

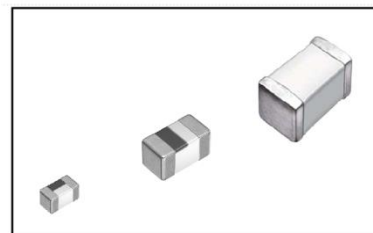
■车规叠层片式高频电感器

Automotive Grade Multilayer Chip High Frequency Ceramic Inductors

◆特征

Feature

- * 高自谐振频率
High self-resonant frequency.
- * 叠层独石结构, 具有高可靠性
Multilayer monolithic construction yields high reliability.
- * 优良的可焊性及耐热冲击性, 适合回流焊
Superior solderability and resistance to soldering heat, suitable for reflow soldering.
- * 通过 AEC-Q200 符合性测试
Pass AEC-Q200 compliance test.



◆应用

Application

- * 汽车多媒体和无线连接系统、车身与舒适系统。
Automotive multimedia, wireless connection system and body comfort system.

◆型号表示法

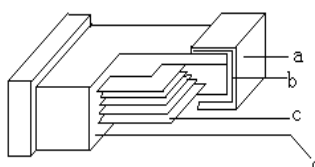
Part Number

AHF	060303	HQ	3N3	S	T	02
①	②	③	④	⑤	⑥	⑦

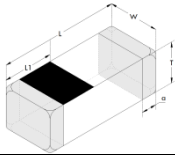
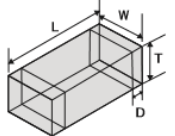
① 产品代号 Product Code		② 规格尺寸(L×W×T) Dimensions (mm)		③ 材 料 代 号 Material Code	④ 感量(nH) Inductance		⑤ 误差 Tolerance		⑥ 包装方式 Packaging Style		⑦ 内部代号 Internal code
AHF	车规叠层片式 高频电感器 Automotive Grade Multilayer Chip High Frequency Ceramic Inductors	060303	0.6×0.3×0.3	H HQ	示 例 Example		B	±0.1nH	T	卷带盘装 Tape & Reel	02
		100505	1.0×0.5×0.5		1N0	1.0	C	±0.2nH	B	散 装 Bulk	
		160808	1.6×0.8×0.8		10N	10	S	±0.3nH			
		201209	2.0×1.2×0.9		R10	100	G	±2%			
					N=0.0(nH)		H	±3%	J	±5%	
				R=0.0(μH)							

◆产品结构 Product Structure

- 镀层 Ni/Sn plating
- 银层 Ag layer
- 内电极 Inner electrode
- 瓷体 Body



◆规格尺寸
Dimension

Part No	L(mm)	W(mm)	T(mm)	D(mm)	
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±0.1 (0.010±0.004)	
160808 (0603)	1.6±0.20 (0.063±0.008)	0.8±0.20 (0.031±0.008)	0.8±0.20 (0.031±0.008)	0.3±0.2 (0.01±0.008)	
201209 (0805)	2.0±0.20 (0.079±0.008)	1.2±0.20 (0.047±0.008)	0.9±0.20 (0.035±0.008)	0.5±0.3 (0.020±0.012)	

◆电性能参数
Electrical Characteristics

* 补偿值表 The compensation value table.

产品系列 Product series	电感量范围 Inductance range	测试频率 Test Frequency	电感量范围 Inductance range	补偿值 Compensation value	测试仪器和夹具 Testing instruments and fixtures
AHF060303HQ-T03	$0N6 \leq L_s < 33N$	500MHZ	$0N6 \leq L_s < 33N$	0.48nH	E4892A+16197A
	$L_s \geq 33nH$	300MHZ	$L_s \geq 33N$	0.48nH	E4892A+16197A
AHF100505HQ	全系列	100MHZ	全系列	0 nH	E4892A+16197A
AHF160808H	全系列	100MHZ	全系列	0 nH	E4892A+16196B
AHF201209H	$L_s < 120nH$	100MHZ	$L_s \leq 39N$	0 nH	E4892A+16197A
			$39N < L_s \leq 68N$	-1 nH	E4892A+16197A
			$75N < L_s < R12$	-2 nH	E4892A+16197A
	$L_s < 120nH$	50MHZ	$L_s = R12$	-2 nH	E4892A+16197A
			$R15 \leq L_s \leq R18$	-4 nH	E4892A+16197A
			$L_s = R22$	-5 nH	E4892A+16197A
			$L_s = R27$	-8 nH	E4892A+16197A
			$L_s = R33$	-9 nH	E4892A+16197A
			$L_s = R39$	-11 nH	E4892A+16197A
			$L_s = R47$	-13 nH	E4892A+16197A

