

Wire Wound Ceramic Chip Inductors / QCL Series

Feature

1. Ceramic core wire wound construction.
2. Used for high frequency up to GHz and stable Inductance at high frequency.
3. The high self resonant frequency realizes high Q value.
4. Small footprint as well as profile.
5. All support Lead-Free Parts.

Application

Noise suppression for high frequency.

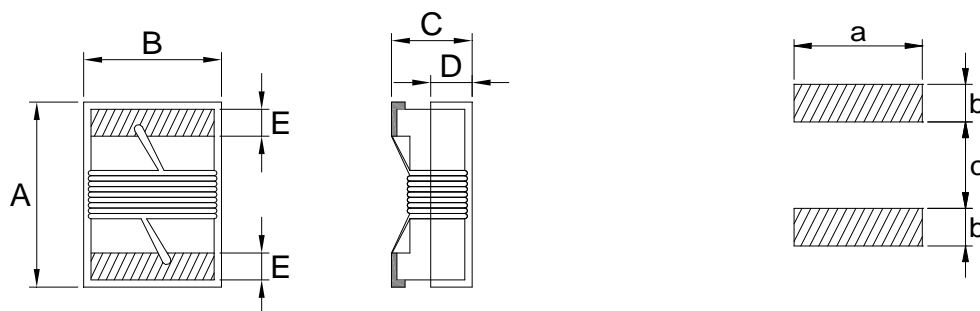
1. Computer and peripheral products
2. Consumer electronic products
3. Communication electronic products
especially for pagers, Cellular phone etc...
4. GPS (Global position System)
5. Measuring instruments.

Product Identification

QCL 2012 - R10 K - D
1 2 3 4 5

1. Series name.
2. Dimension.(See Details)
3. Inductance.(See Details)
4. Tolerance.(See Details)
5. Marked color dot

Configurations & Dimensions



PCB Pattern

Series Name	A	B	C	D	E	a	b	c
QCL1005	1.19 max.	0.64 max.	0.66 max.	0.25 typ.	0.23 ± 0.1	0.66	0.36	0.46
QCL1608	1.80 max.	1.20 max.	1.20 max.	0.38 typ.	0.35 ± 0.1	1.02	0.64	0.64
QCL2012	2.40 max.	1.60 max.	1.40 max.	0.51 typ.	0.44 ± 0.1	1.78	1.02	0.76
QCL2520	2.90 max.	2.50 max.	2.10 max.	1.20 typ.	0.55 ± 0.1	2.54	1.02	1.27

