

# 疊層片式高頻電感 CHIP HIGH FREQUENCY INDUCTORS

## ■ 疊層片式高頻電感 CHIP HIGH FREQUENCY INDUCTORS



OPERATING TEMP.	0603 1005	: -55~+125°C
	1608 2012	: -40~+85°C

### ● 特征 FEATURES

- 高自諧振頻率。
- 疊層獨石結構，具有高可靠性。
- 優良的焊接性和耐焊性，適合于回流焊和波峰焊。
- High self-resonant frequency.
- Multilayer monolithic construction yields high reliability
- Excellent solderability and heat resistance for either wave or reflow soldering.

### ● 應用 APPLICATIONS

- 移動電話、尋呼機、PHS和PDA
- 各種高頻回路
- 抑制各種高頻雜波
- Portable telephone、Pagers、PHS and PDA
- Miscellaneous high-frequency circuits
- EMI countermeasure in high frequency circuits

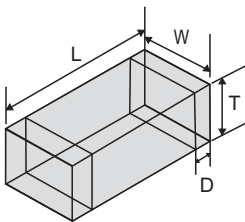
### ● 產品規格型號的表示方法 ORDERING CODE

VHF	201209	H	47N	J	T
①	②	③	④	⑤	⑥

① 產品代號 Product Code		② 規格尺寸(L×W×T) (mm) Dimensions		③ 材料代號 Material Code	④ 感量(nH) Inductance		⑤ 誤差 Tolerance		⑥ 包裝方式 Packaging Style	
VHF	疊層片式 高頻電感  Very High Frequency Inductors	060303	0.6×0.3×0.3	H	1N0	1.0	S	±0.3nH	T	卷帶盤裝 Tape&Reel
		100505	1.0×0.5×0.5	HQ	10N	10	D	±0.5nH		
		160808	1.6×0.8×0.8		J	±5%	K	±10%	B	散裝 Bulk
		201209	2.0×1.2×0.9		R10	100	M	±20%		
					N=0.0(nH) R=0.0(μH)					

### ● 外形尺寸 SHAPE AND DIMENSIONS

unit: mm(inch)



Part No .	L	W	T	D
060303 (0201)	0.6±0.03 (0.024±0.001)	0.3±0.03 (0.012±0.001)	0.3±0.03 (0.012±0.001)	0.15±0.05 (0.006±0.002)
100505 (0402)	1.0±0.15 (0.040±0.006)	0.5±0.15 (0.020±0.006)	0.5±0.15 (0.020±0.006)	0.25±0.10 (0.010±0.004)
160808 (0603)	1.6±0.2 (0.063±0.008)	0.8±0.2 (0.031±0.008)	0.8±0.2 (0.031±0.008)	0.3±0.2 (0.01±0.008)
201209 (0805)	2.0±0.2 (0.079±0.008)	1.2±0.2 (0.047±0.008)	0.9±0.2 (0.035±0.008)	0.5±0.3 (0.020±0.012)

