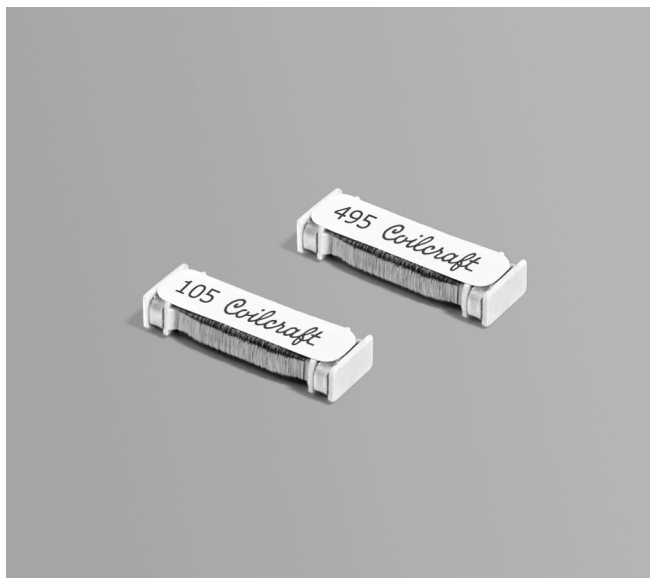


# RFID Transponder Coils – 4312RV



The 4312RV series of transponder coils is designed for RFID applications at 125 kHz. It is Coilcraft's smallest transponder coil developed specifically for the harshest mechanical environments.

The coil is wound on a plastic base, providing great durability and allowing this part to withstand physical shock. With operating temperature range to 125°C, these parts pass AEC-200 Grade 1 (-40°C to +125°C) qualification and are ideal for use in a wide range of automotive applications. The uniquely shaped termination provides excellent board adhesion.

In addition to our standard models, Coilcraft can also design transponder coils to operate at other frequencies.

To request free evaluation samples, contact Coilcraft or visit [www.coilcraft.com](http://www.coilcraft.com).

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>at 125 kHz<br>±2% (mH) | Q min <sup>2</sup> | Read<br>distance <sup>3</sup><br>(inches/cm) | Sensitivity <sup>4</sup><br>(mV/μT) | Matching<br>capacitor <sup>5</sup><br>(pF) | DCR max <sup>6</sup><br>(Ohms) | SRF typ <sup>7</sup><br>(kHz) |
|--------------------------|---|--------------------|--|-------------------------------------|--|--------------------------------|-------------------------------|
| 4312RV-404XGL_           | 0.40  | 21                 | 19.65/49,91                                  | 9.14                                | 4050                                       | 11.5                           | 6340                          |
| 4312RV-105XGL_           | 1.00  | 21                 | 24.25/61,60                                  | 15.26                               | 1621                                       | 29                             | 4150                          |
| 4312RV-245XGL_           | 2.38  | 26                 | 28.35/72,01                                  | 24.72                               | 681  | 55                             | 2470                          |
| 4312RV-495XGL_           | 4.90  | 24                 | 32.85/83,44                                  | 42.45                               | 331  | 103                            | 1270                          |
| 4312RV-725XGL_           | 7.20  | 30                 | 35.05/89,03                                  | 60.02                               | 225  | 128                            | 1465                          |
| 4312RV-905XGL_           | 9.00  | 32                 | 35.80/91,00                                  | 78.10                               | 180  | 150                            | 1200                          |

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

**4312RV-725XGLD**

**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.

- Inductance and Q measured using Agilent/HP 4192A impedance analyzer at 125 kHz. For recommended test procedures, contact Coilcraft.
- 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.
- Sensitivity measured in accordance with Coilcraft application note "Measuring Sensitivity of Transponder Coils."
- Matching capacitor value required for parallel resonant circuit operating at 125 kHz.
- DCR measured on micro-ohmmeter.
- SRF measured using Agilent/HP 8753D network analyzer.
- Electrical specifications at 25°C

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

**Terminations** RoHS compliant gold over nickel over phos bronze.

**Weight** 210 – 240 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** +300 to +1100 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, 2.49 mm pocket depth

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



[www.coilcraft.com](http://www.coilcraft.com)

**US** +1-847-639-6400 [sales@coilcraft.com](mailto:sales@coilcraft.com)  
**UK** +44-1236-730595 [sales@coilcraft-europe.com](mailto:sales@coilcraft-europe.com)  
**Taiwan** +886-2-2264 3646 [sales@coilcraft.com.tw](mailto:sales@coilcraft.com.tw)  
**China** +86-21-6218 8074 [sales@coilcraft.com.cn](mailto:sales@coilcraft.com.cn)  
**Singapore** + 65-6484 8412 [sales@coilcraft.com.sg](mailto:sales@coilcraft.com.sg)

