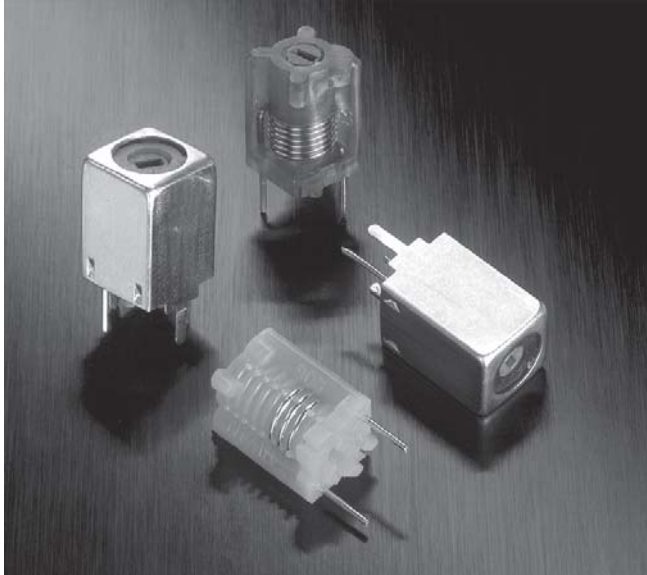




# 7 mm Tunable RF Coils – 146, 150 Series



Coilcraft tunable coils provide the compactness of a 7 mm coil and the low drift reliability of an insert molded coil.

Standard inductance values range from less than 0.05  $\mu\text{H}$  to over 0.5  $\mu\text{H}$ . 150 Series coils with a tap are also available to meet specific requirements.

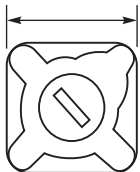
The windings of these economical coils are precision molded into a single piece of polypropylene for mechanical and electrical stability. Optional plated brass shield cans with solderable tabs provide integral shielding and additional mounting stability.

These parts can be ordered without cores for use as fixed inductors.

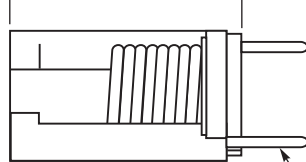
Coilcraft **Designer's Kit M302** contains samples of all standard 7 mm and 10 mm tunable inductors. To order, contact Coilcraft or visit <http://order.coilcraft.com>.

## Unshielded Styles

$0.268 \pm 0.005$   
6,81 mm  $\pm 0,13$  square

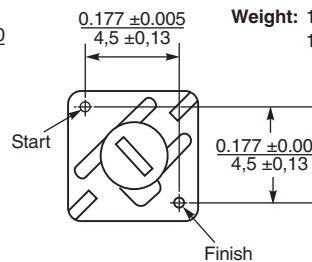


$0.450 \pm 0.020$   
11,43  $\pm 0,51$



$0.138 \pm 0.040$   
3,5  $\pm 1,02$

$0.020 \pm 0.002$   
0,51  $\pm 0,05$  dia



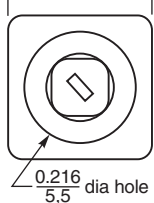
**Weight:** 146 series Unshielded 0.44 – 0.70 g With shield can 0.91 – 1.12 g  
150 series 0.45 – 0.61 g 0.88 – 1.08 g

$0.177 \pm 0.005$   
4,5  $\pm 0,13$

$0.177 \pm 0.005$   
4,5  $\pm 0,13$

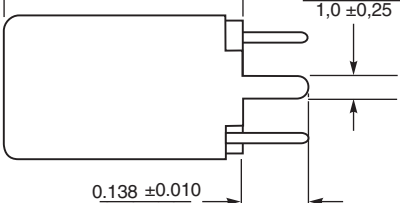
## With Shield Can

$0.300$  max  
7,6



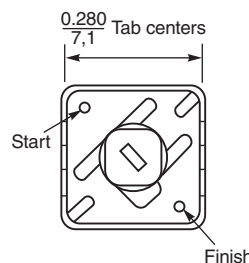
$0.216$   
5,5 dia hole

$0.475$  max  
12,1



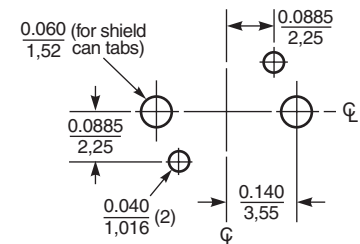
$0.039 \pm 0.010$   
1,0  $\pm 0,25$

$0.138 \pm 0.010$   
3,51  $\pm 0,25$   
Tab length



$0.280$   
7,1 Tab centers

## Recommended Board Layout



**Resistance to soldering heat:** Wave solder only. Recommended maximum board surface temperature of 168°C (334°F) for no more than three seconds. Pre-heating is recommended to minimize time over the solder nozzle.