## • 電性能參數 ELECTRICAL CHARACTERISTICS

0603 TYPE

型號 Part No.	電感量 Inductance (nH)	品質因數 Q (Min)	測試頻率 Test Fre. (MHz)	品質因數 測試頻率 Q Frequency (MHz)					自諧振頻率 SRF (MHz)Min	直流電阻 DC R ( $\Omega$ )Max	額定電流 Ir(mA) Max
				500	800	1800	2000	2400			
VHF060303H0N6 -T	0.6	4	100	11	15	28	34	39	10000	0.10	500
VHF060303H0N8 -T	0.8	4	100	10	15	27	34	38	10000	0.10	500
VHF060303H1N0 -T	1.0	4	100	9	13	24	30	34	10000	0.11	470
VHF060303H1N2 -T	1.2	4	100	9	13	24	30	34	10000	0.12	450
VHF060303H1N5 -T	1.5	4	100	10	14	24	30	34	10000	0.13	430
VHF060303H1N8 -T	1.8	4	100	10	14	24	30	33	10000	0.16	390
VHF060303H2N0 -T	2.0	4	100	9	13	23	29	32	10000	0.17	380
VHF060303H2N2 -T	2.2	4	100	9	13	22	28	31	8800	0.19	360
VHF060303H2N4 -T	2.4	4	100	9	13	22	29	32	8300	0.20	350
VHF060303H2N7 -T	2.7	4	100	10	14	23	29	31	7700	0.21	340
VHF060303H3N0 -T	3.0	4	100	10	14	24	31	33	7200	0.22	330
VHF060303H3N3 -T	3.3	4	100	10	14	23	29	31	6700	0.23	320
VHF060303H3N6 -T	3.6	4	100	9	13	21	27	29	6400	0.25	310
VHF060303H3N9 -T	3.9	4	100	10	14	24	29	32	6000	0.27	300
VHF060303H4N3 -T	4.3	4	100	9	13	22	27	29	5700	0.30	280
VHF060303H4N7 -T	4.7	4	100	10	15	23	29	30	5300	0.30	280
VHF060303H5N1 -T	5.1	4	100	9	13	20	26	27	5000	0.33	270
VHF060303H5N6 -T	5.6	4	100	11	15	22	28	29	4600	0.36	260
VHF060303H6N2 -T	6.2	4	100	10	13	20	25	26	4200	0.38	250
VHF060303H6N8 -T	6.8	4	100	10	14	21	26	25	3900	0.39	250
VHF060303H7N5 -T	7.5	4	100	9	13	20	26	26	3600	0.41	240
VHF060303H8N2 -T	8.2	4	100	10	13	19	24	24	3400	0.45	230
VHF060303H9N1 -T	9.1	4	100	11	12	17	22	22	3200	0.48	220
VHF060303H10N -T	10	4	100	10	13	18	22	21	2900	0.51	220
VHF060303H12N -T	12	4	100	11	14	19	23	20	2700	0.68	190
VHF060303H15N -T	15	4	100	10	14	15	18	14	2300	0.71	180
VHF060303H18N -T	18	4	100	9	15	12	13	-	2100	0.81	170
VHF060303H22N -T	22	4	100	10	15	10	-	-	1800	1.00	150
VHF060303H27N -T	27	4	100	10	15	-	-	-	1800	1.35	120
VHF060303H33N -T	33	4	100	10	15	-	-	-	1700	1.47	110
VHF060303H39N -T	39	4	100	10	12	-	-	-	1500	1.72	100
VHF060303H47N -T	47	4	100	10	12	-	-	-	1300	1.90	100
VHF060303H56N -T	56	4	100	10	9	-	-	-	1100	2.27	80
VHF060303H68N -T	68	4	100	10	9	-	-	-	1100	2.66	80
VHF060303H82N -T	82	4	100	10	8	-	-	-	1000	3.37	70
VHF060303HR10 -T	100	4	100	10	-	-	-	-	900	3.74	60
VHF060303HR12 -T	120	4	100	9	-	-	-	-	800	4.00	50