说明 Explain:

产品测试值=标称值-补偿值 Test values=Nominal inductance-Compensation value

如: AHF060303HQ1N0ST02, 其感量标称值是 1.0nH, 补偿值是 0.48nH, 则实际测试中心值是 0.52nH。

0.52nH (测试值) = 1.0nH (标称值) - 0.48nH (补偿值)。

For example : AHF060303HQ1N0ST02, The nominal inductance of its inductance is 1.0nH, the compensation value is 0.48nH, and the actual test center value is 0.52nH.

0.52nH (Test values) = 1.0nH (Nominal inductance) - 0.48nH (Compensation value)。

* 感量和品质因素测试条件: E4982A 或相同仪器, 测试电压 $50\text{mV} \pm 5\text{mV}$, 温度 $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$, 湿度 $25\% \sim 75\%$ 。

Inductance and Q testing conditions: E4982A or equivalent, test voltage $50\text{mV} \pm 5\text{mV}$, Temperature $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$, Humidity $25\% \sim 75\%$.

* 直流电阻测试条件: RM3542A 或相同仪器, 温度 $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$, 湿度 $25\% \sim 75\%$ 。

RDC Testing conditions: RM3542A or equivalent, Temperature $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$, Humidity $25\% \sim 75\%$.

* 额定电流: 施加额定电流, 产品表面温升不超过 40°C 。

Rated current: Apply the rated current, and the surface temperature rise of the product shall not exceed 40°C .

AHF0603HQ-T03 Type

* ☐ 表示感量公差 Represents inductance tolerance:

$L_s \leq 4.2\text{nH}$, ☐ 请选择 "B/C/S" 级; $4.2\text{nH} < L_s \leq 5.6\text{nH}$, ☐ 请选择 "H/J/S" 级; $L_s \geq 5.6\text{nH}$, ☐ 请选择 "H/J" 级。

For $L_s \leq 4.2\text{nH}$, ☐ choose "B/C/S"; $4.2\text{nH} < L_s < 5.6\text{nH}$, ☐ choose "H/J/S"; $L_s \geq 5.6\text{nH}$, ☐ choose "H/J".

