOQ® Transponder Evaluation Kit part number DM303005 from Microchip. Distance was recorded as the voltage across the resonant circuit dropped below 10 mV.

5. Sensitivity measured in accordance with Coilcraft application note "Measuring Sensitivity of Transponder Coils."

6. Matching capacitor value required for parallel resonant circuit operating at 125 kHz.

7. DCR measured on micro-ohmmeter.

8. SRF measured using Agilent/HP 8753D network analyzer.

9. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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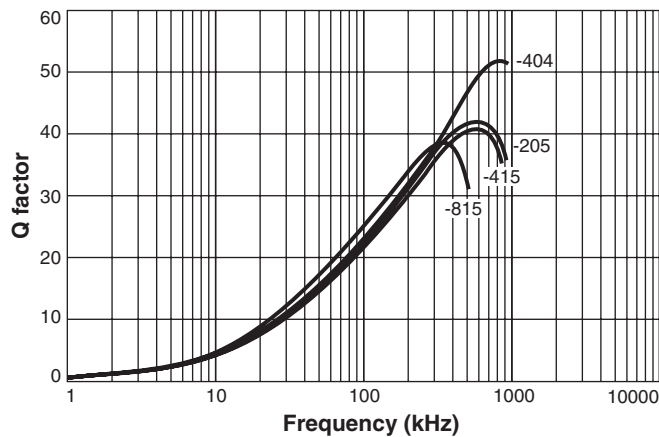
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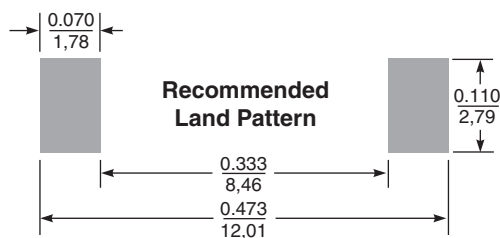
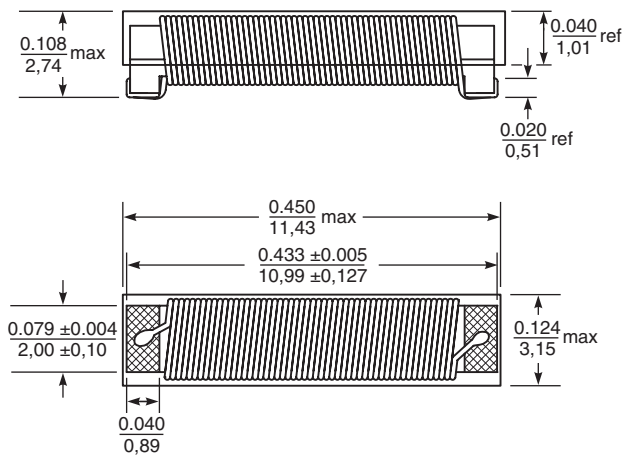
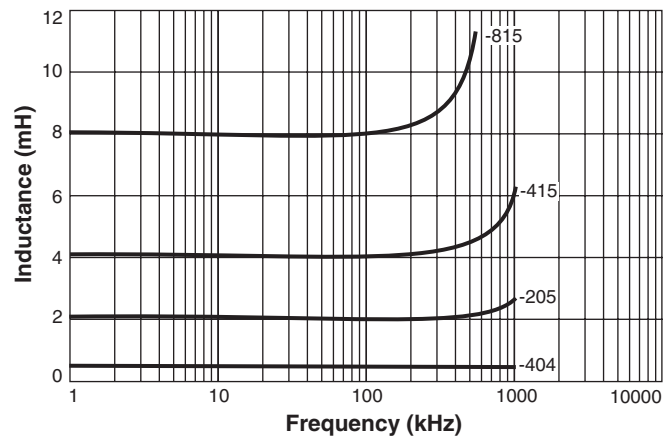


# RFID Transponder Coils – 4308RV

## Typical Q vs Frequency



## Typical L vs Frequency



**Terminations** RoHS compliant silver-palladium-platinum-glass frit

**Weight** 230 – 250 mg

**Ambient temperature** –40°C to +125°C

**Storage temperature** Component: –40°C to +125°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)

**Temperature coefficient of inductance** +200 to +700 ppm/°C

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

One per billion hours / one billion hours, calculated per Telcordia SR-332

**Packaging** 3000 per 13" reel Plastic tape: 24 mm wide, 0.3 mm thick, 8 mm pocket spacing, 2.7 mm pocket depth

**PCB washing** Tested with pure water or alcohol only. For other solvents, see Doc787\_PCB\_Washing.pdf.



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