

# RFID Transponder Coil – 4513TC



The 4513TC is Coilcraft's best performing transponder coil designed for RFID applications at 125 kHz. It offers better sensitivity, greater read distance and higher SRF than other coils its size.

The coil is wound on a plastic base, providing great durability and allowing this part to withstand harsh mechanical shock. With operating temperature range to 125°C, these coils are ideal for a wide range of applications.

In addition to our standard models, Coilcraft can 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> at 125 kHz ±2% (mH)	Q min <sup>2</sup>	Read distance <sup>3</sup> (inches/cm)	Sensitivity <sup>4</sup> (mV/μT)	Matching capacitor <sup>5</sup> (pF)	DCR max <sup>6</sup> (Ohms)	SRF typ <sup>7</sup> (kHz)
4513TC-404XGL_	0.40	29	23.90/60,71	11.76	4050	9.66	5890
4513TC-105XGL_	1.00	33	30.95/78,61	19.80	1621	20.6	3670
4513TC-245XGL_	2.38	40	36.75/93,35	32.80	681	39.0	2200
4513TC-495XGL_	4.90	44	38.55/97,92	54.76	331	55.8	1551
4513TC-725XGL_	7.20	51	44.10/112,01	76.97	225	91.0	1400

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

**4513TC-725XGLD**

**Packaging:** **D** = 13" machine-ready reel. EIA-481 embossed plastic tape (2500 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** 280 – 335 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** +50 to +210 ppm/°C

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**  
One per billion hours / one billion hours, calculated per Telcordia SR-332

**Packaging** 2500 per 13" reel Plastic tape: 24 mm wide, 0.35 mm thick, 8 mm pocket spacing, 2.75 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)

Document 450-1 Revised 10/29/08

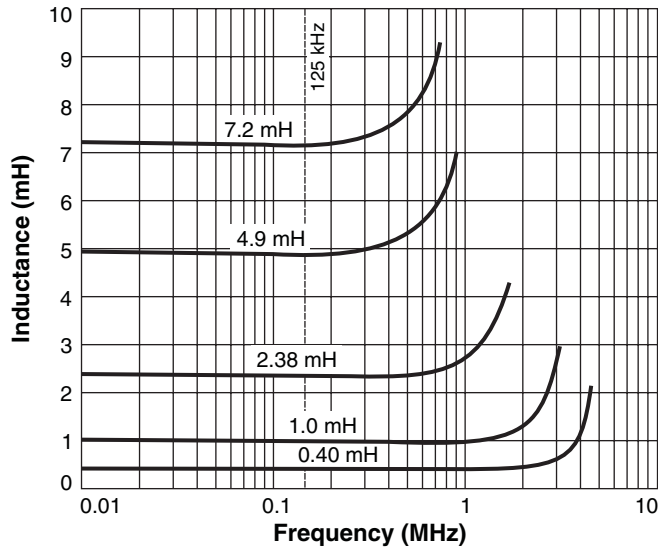
© Coilcraft Inc. 2013

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.

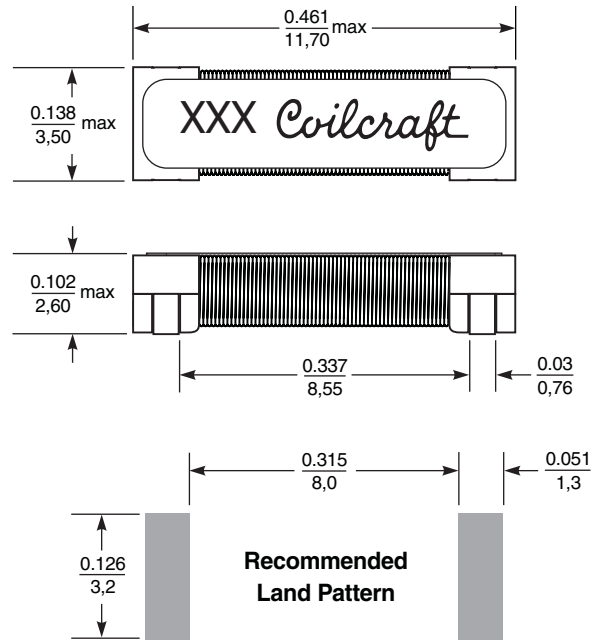


# RFID Transponder Coils – 4513TC

## Typical L vs Frequency



## Dimensions



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

Document 450-2 Revised 10/29/08

© Coilcraft Inc. 2013

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.