型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHz)min	额定电流 Ir (mA)Max
AHF060303HQ0N6 <input type="checkbox"/> T03	0.6	14	500	0.05	20000	850
AHF060303HQ0N7 <input type="checkbox"/> T03	0.7	14	500	0.05	20000	800
AHF060303HQ0N8 <input type="checkbox"/> T03	0.8	14	500	0.06	18000	800
AHF060303HQ0N9 <input type="checkbox"/> T03	0.9	14	500	0.06	18000	750
AHF060303HQ1N0 <input type="checkbox"/> T03	1.0	14	500	0.07	17000	750
AHF060303HQ1N1 <input type="checkbox"/> T03	1.1	14	500	0.07	17000	750
AHF060303HQ1N2 <input type="checkbox"/> T03	1.2	14	500	0.1	17000	750
AHF060303HQ1N3 <input type="checkbox"/> T03	1.3	14	500	0.1	17000	600
AHF060303HQ1N4 <input type="checkbox"/> T03	1.4	14	500	0.1	16000	600
AHF060303HQ1N5 <input type="checkbox"/> T03	1.5	14	500	0.1	15000	600
AHF060303HQ1N6 <input type="checkbox"/> T03	1.6	14	500	0.1	15000	600
AHF060303HQ1N7 <input type="checkbox"/> T03	1.7	14	500	0.1	15000	600
AHF060303HQ1N8 <input type="checkbox"/> T03	1.8	14	500	0.15	15000	600
AHF060303HQ1N9 <input type="checkbox"/> T03	1.9	14	500	0.15	12500	600
AHF060303HQ2N0 <input type="checkbox"/> T03	2.0	14	500	0.15	12500	600
AHF060303HQ2N1 <input type="checkbox"/> T03	2.1	14	500	0.15	11000	600
AHF060303HQ2N2 <input type="checkbox"/> T03	2.2	14	500	0.15	11000	600
AHF060303HQ2N3 <input type="checkbox"/> T03	2.3	14	500	0.15	10000	500
AHF060303HQ2N4 <input type="checkbox"/> T03	2.4	14	500	0.15	10000	500
AHF060303HQ2N5 <input type="checkbox"/> T03	2.5	14	500	0.15	10000	500
AHF060303HQ2N6 <input type="checkbox"/> T03	2.6	14	500	0.2	10000	500
AHF060303HQ2N7 <input type="checkbox"/> T03	2.7	14	500	0.2	10000	500
AHF060303HQ2N8 <input type="checkbox"/> T03	2.8	14	500	0.2	9500	500
AHF060303HQ2N9 <input type="checkbox"/> T03	2.9	14	500	0.2	9500	500
AHF060303HQ3N0 <input type="checkbox"/> T03	3.0	14	500	0.2	9500	450
AHF060303HQ3N1 <input type="checkbox"/> T03	3.1	14	500	0.2	8500	450
AHF060303HQ3N2 <input type="checkbox"/> T03	3.2	14	500	0.2	8200	450
AHF060303HQ3N3 <input type="checkbox"/> T03	3.3	14	500	0.25	8100	450
AHF060303HQ3N4 <input type="checkbox"/> T03	3.4	14	500	0.25	8000	450

型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHZ)min	额定电流 Ir (mA)Max
AHF060303HQ3N5□T03	3.5	14	500	0.25	7900	450
AHF060303HQ3N6□T03	3.6	14	500	0.25	7700	400
AHF060303HQ3N7□T03	3.7	14	500	0.25	7600	400
AHF060303HQ3N8□T03	3.8	14	500	0.25	7500	400
AHF060303HQ3N9□T03	3.9	14	500	0.25	7400	400
AHF060303HQ4N3□T03	4.3	14	500	0.35	6800	350
AHF060303HQ4N7□T03	4.7	14	500	0.4	6200	350
AHF060303HQ5N1□T03	5.1	14	500	0.4	5900	350
AHF060303HQ5N6□T03	5.6	14	500	0.4	5500	350
AHF060303HQ6N2□T03	6.2	14	500	0.4	5100	300
AHF060303HQ6N8□T03	6.8	14	500	0.5	5500	300
AHF060303HQ7N5□T03	7.5	14	500	0.5	4700	300
AHF060303HQ8N2□T03	8.2	14	500	0.5	4300	250
AHF060303HQ9N1□T03	9.1	14	500	0.7	4100	250
AHF060303HQ10N□T03	10	14	500	0.7	3800	250
AHF060303HQ12N□T03	12	13	500	0.7	3400	250
AHF060303HQ15N□T03	15	13	500	0.7	2600	250
AHF060303HQ18N□T03	18	13	500	0.8	2300	200
AHF060303HQ20N□T03	20	13	500	1.2	2200	150
AHF060303HQ22N□T03	22	13	500	1.2	2200	150
AHF060303HQ24N□T03	24	13	500	1.6	2200	150
AHF060303HQ27N□T03	27	13	500	1.6	2000	140
AHF060303HQ30N□T03	30	11	500	2.3	2000	140
AHF060303HQ33N□T03	33	11	300	2.3	2000	120
AHF060303HQ36N□T03	36	11	300	2.3	1600	120
AHF060303HQ39N□T03	39	11	300	2.3	1600	120
AHF060303HQ43N□T03	43	11	300	2.6	1500	100
AHF060303HQ47N□T03	47	11	300	2.6	1500	100
AHF060303HQ51N□T03	51	11	300	2.8	1500	100
AHF060303HQ56N□T03	56	11	300	2.8	1400	100
AHF060303HQ62N□T03	62	11	300	3.2	1200	100
AHF060303HQ68N□T03	68	11	300	3.2	1200	100
AHF060303HQ75N□T03	75	10	300	3.8	1100	100
AHF060303HQ82N□T03	82	10	300	3.8	1100	100
AHF060303HQ91N□T03	91	10	300	4	1000	80
AHF060303HQR10□T03	100	10	300	4	1000	80
AHF060303HQR11□T03	110	9	300	5	1000	80
AHF060303HQR12□T03	120	9	300	5	1000	80