# 叠層片式高頻電感

## CHIP HIGH FREQUENCY INDUCTORS

### • 電性能參數 ELECTRICAL CHARACTERISTICS

0603 TYPE

型號 Part No.	電感量 Inductance (nH)	品質因數 Q (Min)	測試頻率 Test Fre. (MHz)	品質因數 測試頻率 Q Frequency (MHz)					自諧振頻率 SRF (MHz)Min	直流電阻 DC R ( $\Omega$ )Max	額定電流 I <sub>r</sub> (mA) Max
				500	800	1800	2000	2400			
VHF060303HQ0N6 $\square$ -T	0.6	13	500	23	31	54	56	65	10000	0.06	600
VHF060303HQ0N7 $\square$ -T	0.7	13	500	23	31	54	56	65	10000	0.06	550
VHF060303HQ0N8 $\square$ -T	0.8	13	500	23	31	54	56	65	10000	0.07	550
VHF060303HQ1N0 $\square$ -T	1.0	13	500	23	31	54	56	65	10000	0.08	520
VHF060303HQ1N1 $\square$ -T	1.1	13	500	18	25	45	46	55	10000	0.11	440
VHF060303HQ1N2 $\square$ -T	1.2	13	500	18	24	43	43	52	10000	0.12	440
VHF060303HQ1N4 $\square$ -T	1.4	13	500	18	23	39	40	47	10000	0.12	430
VHF060303HQ1N5 $\square$ -T	1.5	13	500	18	23	39	40	46	10000	0.12	420
VHF060303HQ1N6 $\square$ -T	1.6	13	500	18	23	39	40	46	10000	0.13	410
VHF060303HQ1N8 $\square$ -T	1.8	13	500	18	23	39	40	46	10000	0.15	380
VHF060303HQ2N0 $\square$ -T	2.0	13	500	16	23	38	38	44	10000	0.20	360
VHF060303HQ2N2 $\square$ -T	2.2	13	500	16	23	38	39	43	10000	0.20	350
VHF060303HQ2N4 $\square$ -T	2.4	13	500	16	22	36	37	42	10000	0.22	330
VHF060303HQ2N6 $\square$ -T	2.6	13	500	16	21	34	34	39	9400	0.22	320
VHF060303HQ2N7 $\square$ -T	2.7	13	500	16	21	34	34	39	9200	0.23	300
VHF060303HQ3N0 $\square$ -T	3.0	13	500	16	21	34	34	39	5600	0.26	280
VHF060303HQ3N3 $\square$ -T	3.3	13	500	17	22	34	35	40	8100	0.30	270
VHF060303HQ3N6 $\square$ -T	3.6	13	500	15	22	33	34	39	7700	0.38	240
VHF060303HQ3N9 $\square$ -T	3.9	13	500	15	21	33	34	38	7400	0.42	230
VHF060303HQ4N3 $\square$ -T	4.3	13	500	15	20	32	33	37	6800	0.44	220
VHF060303HQ4N7 $\square$ -T	4.7	13	500	15	21	33	34	38	6200	0.45	220
VHF060303HQ5N1 $\square$ -T	5.1	13	500	16	21	34	35	38	5900	0.46	210
VHF060303HQ5N6 $\square$ -T	5.6	13	500	15	20	33	33	37	5500	0.46	210
VHF060303HQ6N2 $\square$ -T	6.2	13	500	17	22	34	34	37	5100	0.48	210
VHF060303HQ6N8 $\square$ -T	6.8	13	500	16	21	32	32	35	4900	0.50	200
VHF060303HQ7N5 $\square$ -T	7.5	13	500	15	20	31	32	34	4700	0.50	200
VHF060303HQ8N2 $\square$ -T	8.2	13	500	15	20	31	31	34	4300	0.56	190
VHF060303HQ9N1 $\square$ -T	9.1	13	500	15	19	30	30	32	4100	0.72	170
VHF060303HQ10N $\square$ -T	10	13	500	15	19	28	28	31	3800	0.80	160
VHF060303HQ12N $\square$ -T	12	13	500	15	19	27	27	28	3400	0.80	160
VHF060303HQ15N $\square$ -T	15	13	500	14	18	24	23	23	2600	0.85	160
VHF060303HQ18N $\square$ -T	18	13	500	14	18	23	23	22	2300	1.00	140
VHF060303HQ22N $\square$ -T	22	13	500	14	18	22	22	20	1900	1.20	130
VHF060303HQ27N $\square$ -T	27	13	500	14	18	15	12	8	1800	1.60	120
VHF060303HQ33N $\square$ -T	33	13	300	13	14	8	4	-	1800	2.20	110
VHF060303HQ39N $\square$ -T	39	11	300	13	14	6	-	-	1600	2.30	100
VHF060303HQ47N $\square$ -T	47	11	300	13	14	-	-	-	1500	2.60	100
VHF060303HQ56N $\square$ -T	56	11	300	12	12	-	-	-	1400	2.80	80
VHF060303HQ68N $\square$ -T	68	11	300	12	10	-	-	-	1200	3.20	80
VHF060303HQ82N $\square$ -T	82	10	300	11	9	-	-	-	1100	3.80	70
VHF060303HQR10 $\square$ -T	100	10	300	11	9	-	-	-	1000	4.00	60
VHF060303HQR12 $\square$ -T	120	9	300	11	7	-	-	-	1000	5.00	50

