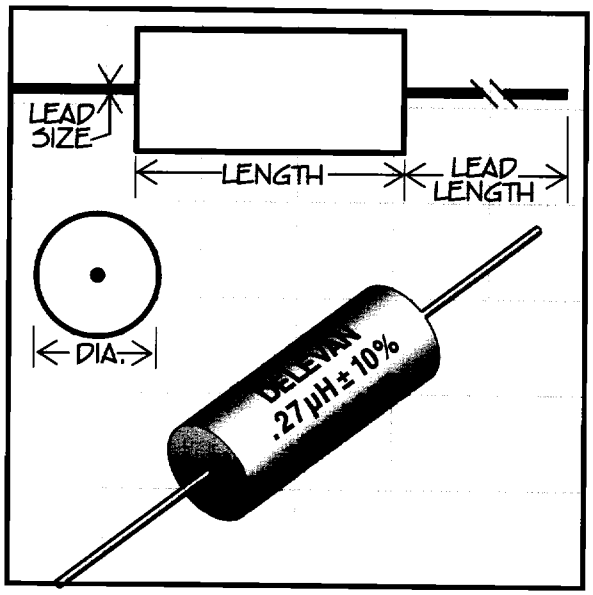
LCR Series 1027, 1539 and 1842

Molded Unshielded RF, LCR COILS



Specifications (Series 1027, 1539 and 1842)

Weight Max. (Grams) 0.30

Operating Temperature Range
Phenolic –55°C to +125°C;
Iron & Ferrite –55°C to +105°C

Ambient Temperature 90°C

Temperature Rise
Phenolic 35°C; Iron 15°C

Made In the U.S.A.

PART NUMBER	INDUCTANCE (µH) ±10%
PHENOLIC CORE	
1027-94K	.10
1027-96K	.12
1027-00K	.15
1027-02K	.18
1027-04K	.22
1027-06K	.27
1027-08K	.33
1027-10K	.39
1027-12K	.47
1027-14K	.56
1027-16K	.68
1027-18K	.82
1027-20K	1.00
IRON CORE	
1027-22K	1.20
1027-24K	1.50
1027-26K	1.80
1027-28K	2.20
1027-30K	2.70
1027-32K	3.30
1027-34K	3.90
1027-36K	4.70
1027-38K	5.60
1027-40K	6.80
1027-42K	8.20
1027-44K	10.0
1027-46K	12.0
1027-48K	15.0
1027-50K	18.0
1027-52K	22.0
1027-54K	27.0
FERRITE CORE	
1027-56K	33.0
1027-58K	39.0
1027-60K	47.0
1027-62K	56.0
1027-64K	68.0
1027-66K	82.0
1027-68K	100.0
1027-70K	120.0
1027-72K	150.0
1027-74K	180.0
1027-76K	220.0
1027-78K	270.0
1027-80K	330.0
1027-82K	390.0
1027-84K	470.0
1027-86K	560.0
1027-88K	680.0
1027-90K	820.0
1027-92K	1000.0

PART NUMBER	INDUCTANCE (µH)
PHENOLIC CORE	
1539-00M	.15 ± 20%
1539-02M	.22 ± 20%
1539-04M	.33 ± 20%
1539-06M	.47 ± 20%
1539-07K	.56 ± 10%
1539-08K	.68 ± 10%
1539-10K	.82 ± 10%
1539-12K	1.0 ± 10%
1539-14K	1.2 ± 10%
1539-16K	1.5 ± 10%
1539-18K	1.8 ± 10%
1539-20K	2.2 ± 10%
1539-22K	2.7 ± 10%
1539-24K	3.3 ± 10%
1539-26K	3.9 ± 10%
1539-27K	4.3 ± 10%
1539-28K	4.7 ± 10%
IRON CORE	
1539-29K	5.1 ± 10%
1539-30K	5.6 ± 10%
1539-32K	6.8 ± 10%
1539-34K	8.2 ± 10%
1539-36K	10.0 ± 10%
1539-38K	12.0 ± 10%
1539-40K	15.0 ± 10%
1539-42K	18.0 ± 10%
1539-44K	22.0 ± 10%
1539-46J	24.0 ± 5%
1539-48J	27.0 ± 5%
1539-50J	30.0 ± 5%
1539-52J	33.0 ± 5%
1539-54J	36.0 ± 5%
1539-56J	39.0 ± 5%
1539-58J	43.0 ± 5%
1539-60J	47.0 ± 5%
1539-62J	51.0 ± 5%
1539-64J	56.0 ± 5%
1539-66J	62.0 ± 5%
1539-68J	68.0 ± 5%
1539-70J	75.0 ± 5%
1539-72J	82.0 ± 5%
1539-74J	91.0 ± 5%
1539-76J	100.0 ± 5%
1539-78J	110.0 ± 5%
1539-80J	120.0 ± 5%
1539-82J	130.0 ± 5%
1539-84J	150.0 ± 5%
1539-86J	160.0 ± 5%
1539-88J	180.0 ± 5%
1539-90J	200.0 ± 5%
1539-92J	220.0 ± 5%
1539-94J	240.0 ± 5%

