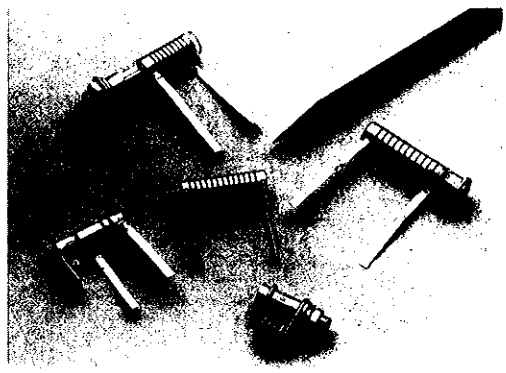
# Sprague-Goodman

**ENGINEERING BULLETIN**
**SG-700C**
Supercedes SG-700B

# JFD® METALIZED INDUCTORS AND LC TUNERS

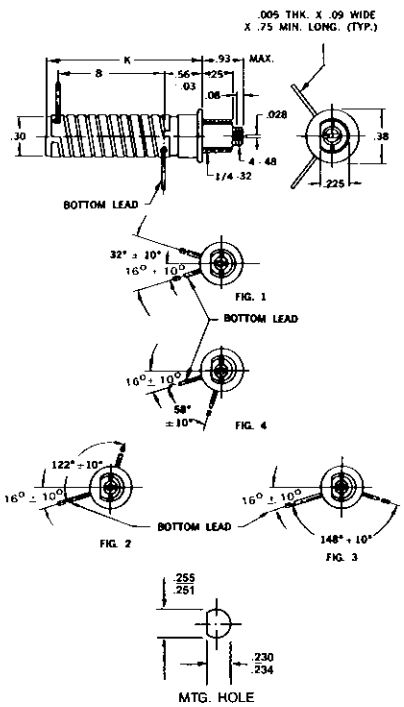
## FEATURES

The JFD LC tuner line, now manufactured by Sprague-Goodman, combines in a single unit a precision piston trimmer with a fixed metalized inductor providing a stable compact tunable series resonant LC circuit. The tank circuit line offers the precision piston trimmer with a parallel mounted coil for parallel resonance tuning. Fixed and variable metalized inductors on low-loss glass offer the ultimate in inductor simplicity and extreme stability.



## *VARIABLE METALIZED INDUCTORS LV5P SERIES*

LV5P Series are variable metalized glass units yielding inductance values of from .03 $\mu$H to 1.5 $\mu$H in a sequence of overlapping ranges. Excellent stability of approx. ± 10ppm/°C is the result of a unique intimate-bonding metalizing process with a special low-loss glass. Adjustment range is ± 10% from nominal value and LV5P Series inductors have typical minimum Q values of 100. These versatile units embody a fine vernier type adjustment mechanism of precision brass components for extremely stable operational performance over a wide temperature range: −55° to +125° C.




| Models | L(µH) min | L(µH) max | Q min L min | Q min L max | at Freq. (MHz) | min SRF (MHz) | Lead Position See Fig.: | B ±.031 | K ±.031 |
|---|---|---|---|---|---|---|---|---|---|
| JFD-LV5P002 | .029 | .033 | 140 | 200 | 180 | 900 | 1 | .594 | 1.234 |
| JFD-LV5P003 | .033 | .039 | 130 | 195 | 180 | 850 | 2 | .594 | 1.234 |
| JFD-LV5P004 | .039 | .045 | 125 | 190 | 180 | 800 | 3 | .594 | 1.234 |
| JFD-LV5P005 | .045 | .050 | 120 | 185 | 180 | 750 | 1 | .594 | 1.234 |
| JFD-LV5P006 | .050 | .064 | 110 | 175 | 170 | 650 | 2 | .594 | 1.234 |
| JFD-LV5P007 | .063 | .081 | 100 | 170 | 160 | 580 | 2 | .594 | 1.234 |
| JFD-LV5P009 | .081 | .105 | 90 | 170 | 150 | 500 | 4 | .594 | 1.234 |
| JFD-LV5P012 | .105 | .135 | 95 | 170 | 140 | 450 | 3 | .594 | 1.234 |
| JFD-LV5P016 | .135 | .183 | 80 | 170 | 120 | 420 | 3 | .594 | 1.234 |
| JFD-LV5P022 | .183 | .257 | 80 | 160 | 100 | 300 | 1 | .594 | 1.234 |
| JFD-LV5P031 | .257 | .362 | 70 | 160 | 85 | 280 | 3 | .594 | 1.234 |
| JFD-LV5P044 | .362 | .510 | 65 | 150 | 75 | 250 | 3 | .594 | 1.234 |
| JFD-LV5P056 | .510 | .600 | 110 | 180 | 70 | 240 | 3 | 1.094 | 1.734 |
| JFD-LV5P066 | .600 | .710 | 105 | 175 | 65 | 220 | 1 | 1.094 | 1.734 |
| JFD-LV5P077 | .710 | .830 | 100 | 170 | 55 | 200 | 1 | 1.094 | 1.734 |
| JFD-LV5P089 | .830 | .950 | 90 | 150 | 50 | 185 | 3 | 1.094 | 1.734 |
| JFD-LV5P102 | .950 | 1.100 | 80 | 145 | 45 | 175 | 1 | 1.094 | 1.734 |
| JFD-LV5P118 | 1.100 | 1.260 | 80 | 145 | 45 | 175 | 1 | 1.094 | 1.734 |
| JFD-LV5P138 | 1.260 | 1.500 | 80 | 145 | 40 | 160 | 3 | 1.094 | 1.734 |