## • 電性能參數 ELECTRICAL CHARACTERISTICS

1005TYPE

型號 Part No.	電感量 Inductance (nH)	品質因數 Q (Min)	測試頻率 Test Fre. (MHz)	品質因數 測試頻率 Q Frequency (MHz)					自諧振頻率 SRF (MHz)Min	直流電阻 DC R ( $\Omega$ )Max	額定電流 I <sub>r</sub> (mA) Max
				100	300	500	800	1000			
VHF100505H1N0□ T	1.0	8	100	11	19	18	34	36	10000	0.1	400
VHF100505H1N1□ T	1.1	8	100	11	19	18	34	36	10000	0.1	400
VHF100505H1N2□ T	1.2	8	100	11	19	18	34	36	10000	0.1	400
VHF100505H1N3□ T	1.3	8	100	11	19	18	34	36	10000	0.1	400
VHF100505H1N5□ T	1.5	8	100	11	19	18	34	36	6000	0.1	300
VHF100505H1N6□ T	1.6	8	100	11	19	18	32	35	6000	0.1	300
VHF100505H1N8□ T	1.8	8	100	11	19	18	30	34	6000	0.1	300
VHF100505H2N0□ T	2.0	8	100	10	18	17	29	33	6000	0.2	300
VHF100505H2N2□ T	2.2	8	100	10	18	17	29	33	6000	0.2	300
VHF100505H2N4□ T	2.4	8	100	10	18	17	29	32	6000	0.2	300
VHF100505H2N7□ T	2.7	8	100	10	18	17	29	32	6000	0.2	300
VHF100505H3N0□ T	3.0	8	100	10	18	17	29	32	6000	0.2	300
VHF100505H3N3□ T	3.3	8	100	10	18	17	29	32	6000	0.2	300
VHF100505H3N6□ T	3.6	8	100	10	18	17	28	31	4000	0.2	300
VHF100505H3N9□ T	3.9	8	100	10	18	17	28	31	4000	0.2	300
VHF100505H4N3□ T	4.3	8	100	10	18	17	28	31	4000	0.2	300
VHF100505H4N7□ T	4.7	8	100	10	18	17	28	31	4000	0.2	300
VHF100505H5N1□ T	5.1	8	100	10	18	17	28	30	4000	0.3	300
VHF100505H5N6□ T	5.6	8	100	10	18	17	28	30	4000	0.3	300
VHF100505H6N2□ T	6.2	8	100	10	18	17	27	30	3900	0.3	300
VHF100505H6N8□ T	6.8	8	100	10	18	17	27	30	3900	0.3	300
VHF100505H7N5□ T	7.5	8	100	10	18	17	27	30	3700	0.4	300
VHF100505H8N2□ T	8.2	8	100	10	18	17	27	30	3600	0.4	300
VHF100505H9N1□ T	9.1	8	100	10	18	17	27	30	3400	0.4	300
VHF100505H10N□ T	10	8	100	10	18	17	27	30	3200	0.4	300
VHF100505H12N□ T	12	8	100	10	18	17	26	29	2700	0.5	300
VHF100505H15N□ T	15	8	100	10	18	17	26	28	2300	0.5	300
VHF100505H18N□ T	18	8	100	10	18	17	25	27	2100	0.6	300
VHF100505H20N□ T	20	8	100	10	18	17	25	26	2000	0.6	300
VHF100505H22N□ T	22	8	100	10	18	17	25	25	1900	0.6	300
VHF100505H27N□ T	27	8	100	10	18	17	25	23	1600	0.7	300
VHF100505H33N□ T	33	8	100	10	18	17	22	22	1300	0.8	200
VHF100505H39N□ T	39	8	100	10	18	17	22	19	1200	1.0	200
VHF100505H43N□ T	43	8	100	10	18	17	21	16	1100	1.1	200
VHF100505H47N□ T	47	8	100	10	18	17	21	16	1000	1.1	200
VHF100505H56N□ T	56	8	100	10	18	17	18	13	750	1.2	200
VHF100505H68N□ T	68	8	100	10	18	17	18	9	750	1.4	180
VHF100505H82N□ T	82	8	100	10	18	17	13	-	750	2.4	150
VHF100505HR10□ T	100	8	100	10	18	17	12	-	700	2.6	150
VHF100505HR12□ T	120	8	100	10	18	17	-	-	600	2.8	150
VHF100505HR15□ T	150	8	100	10	18	17	-	-	550	3.2	100
VHF100505HR18□ T	180	8	100	10	18	-	-	-	500	3.7	100
VHF100505HR22□ T	220	8	100	12	20	-	-	-	450	4.0	100
VHF100505HR27□ T	270	8	100	12	20	-	-	-	400	4.5	100
VHF100505HR30□ T	300	6	50	12	20	-	-	-	350	7.0	50
VHF100505HR33□ T	330	6	50	8	16	-	-	-	350	7.0	50
VHF100505HR36□ T	360	6	50	8	-	-	-	-	300	7.5	50