PART NUMBER	INDUCTANCE (µH)
PHENOLIC CORE	
1842-00M	.15 ± 20%
1842-02M	.22 ± 20%
1842-04M	.33 ± 20%
1842-06M	.47 ± 20%
1842-07K	.56 ± 10%
1842-08K	.68 ± 10%
1842-09K	.82 ± 10%
1842-10K	1.00 ± 10%
1842-11K	1.20 ± 10%
1842-12K	1.50 ± 10%
1842-13K	1.80 ± 10%
1842-14K	2.20 ± 10%
1842-16K	2.70 ± 10%
IRON CORE	
1842-18K	3.30 ± 10%
1842-20K	3.90 ± 10%
1842-22K	4.70 ± 10%
1842-24K	5.60 ± 10%
1842-26K	6.80 ± 10%
1842-28K	8.20 ± 10%
1842-30K	10.0 ± 10%
1842-32K	12.0 ± 10%
1842-34K	15.0 ± 10%
1842-35K	18.0 ± 10%
1842-36K	22.0 ± 10%
1842-38K	27.0 ± 10%

FOR COMPLETE ELECTRICAL DATA, PLEASE CONTACT FACTORY

Optional Tolerances:
J = 5%
H = 3%
G = 2%
F = 1%

Physical Parameters	Series 1027 Inches	Series 1027 Millimeters	Series 1539 Inches	Series 1539 Millimeters	Series 1842 Inches	Series 1842 Millimeters
Length	0.250 ± .010	6.35 ± .25	.375 ± .010	9.52 ± .25	.437 ± .010	11.10 ± .25
Diameter	0.095 ± .010	2.41 ± .25	.156 ± .010	3.96 ± .25	.187 ± .010	4.75 ± .25
Lead Length	1.5 ± .12	38.10 ± 3.05	1.44 ± .12	36.58 ± 3.05	1.44 ± .12	36.58 ± 3.05
Lead Size	0.020 ± .0015	0.508 ± .038	.025 ± .002	.635 ± .05	.025 ± .002	.635 ± .051

Power Dissipation (Watt Max.)	Phenolic	Iron	Ferrite
Series 1027	0.21	0.09	0.073
Series 1539	0.312	0.134	
Series 1842	0.385	0.165	

KEY to Series 1027 Graph (Top)
A = 1027-56 thru 1027-92 @ 33µH
B = 1027-56 thru 1027-92 @ 1000µH
C = 1027-22 thru 1027-54 @ 27µH
D = 1027-22 thru 1027-54 @ 1.2µH
E = 1027-94 thru 1027-20 @ .10µH
F = 1027-94 thru 1027-20 @ 1.0µH

KEY to Series 1539 Graph (Middle)
A = 1539-48 thru 1539-94 @ 27µH
B = 1539-48 thru 1539-94 @ 240µH
C = 1539-29 thru 1539-46 @ 24µH
D = 1539-29 thru 1539-46 @ 5.1µH
E = 1539-00 thru 1539-28 @ .15µH
F = 1539-00 thru 1539-28 @ 4.7µH

KEY to Series 1842 Graph (Botton
A = 1842-18 thru 1842-38 @ 27µH
B = 1842-18 thru 1842-38 @ 3.3µH
C = 1842-00 thru 1842-16 @ 2.7µH
D = 1842-00 thru 1842-16 @ .15µH