AHF1005HQ Type

□表示感量公差 Represents inductance tolerance:

$L_s \leq 6.2\text{nH}$, □请选择“B/C/S”级; $L_s > 6.2\text{nH}$, □请选择“G/H/J”级。For $L_s \leq 6.2\text{nH}$, □choose “B/C/S”; $L_s > 6.2\text{nH}$, □choose “G/H/J”.

型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHZ)min	额定电流 Ir (mA)Max
AHF100505HQ1N0□T	1.0	8	100	0.06	10000	1000
AHF100505HQ1N1□T	1.1	8	100	0.07	10000	1000
AHF100505HQ1N2□T	1.2	8	100	0.07	10000	1000
AHF100505HQ1N3□T	1.3	8	100	0.07	10000	1000
AHF100505HQ1N5□T	1.5	8	100	0.08	6000	1000
AHF100505HQ1N6□T	1.6	8	100	0.08	6000	1000
AHF100505HQ1N8□T	1.8	8	100	0.08	6000	900
AHF100505HQ2N0□T	2.0	8	100	0.09	6000	900
AHF100505HQ2N2□T	2.2	8	100	0.09	6000	900
AHF100505HQ2N4□T	2.4	8	100	0.10	6000	800
AHF100505HQ2N7□T	2.7	8	100	0.12	6000	800
AHF100505HQ3N0□T	3.0	8	100	0.12	6000	800
AHF100505HQ3N3□T	3.3	8	100	0.13	6000	800
AHF100505HQ3N6□T	3.6	8	100	0.15	4000	700
AHF100505HQ3N9□T	3.9	8	100	0.16	4000	700
AHF100505HQ4N3□T	4.3	8	100	0.16	4000	700
AHF100505HQ4N7□T	4.7	8	100	0.16	4000	700
AHF100505HQ5N1□T	5.1	8	100	0.16	4000	600
AHF100505HQ5N6□T	5.6	8	100	0.20	4000	600
AHF100505HQ6N2□T	6.2	8	100	0.20	3900	600
AHF100505HQ6N8□T	6.8	8	100	0.20	3900	600
AHF100505HQ7N5□T	7.5	8	100	0.24	3700	500
AHF100505HQ8N2□T	8.2	8	100	0.24	3600	500
AHF100505HQ9N1□T	9.1	8	100	0.26	3400	500
AHF100505HQ10N□T	10	8	100	0.26	3200	500
AHF100505HQ12N□T	12	8	100	0.50	2700	400
AHF100505HQ15N□T	15	8	100	0.50	2300	400
AHF100505HQ18N□T	18	8	100	0.60	2100	350
AHF100505HQ20N□T	20	8	100	0.60	2000	350
AHF100505HQ22N□T	22	8	100	0.60	1900	350
AHF100505HQ27N□T	27	8	100	0.70	1600	300
AHF100505HQ33N□T	33	8	100	0.80	1300	300

型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHZ)min	额定电流 Ir (mA)Max
AHF100505HQ39□T	39	8	100	1.00	1200	250
AHF100505HQ43N□T	43	8	100	1.10	1100	250
AHF100505HQ47N□T	47	8	100	1.10	1000	250
AHF100505HQ56N□T	56	8	100	1.20	750	200
AHF100505HQ68N□T	68	8	100	1.40	750	200
AHF100505HQ82N□T	82	8	100	1.60	750	200
AHF100505HQR10□T	100	8	100	2.00	700	200
AHF100505HQR12□T	120	8	100	2.50	600	150
AHF100505HQR15□T	150	8	100	3.00	550	150
AHF100505HQR18□T	180	8	100	3.50	500	150
AHF100505HQR22□T	220	8	100	3.70	450	100
AHF100505HQR27□T	270	8	100	4.50	400	100
AHF100505HQR33□T	330	6	50	5.00	350	80
AHF100505HQR36□T	360	6	50	6.00	300	80

AHF1608H Type

□表示感量公差 Represents inductance tolerance:

Ls<6.8nH, □请选择“S/D”级; Ls≥6.8nH, □请选择“J/K”级. For Ls<6.8nH, □choose “S/D”; Ls≥6.8nH, □choose “J/K”.