**NOTES:** 1. Current Rating: 0.5 amps, max
2. Operating Temperature: -55°C to +125°C
3. Temperature Coefficient: (approx.) ±10 ppm/°C
4. Torque: 1-10 ounce-inches
5. Tolerance: (unless otherwise specified) .XX±.02; .XXX±.005

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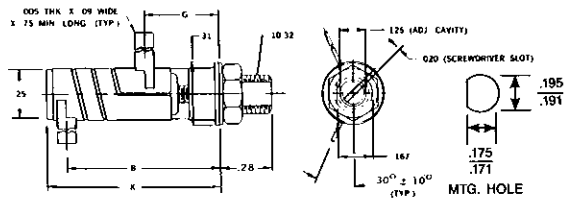
# LC TUNERS (SERIES RESONANCE)

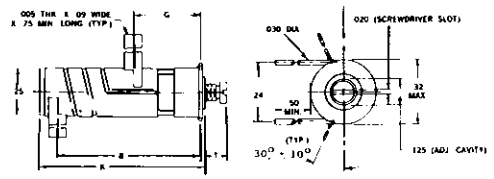
## PANEL MOUNT




### PHYSICAL DATA

| Model | No. of Turns | B ± .06 | G ± .06 | K ± .03 |
|---|---|---|---|---|
| JFD-LC303Y | 1 | .59 | .32 | .66 |
| JFD-LC304Y | 2 | .80 | .41 | .87 |
| JFD-LC306Y | 3 | 1.05 | .53 | 1.12 |
| JFD-LC309Y | 4 | 1.64 | .90 | 1.71 |

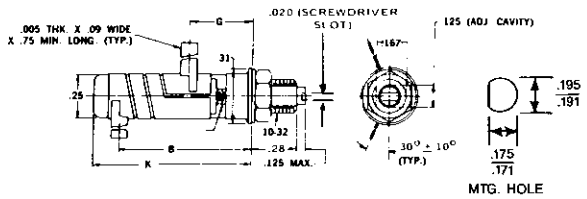
## PRINTED CIRCUIT




### PHYSICAL DATA

| Model | No. of Turns | B ± .06 | G ± .06 | K ± .03 | T max |
|---|---|---|---|---|---|
| JFD-LC323Y | 1 | .56 | .31 | .66 | .22 |
| JFD-LC324Y | 2 | .77 | .40 | .87 | .25 |
| JFD-LC326Y | 3 | 1.03 | .50 | 1.13 | .31 |
| JFD-LC329Y | 4 | 1.62 | .88 | 1.72 | .25 |

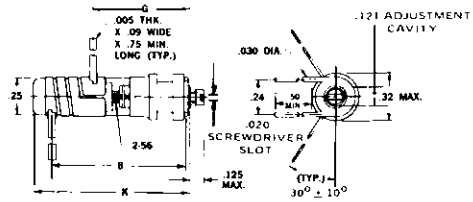
## PANEL MOUNT SEALED




### PHYSICAL DATA

| Model | No. of Turns | B ± .06 | G ± .06 | K ± .03 |
|---|---|---|---|---|
| JFD-LCS343Y | 1 | .69 | .40 | .81 |
| JFD-LCS344Y | 2 | .91 | .48 | 1.03 |
| JFD-LCS346Y | 3 | 1.26 | .70 | 1.38 |
| JFD-LCS349Y | 4 | 1.90 | 1.13 | 2.02 |