Unit: mm

Wire Wound Ceramic Chip Inductors / QCL Series

■ Electrical Characteristics / QCL1005

System Number	Part Number	Inductance		Q Value / MHz Min.	900MHz		1.7GHz		SRF (MHz) Min.	DCR (Ω) Max.	Rated Current (mA) Max.
		nH / MHz	Tolerance		Inductance Typ.	Q Value Typ.	Inductance Typ.	Q Value Typ.			
WP45O0000-00	QCL1005-1N0 __	1.0 /250	B,S	16	1.07	77	1.02	69	7,000	0.054	1,360
WP45O000C-00	QCL1005-2N0 __	2.0 /250	B,S	16	1.93	54	1.93	75	7,000	0.084	1,040
WP45O0004-00	QCL1005-2N2 __	2.2 /250	B,S	19	2.19	59	2.23	100	7,000	0.084	960
WP45O0005-00	QCL1005-2N7 __	2.7/250	B,S	19	2.94	50	2.96	75	7,000	0.095	840
WP45O0006-00	QCL1005-3N3 __	3.3 /250	B,S	19	3.10	65	3.12	87	7,000	0.079	840
WP45O0007-00	QCL1005-3N9 __	3.9 /250	B,S	19	3.89	50	4.00	75	6,000	0.079	840
WP45O0008-00	QCL1005-4N7 __	4.7/250	B,J,S	19	4.82	54	5.00	72	4,700	0.130	640
WP45O000D-00	QCL1005-5N2 __	5.2 /250	B,J,K	20	5.15	56	5.25	82	4,800	0.120	640
WP45O0009-00	QCL1005-5N6 __	5.6 /250	B,J,K	20	5.16	54	5.28	81	4,700	0.099	760
WP45O000A-00	QCL1005-6N8 __	6.8 /250	B,J,K	20	6.56	63	6.93	78	4,800	0.099	680
WP45O000B-00	QCL1005-8N2 __	8.2 /250	B,J,K	21	8.50	57	8.85	84	4,400	0.136	680
WP45O000E-00	QCL1005-8N5 __	8.5 /250	B,J,K	24	8.50	57	8.85	84	4,400	0.150	680
WP45O000F-00	QCL1005-9N0 __	9.0 /250	B,J,K	24	8.70	47	8.95	65	4,000	0.170	680
WP45O0010-00	QCL1005-10N __	10 /250	G,J,K	21	9.80	50	10.10	67	3,900	0.240	480
WP45O0011-00	QCL1005-12N __	12 /250	G,J,K	24	11.90	53	12.70	71	3,900	0.168	640
WP45O0012-00	QCL1005-15N __	15 /250	G,J,K	24	14.60	55	15.50	77	3,600	0.204	560
WP45O0013-00	QCL1005-18N __	18 /250	G,J,K	24	18.30	57	20.28	62	3,300	0.276	420
WP45O0014-00	QCL1005-22N __	22 /250	G,J,K	24	23.20	53	26.75	53	3,100	0.360	400
WP45O0015-00	QCL1005-27N __	27 /250	G,J,K	24	28.70	49	33.50	63	2,800	0.360	400
WP45O0016-00	QCL1005-33N __	33 /250	G,J,K	24	34.90	31	41.74	32	2,500	0.450	400
WP45O0017-00	QCL1005-39N __	39 /250	G,J,K	25	41.70	47	50.23	45	2,100	0.660	200
WP45O001C-00	QCL1005-43N __	43 /250	G,J,K	25	45.80	46	61.55	34	2,000	0.744	175
WP45O0018-00	QCL1005-47N __	47 /250	G,J,K	20	50.00	38	-	-	2,100	0.792	175
WP45O0019-00	QCL1005-56N __	56 /250	G,J,K	22	62.80	42	-	-	1,800	0.780	175
WP45O001A-00	QCL1005-68N __	68 /250	G,J,K	22	78.19	36	-	-	1,600	0.912	150
WP45O001B-00	QCL1005-82N __	82 /250	G,J,K	22	88.97	40	-	-	1,260	1.55	50
WP45O0020-00	QCL1005-R10 __	100 /250	G,J,K	22	104	40	-	-	1,160	2.0	30

※ Please specify the inductance tolerance : B,S,G,J,K (See Details).

※ Rated current that will cause temperature rise approximate 20°C without core loss.