**Terminations** Series 146 leads: Tin-silver over copper  
Series 150 leads: Matte tin over copper  
Shield can tabs: Tin-silver over nickel over brass

**Coilcraft**<sup>®</sup>

Specifications subject to change without notice.  
Please check our website for latest information.

Document 109-1 Revised 9/30/08

1102 Silver Lake Road Cary, Illinois 60013 Phone 847/639-6400 Fax 847/639-1469

E-mail [info@coilcraft.com](mailto:info@coilcraft.com) Web <http://www.coilcraft.com>



# 7 mm Tunable RF Coils – 146, 150 Series

## Unshielded

**TRITUNER** 3 TOOLS IN 1  
SEE INDEX  
**TUNING WRENCH**

| Part number <sup>1</sup> | Color  | Turns | No core L <sup>2</sup> nom (nH) | L min <sup>3</sup> (nH) | L nom (nH) | L max (nH) | Q min @ L nom | No core SRF min (MHz) | DCR max (mOhm) | I <sub>rms</sub> <sup>4</sup> |
|--------------------------|--------|-------|---------------------------------|-------------------------|------------|------------|---------------|-----------------------|----------------|-------------------------------|
| 150-01J08L               | Brown  | 1½    | 44.5                            | 46.0                    | 49.0       | 52.0       | 88 @ 50 MHz   | 2000                  | 8.0            | 11.0                          |
| 150-02J08L               | Red    | 2½    | 58.5                            | 62.0                    | 70.0       | 78.0       | 100 @ 50 MHz  | 1300                  | 9.0            | 10.5                          |
| 150-03J08L               | Orange | 3½    | 77.5                            | 82.0                    | 98.0       | 114        | 108 @ 50 MHz  | 1000                  | 10.5           | 9.8                           |
| 150-04J08L               | Yellow | 4½    | 94.5                            | 108                     | 130        | 154        | 114 @ 50 MHz  | 780                   | 11.6           | 9.3                           |
| 150-05J08L               | Green  | 5½    | 116                             | 137                     | 165        | 193        | 114 @ 50 MHz  | 650                   | 13.2           | 8.7                           |
| 150-06J08L               | Blue   | 6½    | 138                             | 176                     | 205        | 234        | 112 @ 50 MHz  | 550                   | 14.7           | 8.2                           |
| 150-07J08L               | Violet | 7½    | 156                             | 222                     | 245        | 268        | 108 @ 50 MHz  | 510                   | 16.0           | 7.9                           |
| 146-01J08L               | Brown  | 1½    | 45.0                            | 47.0                    | 50.0       | 53.0       | 90 @ 50 MHz   | 1300                  | 8.0            | 11.0                          |
| 146-02J08L               | Red    | 2½    | 65.0                            | 68.0                    | 78.0       | 88.0       | 100 @ 50 MHz  | 780                   | 9.0            | 10.5                          |
| 146-03J08L               | Orange | 3½    | 86.0                            | 90.0                    | 108        | 126        | 100 @ 50 MHz  | 560                   | 10.5           | 9.8                           |
| 146-04J08L               | Yellow | 4½    | 111                             | 117                     | 146        | 175        | 94 @ 50 MHz   | 475                   | 11.6           | 9.3                           |
| 146-05J08L               | Green  | 5½    | 140                             | 148                     | 190        | 232        | 88 @ 50 MHz   | 430                   | 13.0           | 8.8                           |
| 146-06J08L               | Blue   | 6½    | 167                             | 188                     | 240        | 292        | 78 @ 50 MHz   | 390                   | 14.5           | 8.3                           |
| 146-07J08L               | Violet | 7½    | 198                             | 231                     | 292        | 350        | 72 @ 50 MHz   | 350                   | 15.6           | 8.0                           |
| 146-08J08L               | Gray   | 8½    | 228                             | 272                     | 342        | 412        | 68 @ 50 MHz   | 330                   | 18.0           | 7.5                           |
| 146-09J08L               | White  | 9½    | 264                             | 330                     | 405        | 480        | 66 @ 40 MHz   | 320                   | 19.4           | 7.2                           |
| 146-10J08L               | Black  | 10½   | 292                             | 390                     | 465        | 540        | 60 @ 40 MHz   | 290                   | 21.0           | 6.8                           |