## PRINTED CIRCUIT SEALED




### PHYSICAL DATA

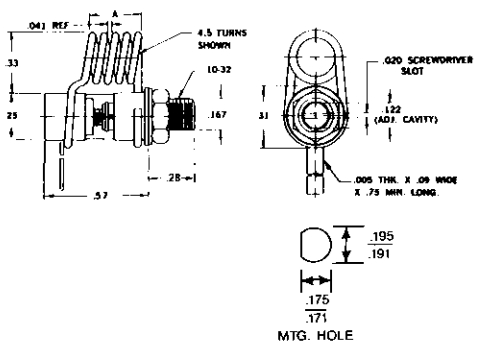
| Model | No. of Turns | B ± .06 | G ± .06 | K ± .03 |
|---|---|---|---|---|
| JFD-LCS363Y | 1 | .91 | .65 | 1.07 |
| JFD-LCS364Y | 2 | 1.13 | .73 | 1.28 |
| JFD-LCS366Y | 3 | 1.48 | .95 | 1.63 |
| JFD-LCS369Y | 4 | 2.12 | 1.38 | 2.27 |

## ELECTRICAL CHARACTERISTICS

| Models | SRF (MHz) | nom Coil "Q" | nom L Coil (µH) | nom Cap (pF) |
|---|---|---|---|---|
| JFD-LC303Y, 323Y, S343Y, S363Y | 450 to 725 | 150 | .026 | 0.6 - 5.5 |
| JFD-LC304Y, 324Y, S344Y, S364Y | 300 to 550 | 150 | .038 | 0.9 - 8.5 |
| JFD-LC306Y, 326Y, S346Y, S366Y | 225 to 500 | 150 | .053 | 0.9 - 12.0 |
| JFD-LC309Y, 329Y, S349Y, S369Y | 150 to 375 | 150 | .077 | 1.0 - 21.0 |

**Notes:**
1. Operating temperature: −55° to +125°C
2. Temperature Coefficient: +40 ± 30 ppm/° C
3. Torque: 1-10 in. oz.

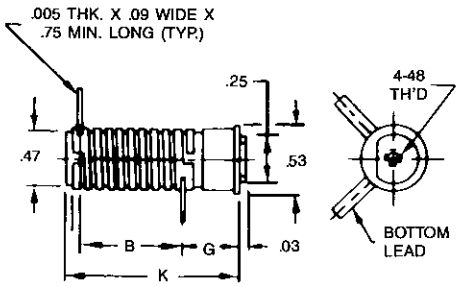
# TANK CIRCUITS (PARALLEL RESONANCE)

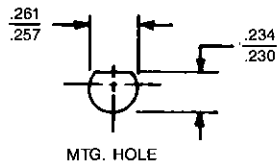



| Model | SRF (MHz) | min Coil "Q" | At Freq. (MHz) | nom L Coil (µH) | nom Cap (pF) | No. of Turns | A ± .031" |
|---|---|---|---|---|---|---|---|
| JFD-LC371Y | 450 to 1000 | 220 | 200 | .015 | 0.8 - 8.5 | 1 | .047 |
| JFD-LC372Y | 280 to 765 | 220 | 170 | .039 | 0.8 - 8.5 | 2.5 | .203 |
| JFD-LC373Y | 225 to 580 | 220 | 150 | .064 | 0.8 - 8.5 | 4.5 | .375 |
| JFD-LC374Y | 190 to 485 | 220 | 140 | .087 | 0.8 - 8.5 | 6.5 | .531 |
| JFD-LC375Y | 170 to 415 | 220 | 120 | .120 | 0.8 - 8.5 | 8.5 | .703 |

**NOTES:**
1. Operating Temperature: -55°C to +125°C
2. Temperature Coefficient: +25±25 ppm/°C
3. Torque: 1-10 ounce-inches