Wire Wound Ceramic Chip Inductors / QCL Series

Electrical Characteristics / QCL1608

System Number	Part Number	Inductance		Q Value / MHz Min.	SRF (MHz) Min.	DCR (Ω) Max.	Rated Current (mA) Max.
		nH / MHz	Tolerance				
WP45O010G-00	QCL1608-1N6 __	1.8/250	J,K	18/250	12,500	0.030	700
WP45O0103-00	QCL1608-1N8 __	1.8/250	J,K	16/250	12,500	0.045	700
WP45O0106-00	QCL1608-3N3 __	3.3/250	J,K	30/250	5,900	0.045	700
WP45O010H-00	QCL1608-3N6 __	3.6/250	J,K	22/250	5,900	0.063	700
WP45O0107-00	QCL1608-3N9 __	3.9/250	J,K	22/250	6,900	0.080	700
WP45O010I-00	QCL1608-4N3 __	4.3/250	J,K	22/250	5,900	0.063	700
WP45O0108-00	QCL1608-4N7 __	4.7/250	J,K	20/250	5,800	0.085	700
WP45O010J-00	QCL1608-5N1 __	5.1/250	J,K	20/250	5,700	0.115	700
WP45O0109-00	QCL1608-5N6 __	5.6/250	J,K	26/250	5,800	0.075	700
WP45O010K-00	QCL1608-6N3 __	6.3/250	J,K	26/250	5,700	0.115	700
WP45O010A-00	QCL1608-6N8 __	6.8/250	J,K	27/250	5,800	0.125	700
WP45O010L-00	QCL1608-7N5 __	7.5/250	J,K	28/250	4,800	0.115	700
WP45O010B-00	QCL1608-8N2 __	8.2/250	J,K	30/250	4,700	0.125	700
WP45O010M-00	QCL1608-8N7 __	8.7/250	J,K	28/250	4,600	0.109	700
WP45O010N-00	QCL1608-9N5 __	9.5/250	J,K	28/250	5,400	0.145	700
WP45O0110-00	QCL1608-10N __	10/250	G,J,K	31/250	4,800	0.145	700
WP45O011D-00	QCL1608-11N __	11/250	G,J,K	30/250	4,000	0.145	700
WP45O0111-00	QCL1608-12N __	12/250	G,J,K	35/250	4,000	0.145	700
WP45O0112-00	QCL1608-15N __	15/250	G,J,K	35/250	4,000	0.180	700
WP45O011E-00	QCL1608-16N __	16/250	G,J,K	34/250	3,300	0.170	700
WP45O0113-00	QCL1608-18N __	18/250	G,J,K	35/250	3,100	0.180	700
WP45O0114-00	QCL1608-22N __	22/250	G,J,K	38/250	3,000	0.205	700
WP45O011F-00	QCL1608-23N __	23/250	G,J,K	38/250	2,850	0.205	700
WP45O011G-00	QCL1608-24N __	24/250	G,J,K	36/250	2,650	0.205	700
WP45O0115-00	QCL1608-27N __	27/250	G,J,K	40/250	2,800	0.220	600
WP45O011H-00	QCL1608-30N __	30/250	G,J,K	37/250	2,250	0.220	600
WP45O0116-00	QCL1608-33N __	33/250	G,J,K	40/250	2,300	0.240	600
WP45O011I-00	QCL1608-36N __	36/250	G,J,K	37/250	2,080	0.250	600
WP45O0117-00	QCL1608-39N __	39/250	G,J,K	40/250	2,200	0.260	600
WP45O011C-00	QCL1608-43N __	43/250	G,J,K	38/250	2,000	0.280	600
WP45O0118-00	QCL1608-47N __	47/200	G,J,K	38/200	2,000	0.280	600
WP45O0119-00	QCL1608-56N __	56/200	G,J,K	38/200	1,900	0.310	600
WP45O011A-00	QCL1608-68N __	68/200	G,J,K	37/200	1,700	0.340	600
WP45O011J-00	QCL1608-72N __	72/150	G,J,K	34/150	1,700	0.490	400
WP45O011B-00	QCL1608-82N __	82/150	G,J,K	34/150	1,700	0.540	400
WP45O0120-00	QCL1608-R10 __	100/150	G,J,K	34/150	1,400	0.580	400
WP45O012D-00	QCL1608-R11 __	110/150	G,J,K	32/150	1,350	0.610	300
WP45O0121-00	QCL1608-R12 __	120/150	G,J,K	32/150	1,300	0.750	300
WP45O0122-00	QCL1608-R15 __	150/150	G,J,K	28/150	990	0.920	280
WP45O0123-00	QCL1608-R18 __	180/100	G,J,K	25/100	990	1.250	240
WP45O0124-00	QCL1608-R22 __	220/100	G,J,K	25/100	900	1.700	200
WP45O0125-00	QCL1608-R27 __	270/100	G,J,K	24/100	900	2.450	170
WP45O0126-00	QCL1608-R33 __	330/1000	G,J,K	25/100	900	2.750	100
WP45O0127-00	QCL1608-R39 __	390/100	G,J,K	25/100	900	3.150	100

※ Please specify the inductance tolerance : G,J,K (See Details).

※ Rated current that will cause temperature rise approximate 20°C without core loss.