• 電性能參數 ELECTRICAL CHARACTERISTICS

1608TYPE

型號 Part No.	電感量 Inductance (nH)	品質因數 Q (Min)	測試頻率 Test Fre. (MHz)	品質因數 測試頻率 Q Frequency (Mhz)					自諧振頻率 SRF (MHz)Min	直流電阻 DC R ( $\Omega$ )Max	額定電流 I <sub>r</sub> (mA) Max
				100	300	500	800	1000			
VHF160808H1N0S	1.0	8	100	14	20	30	35	50	10000	0.05	500
VHF160808H1N2S	1.2	8	100	14	20	30	35	50	10000	0.10	500
VHF160808H1N5S	1.5	8	100	14	22	37	38	68	10000	0.10	400
VHF160808H1N8S	1.8	8	100	14	21	33	35	61	9800	0.12	400
VHF160808H2N2S	2.2	8	100	14	26	40	39	60	7600	0.20	400
VHF160808H2N7S	2.7	8	100	12	23	27	37	47	7000	0.20	400
VHF160808H3N3S	3.3	8	100	12	23	27	36	47	6200	0.20	400
VHF160808H3N9S	3.9	8	100	12	25	28	38	47	5600	0.25	400
VHF160808H4N7S	4.7	8	100	12	26	30	38	49	4800	0.30	400
VHF160808H5N6S	5.6	8	100	12	26	29	35	34	4600	0.30	400
VHF160808H6N8S	6.8	8	100	12	23	27	35	40	4200	0.35	400
VHF160808H8N2J	8.2	8	100	12	22	26	33	39	3600	0.35	400
VHF160808H10NJ	10	8	100	13	25	31	38	45	3200	0.40	300
VHF160808H12NJ	12	8	100	13	24	28	35	39	2800	0.40	300
VHF160808H15NJ	15	8	100	13	22	27	34	40	2600	0.45	300
VHF160808H18NJ	18	8	100	13	24	28	35	38	2400	0.60	300
VHF160808H22NJ	22	8	100	15	27	32	38	43	2000	0.60	300
VHF160808H27NJ	27	8	100	14	26	29	36	44	1900	0.80	300
VHF160808H33NJ	33	8	100	14	26	29	35	34	1600	0.80	300
VHF160808H39NJ	39	8	100	14	22	25	28	28	1400	1.00	300
VHF160808H47NJ	47	8	100	15	25	29	30	25	1200	1.00	200
VHF160808H56NJ	56	8	100	17	28	31	31	25	1000	1.00	200
VHF160808H68NJ	68	8	100	17	22	24	25	15	900	1.00	200
VHF160808H82NJ	82	8	100	17	23	24	22	13	800	1.00	200
VHF160808HR10J	100	8	100	17	25	27	24	17	700	1.40	200
VHF160808HR12J	120	8	100	15	24	23			600	1.60	150
VHF160808HR15J	150	8	100	13	19				500	1.80	150
VHF160808HR18JT	180	8	100	13	19				500	1.80	150
VHF160808HR22JT	220	8	50	15					350	2.40	200
VHF160808HR27JT	270	8	50	16					350	2.60	150
VHF160808HR33JT	330	8	50	16					350	2.80	150