## LF1P Series




| Models | L ±10%(µH) | Q min | at Freq. (MHz) | SRF min (MHz) | Lead Position See Fig. | B ±.031 | G ±.031 | K ±.031 |
|---|---|---|---|---|---|---|---|---|
| JFD-LF1P005 | 0.05 | 125 | 75 | 620 | 3 | .250 | .312 | .625 |
| JFD-LF1P006 | 0.06 | 130 | 75 | 580 | 5 | .250 | .312 | .641 |
| JFD-LF1P008 | 0.08 | 135 | 75 | 480 | 3 | .344 | .312 | .734 |
| JFD-LF1P009 | 0.09 | 140 | 75 | 470 | 4 | .344 | .312 | .734 |
| JFD-LF1P010 | 0.10 | 145 | 75 | 465 | 5 | .359 | .312 | .750 |
| JFD-LF1P012 | 0.12 | 150 | 75 | 410 | 2 | .422 | .312 | .813 |
| JFD-LF1P014 | 0.14 | 100 | 75 | 400 | 5 | .453 | .312 | .844 |
| JFD-LF1P016 | 0.16 | 100 | 75 | 350 | 1 | .500 | .312 | .891 |
| JFD-LF1P018 | 0.18 | 105 | 75 | 320 | 3 | .547 | .312 | .938 |
| JFD-LF1P020 | 0.20 | 115 | 75 | 300 | 6 | .578 | .312 | .953 |
| JFD-LF1P025 | 0.25 | 135 | 75 | 280 | 5 | .656 | .312 | 1.047 |
| JFD-LF1P030 | 0.30 | 140 | 75 | 260 | 5 | .750 | .312 | 1.141 |
| JFD-LF1P035 | 0.35 | 105 | 75 | 255 | 5 | .344 | .297 | .719 |
| JFD-LF1P040 | 0.40 | 105 | 75 | 250 | 1 | .375 | .297 | .750 |
| JFD-LF1P045 | 0.45 | 105 | 75 | 245 | 5 | .391 | .297 | .766 |
| JFD-LF1P050 | 0.50 | 115 | 25 | 220 | 2 | .438 | .297 | .813 |
| JFD-LF1P060 | 0.60 | 115 | 25 | 200 | 2 | .484 | .297 | .859 |
| JFD-LF1P070 | 0.70 | 120 | 25 | 190 | 1 | .516 | .297 | .891 |
| JFD-LF1P080 | 0.80 | 125 | 25 | 180 | 1 | .578 | .197 | .953 |
| JFD-LF1P090 | 0.90 | 130 | 25 | 175 | 1 | .656 | .297 | 1.000 |
| JFD-LF1P100 | 1.00 | 135 | 25 | 165 | 1 | .672 | .297 | 1.047 |
| JFD-LF1P150 | 1.50 | 170 | 25 | 145 | 5 | .859 | .297 | 1.266 |
| JFD-LF1P200 | 2.00 | 180 | 25 | 125 | 1 | 1.125 | .297 | 1.500 |

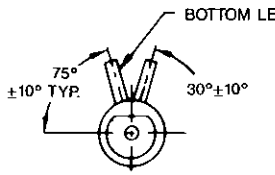



FIG. 1

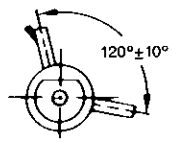



FIG. 2

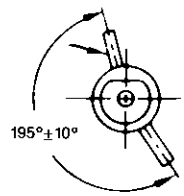



FIG. 3

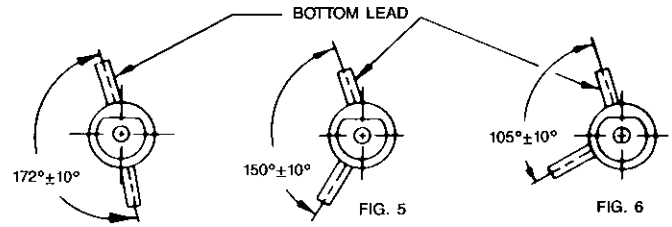
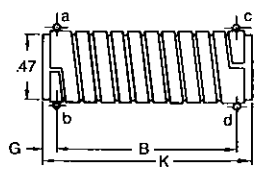