## Shielded

| Part number <sup>1</sup> | Color  | Turns | No core L <sup>2</sup> nom (nH) | L min <sup>3</sup> (nH) | L nom (nH) | L max (nH) | Q min @ L nom | No core SRF min (MHz) | DCR max (mOhm) | I <sub>rms</sub> <sup>4</sup> |
|--------------------------|--------|-------|---------------------------------|-------------------------|------------|------------|---------------|-----------------------|----------------|-------------------------------|
| 150-01J08SL              | Brown  | 1½    | 42.5                            | 43.5                    | 44.5       | 44.5       | 72 @ 50 MHz   | 1900                  | 8.0            | 11.0                          |
| 150-02J08SL              | Red    | 2½    | 54.0                            | 56.0                    | 60.0       | 64.0       | 80 @ 50 MHz   | 1450                  | 9.0            | 10.5                          |
| 150-03J08SL              | Orange | 3½    | 68.0                            | 71.0                    | 76.0       | 81.0       | 84 @ 50 MHz   | 1100                  | 10.5           | 9.8                           |
| 150-04J08SL              | Yellow | 4½    | 82.5                            | 86.0                    | 95.0       | 104        | 85 @ 50 MHz   | 900                   | 11.6           | 9.3                           |
| 150-05J08SL              | Green  | 5½    | 95.5                            | 107                     | 115        | 123        | 84 @ 50 MHz   | 750                   | 13.2           | 8.7                           |
| 150-06J08SL              | Blue   | 6½    | 109                             | 125                     | 134        | 143        | 82 @ 50 MHz   | 620                   | 14.7           | 8.2                           |
| 150-07J08SL              | Violet | 7½    | 123                             | 150                     | 156        | 162        | 80 @ 50 MHz   | 560                   | 16.0           | 7.9                           |
| 146-01J08SL              | Brown  | 1½    | 44.0                            | 45.0                    | 46.0       | 47.0       | 76 @ 50 MHz   | 1550                  | 8.0            | 11.0                          |
| 146-02J08SL              | Red    | 2½    | 59.0                            | 62.0                    | 65.0       | 68.0       | 78 @ 50 MHz   | 850                   | 9.0            | 10.5                          |
| 146-03J08SL              | Orange | 3½    | 75.0                            | 80.0                    | 85.0       | 90.0       | 78 @ 50 MHz   | 660                   | 10.5           | 9.8                           |
| 146-04J08SL              | Yellow | 4½    | 95.0                            | 100                     | 110        | 120        | 78 @ 50 MHz   | 570                   | 11.6           | 9.3                           |
| 146-05J08SL              | Green  | 5½    | 115                             | 120                     | 135        | 150        | 76 @ 50 MHz   | 510                   | 13.0           | 8.8                           |
| 146-06J08SL              | Blue   | 6½    | 136                             | 142                     | 163        | 184        | 72 @ 50 MHz   | 470                   | 14.5           | 8.3                           |
| 146-07J08SL              | Violet | 7½    | 155                             | 172                     | 194        | 216        | 68 @ 50 MHz   | 430                   | 15.6           | 8.0                           |
| 146-08J08SL              | Gray   | 8½    | 176                             | 200                     | 224        | 248        | 66 @ 50 MHz   | 400                   | 18.0           | 7.5                           |
| 146-09J08SL              | White  | 9½    | 202                             | 234                     | 260        | 284        | 60 @ 50 MHz   | 360                   | 19.4           | 7.2                           |
| 146-10J08SL              | Black  | 10½   | 224                             | 260                     | 288        | 315        | 56 @ 50 MHz   | 330                   | 21.0           | 6.8                           |

- To order fixed inductance parts without cores, eliminate the "J08", e.g. 150-01L or 150-01SL
- Inductance and Q readings taken on Boonton 260-A Q meter with 16 AWG tinned copper 1/2" long soldered along leads and bent at 90° 1/4" down from standoffs.  
All inductance values greater than 0.1 µH read at recommended Q meter frequency.  
All inductance values below 0.1 µH calculated from readings taken at 50 MHz.

- L min measured with core halfway out top of form.
- Average current for a 40°C rise above 25°C ambient.
- Core material: Carbonyl J; Core length: 1/4"
- Taps available in 150 series parts at 1/8, 3/8, 5/8 and 7/8 turns.
- Operating temperature range -40°C to +85°C.
- Electrical specifications at 25°C.

**COILCRAFT** ACCURATE  
**PRECISION** REPEATABLE  
MEASUREMENTS  
SEE INDEX **TEST FIXTURES**

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Document 109-2 Revised 09/30/08

1102 Silver Lake Road Cary, Illinois 60013 Phone 847/639-6400 Fax 847/639-1469

E-mail [info@coilcraft.com](mailto:info@coilcraft.com) Web <http://www.coilcraft.com>

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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

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