Wire Wound Ceramic Chip Inductors / QCL Series

Electrical Characteristics / QCL2012

System Number	Part Number	Inductance		Q Value / MHz Min.	SRF (MHz) Min.	DCR (Ω) Max.	Rated Current (mA) Max.
		nH / MHz	Tolerance				
WP45O020O-00	QCL2012-2N8 __	2.8/250	J,K	70/1500	7,900	0.06	800
WP45O020P-00	QCL2012-3N0 __	3.0/250	J,K	55/1500	7,900	0.08	800
WP45O0206-00	QCL2012-3N3 __	3.3/250	J,K	45/1500	7,900	0.12	600
WP45O0208-00	QCL2012-5N6 __	5.6/250	J,K	65/1000	5,500	0.08	600
WP45O020A-00	QCL2012-6N8 __	6.8/250	J,K	50/1000	5,500	0.11	600
WP45O020L-00	QCL2012-7N5 __	7.5/250	J,K	50/1000	4,500	0.14	600
WP45O020B-00	QCL2012-8N2 __	8.2/250	J,K	50/1000	4,700	0.16	600
WP45O0210-00	QCL2012-10N __	10/250	G,J,K	60/500	4,200	0.10	600
WP45O0211-00	QCL2012-12N __	12/250	G,J,K	50/500	4,000	0.15	600
WP45O0212-00	QCL2012-15N __	15/250	G,J,K	50/500	3,400	0.17	600
WP45O0213-00	QCL2012-18N __	18/250	G,J,K	50/500	3,300	0.20	500
WP45O0214-00	QCL2012-22N __	22/250	G,J,K	55/500	2,600	0.22	500
WP45O021G-00	QCL2012-24N __	24/250	G,J,K	50/500	2,000	0.22	500
WP45O0215-00	QCL2012-27N __	27/250	G,J,K	55/500	2,500	0.25	500
WP45O0216-00	QCL2012-33N __	33/250	G,J,K	60/500	2,050	0.27	500
WP45O021I-00	QCL2012-36N __	36/250	G,J,K	55/500	1,700	0.27	500
WP45O0217-00	QCL2012-39N __	39/250	G,J,K	60/500	2,000	0.29	500
WP45O021C-00	QCL2012-43N __	43/200	G,J,K	60/500	1,650	0.34	500
WP45O0218-00	QCL2012-47N __	47/200	G,J,K	60/500	1,650	0.31	500
WP45O0219-00	QCL2012-56N __	56/200	G,J,K	60/500	1,550	0.34	500
WP45O021A-00	QCL2012-68N __	68/150	G,J,K	60/500	1,450	0.38	500
WP45O021B-00	QCL2012-82N __	82/150	G,J,K	65/500	1,300	0.42	400
WP45O021K-00	QCL2012-91N __	91/150	G,J,K	65/500	1,200	0.48	400
WP45O0220-00	QCL2012-R10 __	100/150	G,J,K	50/250	1,200	0.46	400
WP45O022D-00	QCL2012-R11 __	110/150	G,J,K	50/250	1,000	0.48	400
WP45O0221-00	QCL2012-R12 __	120/150	G,J,K	50/250	1,100	0.51	400
WP45O0222-00	QCL2012-R15 __	150/100	G,J,K	50/250	920	0.56	400
WP45O022E-00	QCL2012-R16 __	160/100	G,J,K	50/250	900	0.60	400
WP45O0223-00	QCL2012-R18 __	180/100	G,J,K	50/250	870	0.64	400
WP45O022F-00	QCL2012-R20 __	200/100	G,J,K	50/250	865	0.68	400
WP45O0224-00	QCL2012-R22 __	220/100	G,J,K	50/250	850	0.70	400
WP45O022C-00	QCL2012-R24 __	240/100	G,J,K	44/250	690	1.00	350
WP45O022G-00	QCL2012-R25 __	250/100	G,J,K	48/250	680	1.00	350
WP45O0225-00	QCL2012-R27 __	270/100	G,J,K	48/250	650	1.00	350
WP45O0226-00	QCL2012-R33 __	330/100	G,J,K	48/250	600	1.40	310
WP45O0227-00	QCL2012-R39 __	390/100	G,J,K	48/250	560	1.50	290
WP45O0228-00	QCL2012-R47 __	470/50	G,J,K	30/100	375	1.76	250
WP45O0229-00	QCL2012-R56 __	560/25	G,J,K	23/50	340	1.90	230
WP45O022H-00	QCL2012-R62 __	620/25	G,J,K	23/50	220	2.20	210
WP45O022A-00	QCL2012-R68 __	680/25	G,J,K	23/50	188	2.20	190
WP45O022B-00	QCL2012-R82 __	820/25	G,J,K	23/50	215	2.35	180
WP45O0230-00	QCL2012-1R0 __	1000/25	G,J,K	22/50	200	2.45	170

※ Please specify the inductance tolerance : G,J,K (See Details).