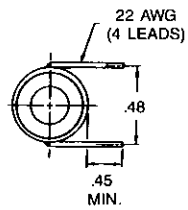

FIG. 4

FIG. 5

FIG. 6

## LF2W Series

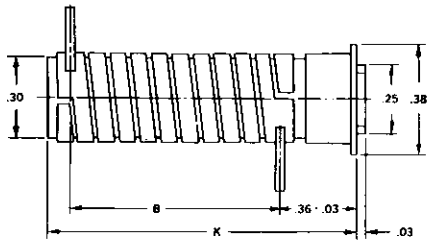


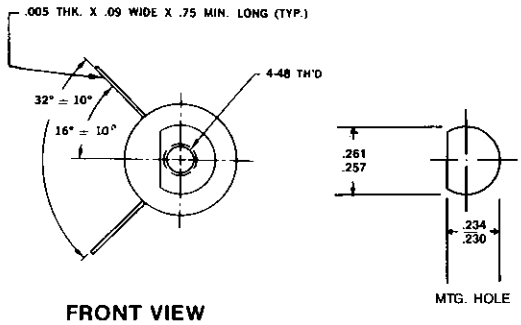




FRONT VIEW

| Models | L ±10%(µH) | Q min | at Freq. (MHz) | SRF min (MHz) | B ±.031 | G ±.031 | K ±.031 |
|---|---|---|---|---|---|---|---|
| JFD-LF2W005 | 0.05 | 135 | 75 | 690 | .250 | .094 | .422 |
| JFD-LF2W006 | 0.06 | 105 | 75 | 600 | .250 | .094 | .438 |
| JFD-LF2W008 | 0.08 | 100 | 75 | 560 | .344 | .094 | .516 |
| JFD-LF2W009 | 0.09 | 165 | 75 | 565 | .344 | .094 | .531 |
| JFD-LF2W010 | 0.10 | 165 | 75 | 510 | .359 | .094 | .531 |
| JFD-LF2W012 | 0.12 | 100 | 75 | 440 | .422 | .094 | .609 |
| JFD-LF2W014 | 0.14 | 185 | 75 | 430 | .453 | .094 | .641 |
| JFD-LF2W016 | 0.16 | 150 | 75 | 400 | .500 | .094 | .688 |
| JFD-LF2W018 | 0.18 | 125 | 75 | 385 | .547 | .094 | .734 |
| JFD-LF2W020 | 0.20 | 170 | 75 | 380 | .578 | .094 | .781 |
| JFD-LF2W025 | 0.25 | 200 | 75 | 370 | .656 | .094 | .844 |
| JFD-LF2W030 | 0.30 | 210 | 75 | 350 | .750 | .094 | .938 |
| JFD-LF2W035 | 0.35 | 105 | 75 | 270 | .344 | .078 | .500 |
| JFD-LF2W040 | 0.40 | 130 | 75 | 260 | .375 | .078 | .516 |
| JFD-LF2W045 | 0.45 | 165 | 75 | 250 | .391 | .078 | .563 |
| JFD-LF2W050 | 0.50 | 125 | 75 | 240 | .438 | .078 | .578 |
| JFD-LF2W060 | 0.60 | 110 | 25 | 225 | .484 | .078 | .656 |
| JFD-LF2W070 | 0.70 | 110 | 25 | 220 | .516 | .078 | .672 |
| JFD-LF2W080 | 0.80 | 140 | 25 | 200 | .578 | .078 | .719 |
| JFD-LF2W090 | 0.90 | 140 | 25 | 195 | .656 | .078 | .781 |
| JFD-LF2W100 | 1.00 | 140 | 25 | 190 | .672 | .078 | .844 |
| JFD-LF2W150 | 1.50 | 155 | 25 | 170 | .859 | .078 | 1.047 |
| JFD-LF2W200 | 2.00 | 180 | 25 | 155 | 1.125 | .078 | 1.281 |

**NOTES:**
1. Current Rating: 1 amp, max
2. L and Q measurements made between leads 'a' and 'd'—LF2W series only.
3. Operating Temperature: -55°C to +125°C
4. Temperature Coefficient: (approx.) ±10 ppm/°C
5. Tolerance: (unless otherwise specified) .XX±.02; .XXX±.005