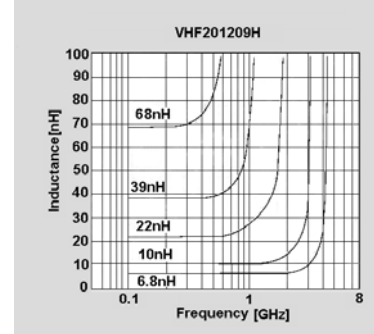
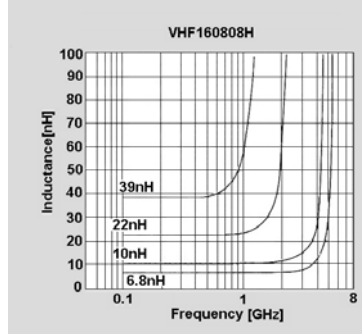
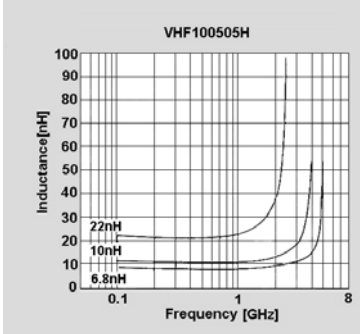
## 電性能參數 ELECTRICAL CHARACTERISTICS

### 2012TYPE

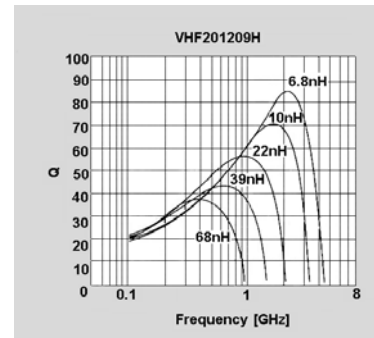
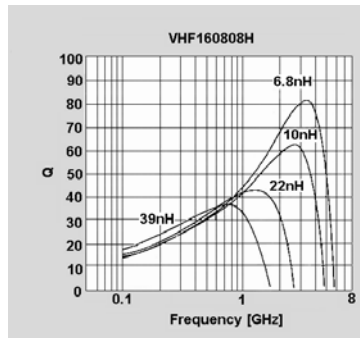
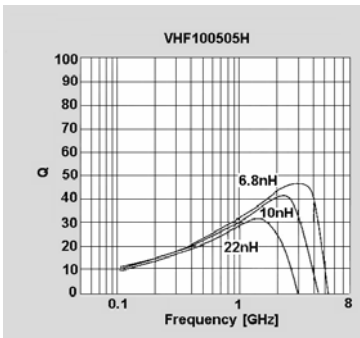
型號 Part No.	電感量 Inductance (nH)	品質因數 Q (Min)	測試頻率 Test Fre. (MHz)	品質因數 測試頻率 Q Frequency (MHz)					自諧振頻率 SRF (MHz)Min	直流電阻 DC R ( $\Omega$ )Max	額定電流 Ir(mA) Max
				100	300	500	800	1000			
VHF201209H1N5S	1.5	8	100	10	23	46	54	85	6000	0.10	600
VHF201209H1N8S	1.8	8	100	13	24	46	55	85	6000	0.10	600
VHF201209H2N2S	2.2	8	100	13	25	46	53	85	6000	0.10	600
VHF201209H2N7S	2.7	8	100	13	25	42	45	76	6000	0.10	600
VHF201209H3N3S	3.3	8	100	15	28	48	52	85	6000	0.13	600
VHF201209H3N9S	3.9	8	100	15	28	49	55	85	5400	0.15	600
VHF201209H4N7S	4.7	8	100	15	28	48	53	85	4500	0.20	400
VHF201209H5N6S	5.6	8	100	16	30	44	45	78	4000	0.23	400
VHF201209H6N8S	6.8	8	100	16	30	40	45	69	3650	0.25	400
VHF201209H8N2J	8.2	8	100	16	28	42	45	69	3000	0.28	400
VHF201209H10NJ	10	8	100	16	28	43	45	71	2500	0.30	300
VHF201209H12NJ	12	8	100	16	28	43	45	50	2450	0.35	300
VHF201209H15NJ	15	8	100	18	30	43	43	56	2000	0.40	300
VHF201209H18NJ	18	8	100	18	26	40	42	59	1750	0.45	300
VHF201209H22NJ	22	8	100	17	31	45	45	59	1700	0.50	300
VHF201209H27NJ	27	8	100	17	31	45	45	54	1550	0.55	300
VHF201209H33NJ	33	8	100	18	27	41	40	44	1350	0.60	300
VHF201209H39NJ	39	8	100	19	31	42	31	20	1300	0.70	300
VHF201209H47NJ	47	8	100	20	24	33	31	29	1200	0.80	300
VHF201209H56NJ	56	8	100	21	34	43	35	25	1150	0.80	300
VHF201209H68NJ	68	8	100	19	28	37	29		1000	0.85	300
VHF201209H82NJ	82	8	100	19	29	30	27		850	0.90	300
VHF201209HR10J	100	8	100	13	27	36			600	1.00	300
VHF201209HR12J	120	8	100	19	27				500	1.20	300
VHF201209HR15K	150	8	100	19	27				500	1.50	300
VHF201209HR18K	180	8	100	19	25				400	1.80	300
VHF201209HR22K	220	8	100	19	22				350	1.80	300