※ Rated current that will cause temperature rise approximate 20°C without core loss.

Wire Wound Ceramic Chip Inductors / QCL Series

Electrical Characteristics / QCL2520

System Number	Part Number	Inductance		Q Value / MHz Min.	SRF (MHz) Min.	DCR (Ω) Max.	Rated Current (mA) Max.
		nH / MHz	Tolerance				
WP45O0410-00	QCL2520-10N __	10/50	G,J,K	50/500	4,100	0.08	1,000
WP45O0411-00	QCL2520-12N __	12/50	G,J,K	50/500	3,300	0.09	1,000
WP45O0412-00	QCL2520-15N __	15/50	G,J,K	50/500	2,500	0.16	1,000
WP45O0413-00	QCL2520-18N __	18/50	G,J,K	50/350	2,500	0.11	1,000
WP45O0414-00	QCL2520-22N __	22/50	G,J,K	55/350	2,400	0.12	1,000
WP45O0415-00	QCL2520-27N __	27/50	G,J,K	50/350	1,600	0.13	1,000
WP45O0416-00	QCL2520-33N __	33/50	G,J,K	60/350	1,600	0.14	1,000
WP45O0417-00	QCL2520-39N __	39/50	G,J,K	60/350	1,500	0.15	1,000
WP45O0418-00	QCL2520-47N __	47/50	G,J,K	65/350	1,500	0.16	1,000
WP45O0419-00	QCL2520-56N __	56/50	G,J,K	65/350	1,300	0.18	1,000
WP45O041A-00	QCL2520-68N __	68/50	G,J,K	65/350	1,300	0.20	1,000
WP45O041B-00	QCL2520-82N __	82/50	G,J,K	60/350	1,000	0.22	1,000
WP45O0420-00	QCL2520-R10 __	100/25	G,J,K	60/350	1,000	0.56	650
WP45O0421-00	QCL2520-R12 __	120/25	G,J,K	60/350	950	0.63	650
WP45O0422-00	QCL2520-R15 __	150/25	G,J,K	45/100	850	0.70	580
WP45O0423-00	QCL2520-R18 __	180/25	G,J,K	45/100	750	0.77	620
WP45O0424-00	QCL2520-R22 __	220/25	G,J,K	45/100	700	0.84	500
WP45O0425-00	QCL2520-R27 __	270/25	G,J,K	45/100	600	0.91	500
WP45O0426-00	QCL2520-R33 __	330/25	G,J,K	45/100	570	1.05	450
WP45O0427-00	QCL2520-R39 __	390/25	G,J,K	45/100	500	1.12	470
WP45O0428-00	QCL2520-R47 __	470/25	G,J,K	45/100	450	1.19	470
WP45O0429-00	QCL2520-R56 __	560/25	G,J,K	45/100	415	1.33	400
WP45O042H-00	QCL2520-R62 __	620/25	G,J,K	45/100	375	1.40	300
WP45O042A-00	QCL2520-R68 __	680/25	G,J,K	45/100	375	1.47	400
WP45O042I-00	QCL2520-R75 __	750/25	G,J,K	45/100	360	1.54	360
WP45O042B-00	QCL2520-R82 __	820/25	G,J,K	45/100	350	1.61	400
WP45O042J-00	QCL2520-R91 __	910/25	G,J,K	35/50	320	1.68	380
WP45O0430-00	QCL2520-1R0 __	1000/25	G,J,K	35/50	290	1.75	370
WP45O0431-00	QCL2520-1R2 __	1200/7.9	G,J,K	35/50	250	2.00	310
WP45O0432-00	QCL2520-1R5 __	1500/7.9	G,J,K	28/50	200	2.30	330
WP45O0433-00	QCL2520-1R8 __	1800/7.9	G,J,K	28/50	160	2.60	300
WP45O0434-00	QC2520-2R2 __	2200/7.9	G,J,K	28/50	160	2.80	280
WP45O0435-00	QCL2520-2R7 __	2700/7.9	G,J,K	22/25	135	3.20	290
WP45O0436-00	QCL2520-3R3 __	3300/7.9	G,J,K	22/25	110	3.40	290
WP45O0437-00	QCL2520-3R9 __	3900/7.9	G,J,K	20/25	100	3.60	260
WP45O0438-00	QCL2520-4R7 __	4700/7.9	G,J,K	20/25	90	4.00	260
WP45O0439-00	QCL2520-5R6 __	5600/7.9	G,J,K	18/7.9	40	4.00	240
WP45O043A-00	QCL2520-6R8 __	6800/7.9	G,J,K	18/7.9	40	4.90	200
WP45O043B-00	QCL2520-8R2 __	8200/7.9	G,J,K	18/7.9	25	6.00	170
WP45O0440-00	QCL2520-100 __	10000/2.5	G,J,K	18/7.9	25	8.00	150