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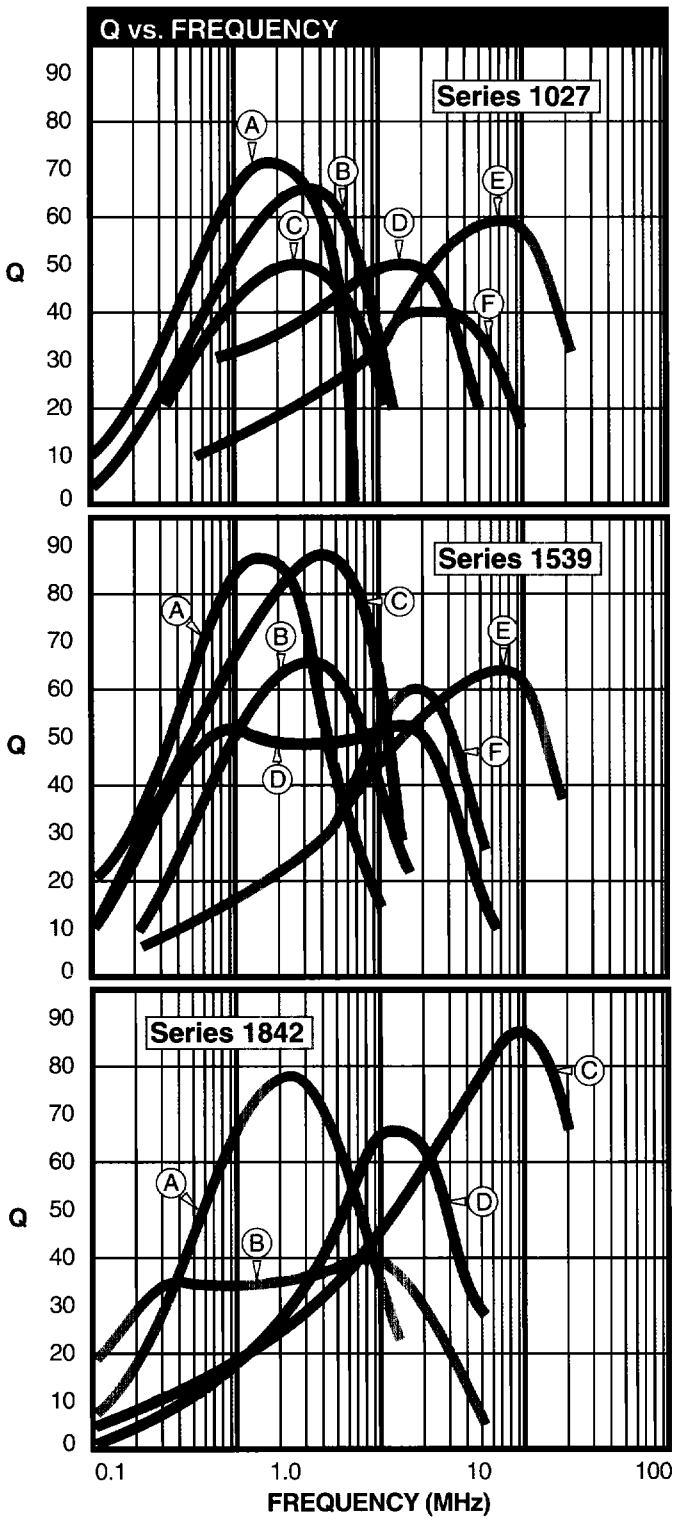
LCR Series

Molded Unshielded RF, LCR COILS – Series 1027, 1539 and 1842



SEE TABLE AT LEFT FOR KEY TO CURVES

LCR SERIES INDUCTORS: The LCR Series has been designed to eliminate problems that arise when trying to correlate inductance values of coils manufactured to Q-Meter specifications (U.S. Military Standard) being measured on an impedance analyzer or LCR meter.

For more than half a Century, the Q-Meter has been the most widely used instrument for measuring the inductance and Q-Factor of RF coils. The LCR Series has been designed to eliminate problems that arise when trying to measure coils on an Impedance Analyzer or LCR Meter

The major differences in measurements performed on Q-Meters, LCR Meters, and Impedance analyzers are test/meter residuals and SRF/test frequency relationships.

MIL-C-15305 provides a method of determining the residual inductance of a Q-Meter and a Q-Meter fixture. The residual inductance is subtracted from the inductance measurement for inductor values of ten microhenries (10µH) or less.

The Hewlett-Packard Impedance Analyzer model 4191A and both the 260A and 4342A Q-Meters must have their residual inductance and residual capacitance taken out of their measurements in order to correlate properly with the Hewlett-Packard model 4275A LCR Meter. The HP model 4275A allows the user to cancel out the capacitance residual with an open test, and the inductance residual with a short test.The model 4275A, however, compensates for the shorting rod inductance along with the residual inductance of the meter and fixture. For low inductance parts (less than one microhenry), the actual shorting rod inductance should be added to the inductance measurement.

The SRF of the part under test plays an important role in the effective inductance of the part. As the test frequency approaches the SRF of the part, the effective inductance increases dramatically. The industry guideline is that the SRF of the part is to be at least ten times greater than the test frequency. At a ten to one ratio of SRF to test frequency, the effective inductance is 1% higher than the true inductance of the part under test. Correlation of test instruments at different test frequencies is affected by this SRF to test frequency relationship.

LCR SERIES TEST METHOD: API Delevan utilizes an HP-4275A multi-frequency LCR meter. The HP-16047A test fixture and the HP-16061-70022 contact modules for axial leaded components is also utilized. When calibrating the LCR meter, use a brass shorting rod with a diameter of 0.062 ± .0003 inches and a length of 1.625 ± 0.030 inches. For values of 1uH and less, 0.015µH must be added to the reading to correct for shorting rod inductance. Q Factor is not considered for specification purposes, and for information only.

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