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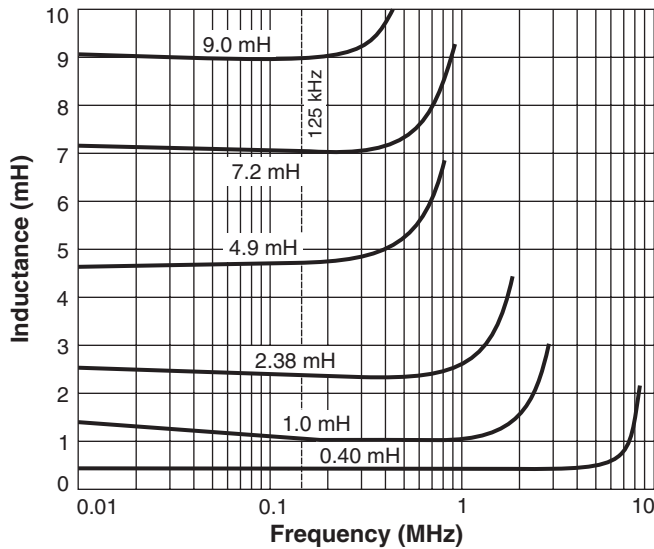
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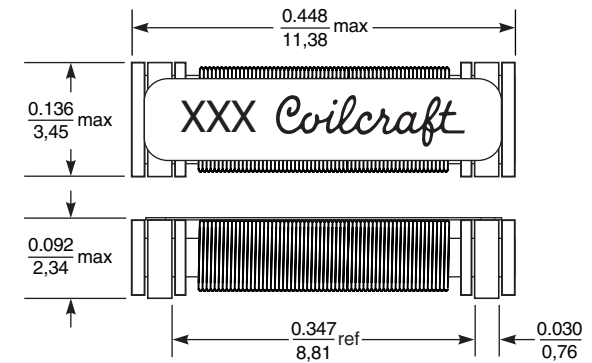


# RFID Transponder Coils – 4312RV

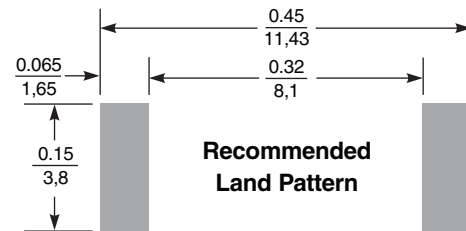
## Typical L vs Frequency



## Dimensions



Note: Unless otherwise indicated, all part dimensions  $\pm 0.002/0,05$



Dimensions are in  $\frac{\text{inches}}{\text{mm}}$



www.coilcraft.com

**US** +1-847-639-6400 sales@coilcraft.com  
**UK** +44-1236-730595 sales@coilcraft-europe.com  
**Taiwan** +886-2-2264 3646 sales@coilcraft.com.tw  
**China** +86-21-6218 8074 sales@coilcraft.com.cn  
**Singapore** + 65-6484 8412 sales@coilcraft.com.sg

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## Coilcraft:

|                                       |                                       |                                       |                                       |                                       |                                       |
|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| <a href="#"><u>4312RV-905XGLB</u></a> | <a href="#"><u>4312RV-105XGLB</u></a> | <a href="#"><u>4513TC-404XGLB</u></a> | <a href="#"><u>4312RV-725XGLB</u></a> | <a href="#"><u>4312RV-495XGLB</u></a> | <a href="#"><u>4513TC-404XGLD</u></a> |
| <a href="#"><u>4312RV-245XGLD</u></a> | <a href="#"><u>4312RV-404XGLD</u></a> | <a href="#"><u>4312RV-105XGLD</u></a> | <a href="#"><u>4312RV-725XGLD</u></a> | <a href="#"><u>4513TC-245XGLD</u></a> | <a href="#"><u>4312RV-245XGLB</u></a> |
| <a href="#"><u>4312RV-404XGLB</u></a> | <a href="#"><u>4312RV-495XGLD</u></a> | <a href="#"><u>4513TC-105XGLD</u></a> | <a href="#"><u>4312RV-905XGLD</u></a> | <a href="#"><u>4513TC-105XGLB</u></a> | <a href="#"><u>4513TC-495XGLD</u></a> |
| <a href="#"><u>4513TC-725XGLD</u></a> |                                       |                                       |                                       |                                       |                                       |