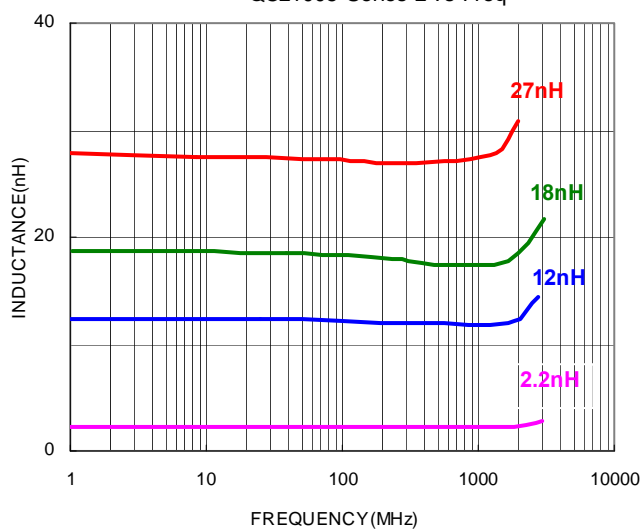
※ Please specify the inductance tolerance : G,J,K (See Details).

※ Rated current that will cause temperature rise approximate 20°C without core loss.

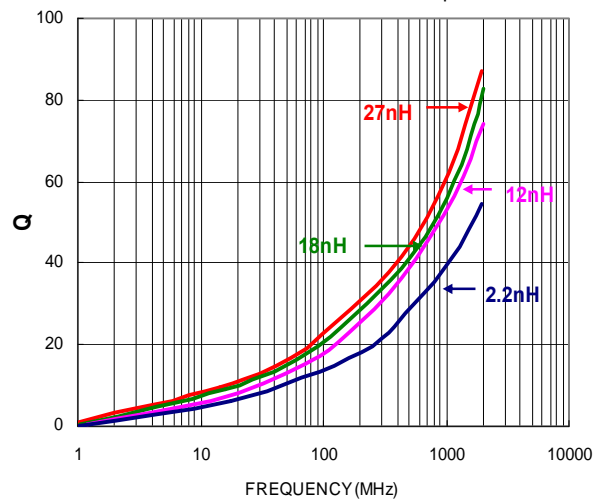
Wire Wound Ceramic Chip Inductors / QCL Series