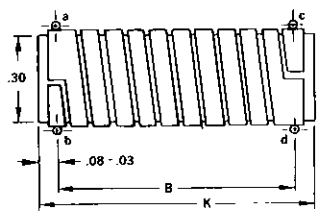


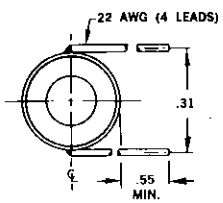




FRONT VIEW

| Models | L ±10% (µH) | Q min | at Freq. (MHz) | SRF min (MHz) | B ±.031 | K ±.031 |
|---|---|---|---|---|---|---|
| JFD-LF3P005 | 0.05 | 160 | 160 | 900 | .484 | .969 |
| JFD-LF3P006 | 0.06 | 150 | 150 | 770 | .359 | .797 |
| JFD-LF3P007 | 0.07 | 170 | 130 | 760 | .547 | 1.016 |
| JFD-LF3P008 | 0.08 | 150 | 120 | 700 | .453 | .906 |
| JFD-LF3P009 | 0.09 | 170 | 120 | 710 | .656 | 1.125 |
| JFD-LF3P010 | 0.10 | 170 | 100 | 690 | .859 | 1.344 |
| JFD-LF3P012 | 0.12 | 160 | 100 | 600 | .672 | 1.125 |
| JFD-LF3P014 | 0.14 | 160 | 90 | 590 | .813 | 1.266 |
| JFD-LF3P016 | 0.16 | 160 | 80 | 530 | .906 | 1.359 |
| JFD-LF3P018 | 0.18 | 150 | 80 | 500 | .609 | 1.031 |
| JFD-LF3P020 | 0.20 | 170 | 70 | 480 | .719 | 1.156 |
| JFD-LF3P025 | 0.25 | 170 | 70 | 380 | .906 | 1.344 |
| JFD-LF3P030 | 0.30 | 125 | 70 | 370 | .625 | 1.062 |
| JFD-LF3P035 | 0.35 | 125 | 60 | 360 | .641 | 1.078 |
| JFD-LF3P040 | 0.40 | 125 | 50 | 340 | .703 | 1.141 |
| JFD-LF3P045 | 0.45 | 125 | 50 | 310 | .719 | 1.156 |
| JFD-LF3P050 | 0.50 | 125 | 50 | 300 | .906 | 1.344 |
| JFD-LF3P060 | 0.60 | 125 | 50 | 280 | .969 | 1.406 |
| JFD-LF3P070 | 0.70 | 125 | 50 | 270 | 1.062 | 1.500 |
| JFD-LF3P080 | 0.80 | 125 | 40 | 250 | 1.031 | 1.453 |
| JFD-LF3P090 | 0.90 | 125 | 40 | 210 | 1.125 | 1.547 |
| JFD-LF3P100 | 1.00 | 125 | 35 | 200 | 1.125 | 1.547 |

## LF4W Series




FRONT VIEW

| Models | L ±10% (µH) | Q min | at Freq. (MHz) | SRF min (MHz) | B ±.031 | K ±.031 |
|---|---|---|---|---|---|---|
| JFD-LF4W005 | 0.05 | 160 | 160 | 900 | .859 | 1.000 |
| JFD-LF4W006 | 0.06 | 150 | 150 | 850 | .563 | .719 |
| JFD-LF4W007 | 0.07 | 150 | 130 | 840 | .453 | .594 |
| JFD-LF4W008 | 0.08 | 160 | 120 | 800 | .672 | .828 |
| JFD-LF4W009 | 0.09 | 170 | 120 | 790 | .906 | 1.062 |
| JFD-LF4W010 | 0.10 | 160 | 100 | 700 | .469 | .609 |
| JFD-LF4W012 | 0.12 | 150 | 100 | 680 | .594 | .750 |
| JFD-LF4W014 | 0.14 | 170 | 90 | 620 | .688 | .828 |
| JFD-LF4W016 | 0.16 | 160 | 80 | 580 | .859 | 1.000 |
| JFD-LF4W018 | 0.18 | 160 | 80 | 540 | .719 | .859 |
| JFD-LF4W020 | 0.20 | 160 | 70 | 540 | .875 | 1.016 |
| JFD-LF4W025 | 0.25 | 160 | 70 | 460 | 1.047 | 1.203 |
| JFD-LF4W030 | 0.30 | 160 | 70 | 420 | .969 | 1.125 |
| JFD-LF4W035 | 0.35 | 150 | 60 | 390 | .859 | 1.000 |
| JFD-LF4W040 | 0.40 | 150 | 50 | 370 | .859 | 1.016 |
| JFD-LF4W045 | 0.45 | 150 | 50 | 350 | 1.047 | 1.203 |
| JFD-LF4W050 | 0.50 | 140 | 50 | 330 | .938 | 1.078 |
| JFD-LF4W060 | 0.60 | 130 | 50 | 300 | .938 | 1.078 |
| JFD-LF4W070 | 0.70 | 150 | 50 | 280 | 1.156 | 1.297 |
| JFD-LF4W080 | 0.80 | 125 | 40 | 250 | 1.141 | 1.281 |
| JFD-LF4W090 | 0.90 | 125 | 40 | 230 | .969 | 1.109 |
| JFD-LF4W100 | 1.00 | 125 | 35 | 210 | 1.047 | 1.188 |

**NOTES:** 1. Current Rating: 1 amp, max
2. L and Q measurements made between leads 'a' and 'd'–LF4W series only.
3. Operating Temperature: -55°C to +125°C
4. Temperature Coefficient: (approx.) ±10 ppm/°C
5. Tolerance: (unless otherwise specified) .XX±.02; .XXX±.005

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