特性曲线 CHARACTERISTICS CURVES

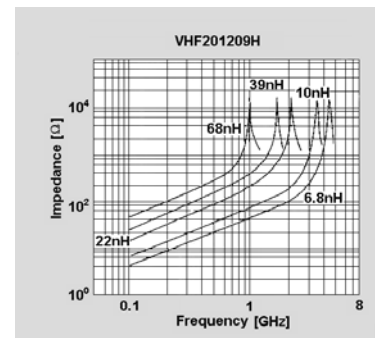
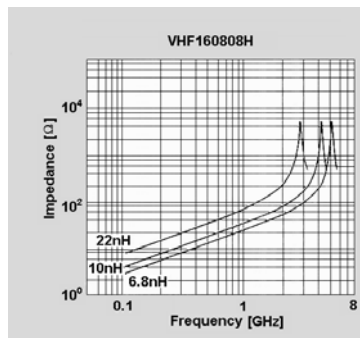
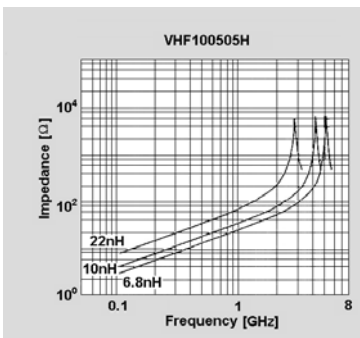
■ 电感量频率特性 Inductance VS. Frequency



■ Q值频率特性 Q Value VS. Frequency



■ 阻抗频率特性 Impedance VS. Frequency



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Fixed Inductors](#) category:*

*Click to view products by [Fenghua Advanced](#) manufacturer:*

Other Similar products are found below :

[MLZ1608M6R8WTD25](#) [MLZ1608N6R8LT000](#) [MLZ1608N3R3LTD25](#) [MLZ1608N3R3LT000](#) [MLZ1608N150LT000](#)

[MLZ1608M150WTD25](#) [MLZ1608M3R3WTD25](#) [MLZ1608M3R3WT000](#) [MLZ1608M150WT000](#) [MLZ1608A1R5WT000](#)

[MLZ1608N1R5LT000](#) [B82432C1333K000](#) [PCMB053T-1R0MS](#) [PCMB053T-1R5MS](#) [PCMB104T-1R5MS](#) [CR32NP-100KC](#) [CR32NP-](#)

[151KC](#) [CR32NP-180KC](#) [CR32NP-181KC](#) [CR32NP-1R5MC](#) [CR32NP-390KC](#) [CR32NP-3R9MC](#) [CR32NP-680KC](#) [CR32NP-820KC](#)

[CR32NP-8R2MC](#) [CR43NP-390KC](#) [CR43NP-560KC](#) [CR43NP-680KC](#) [CR54NP-181KC](#) [CR54NP-470LC](#) [CR54NP-820KC](#) [CR54NP-8R5MC](#)

[MGDQ4-00004-P](#) [MGDU1-00016-P](#) [MHL1ECTTP18NJ](#) [MHL1JCTTD12NJ](#) [PE-51506NL](#) [PE-53601NL](#) [PE-53630NL](#) [PE-53824SNLT](#) [PE-](#)

[62892NL](#) [PE-92100NL](#) [PG0434.801NLT](#) [PG0936.113NLT](#) [PM06-2N7](#) [PM06-39NJ](#) [HC2LP-R47-R](#) [HC2-R47-R](#) [HC3-2R2-R](#) [HC8-1R2-R](#)