Electrical Curve / QCL1005 , QCL1608 , QCL2012

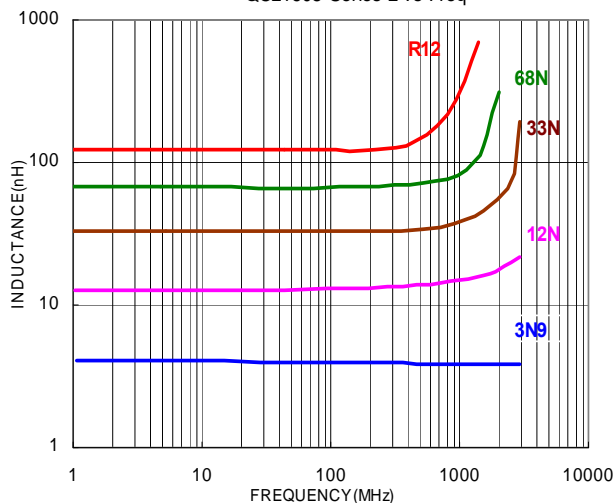
QCL1005-Series L vs Freq



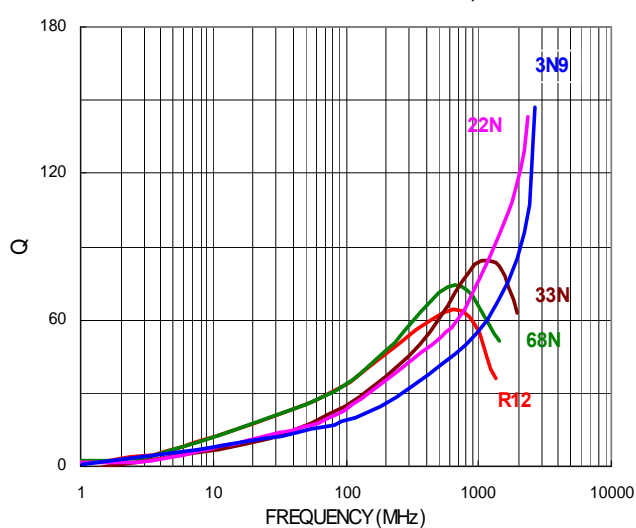
QCL1005-Series Q vs Freq



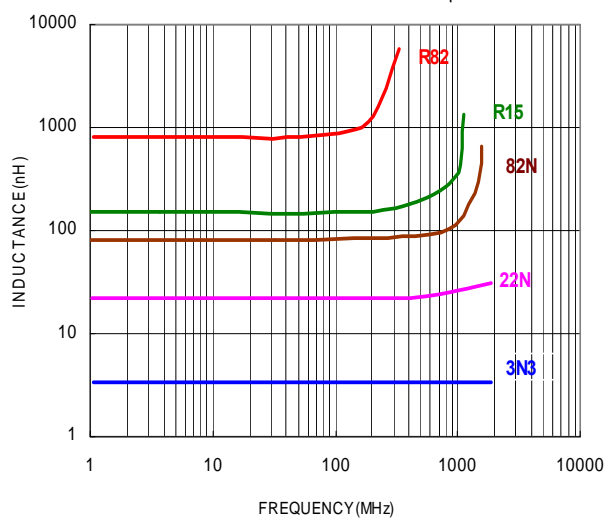
QCL1608-Series L vs Freq



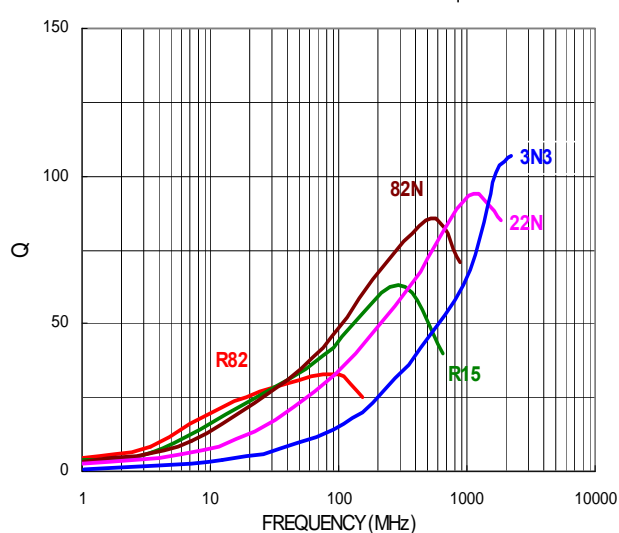
QCL1608-Series Q vs Freq



QCL2012-Series L vs Freq



QCL2012-Series Q vs Freq



Wire Wound Ceramic Chip Inductors / QCL Series

Electrical Curve / QCL2520