型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHZ)min	额定电流 Ir (mA)Max
AHF160808H1N0□T	1.0	8	100	0.05	10000	500
AHF160808H1N2□T	1.2	8	100	0.05	10000	500
AHF160808H1N5□T	1.5	8	100	0.10	6000	500
AHF160808H1N8□T	1.8	8	100	0.10	6000	500
AHF160808H2N0□T	2.0	8	100	0.10	6000	500
AHF160808H2N2□T	2.2	8	100	0.10	6000	500
AHF160808H2N4□T	2.4	10	100	0.12	6000	500
AHF160808H2N7□T	2.7	10	100	0.12	6000	500
AHF160808H3N3□T	3.3	10	100	0.15	6000	500
AHF160808H3N6□T	3.6	10	100	0.16	6000	500
AHF160808H3N9□T	3.9	10	100	0.16	6000	500
AHF160808H4N3□T	4.3	10	100	0.18	6000	500
AHF160808H4N7□T	4.7	10	100	0.20	6000	500
AHF160808H5N1□T	5.1	10	100	0.25	5500	500
AHF160808H5N6□T	5.6	10	100	0.25	5000	500
AHF160808H6N8□T	6.8	10	100	0.30	5000	500

型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHZ)min	额定电流 Ir (mA)Max
AHF160808H7N5□T	7.5	10	100	0.35	4500	500
AHF160808H8N2□T	8.2	10	100	0.35	4500	500
AHF160808H9N1□T	9.1	10	100	0.40	3500	300
AHF160808H10N□T	10	12	100	0.40	3500	300
AHF160808H12N□T	12	12	100	0.45	3000	300
AHF160808H15N□T	15	12	100	0.50	2300	300
AHF160808H18N□T	18	12	100	0.55	2200	300
AHF160808H22N□T	22	12	100	0.60	2000	300
AHF160808H27N□T	27	12	100	0.65	1700	300
AHF160808H33N□T	33	12	100	0.70	1500	300
AHF160808H39N□T	39	12	100	0.70	1400	300
AHF160808H47N□T	47	12	100	0.70	1200	300
AHF160808H56N□T	56	12	100	0.75	1100	300
AHF160808H68N□T	68	12	100	0.85	900	300
AHF160808H82N□T	82	8	100	1.00	800	300
AHF160808HR10□T	100	8	100	1.20	700	300
AHF160808HR12□T	120	8	50	1.40	600	200
AHF160808HR15□T	150	8	50	1.60	500	200
AHF160808HR18□T	180	8	50	1.90	400	200
AHF160808HR22□T	220	8	50	2.40	350	200
AHF160808HR27□T	270	8	50	2.60	350	150
AHF160808HR33□T	330	8	50	2.80	350	150
AHF160808HR39□T	390	8	50	3.20	300	150
AHF160808HR43□T	430	8	50	3.40	280	150
AHF160808HR47□T	470	8	50	3.60	250	150

AHF2012H Type

□表示感量公差 Represents inductance tolerance:

Ls<6.8nH,□请选择"S/D"级; Ls≥6.8nH, □请选择"J/K"级.For Ls<6.8nH,□choose "S/D";Ls≥6.8nH,□choose "J/K".

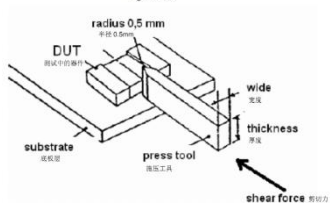
型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHZ)min	额定电流 Ir (mA)Max
AHF201209H1N5□T	1.5	10	100	0.10	6000	500
AHF201209H1N8□T	1.8	10	100	0.10	6000	500
AHF201209H2N2□T	2.2	10	100	0.10	6000	500
AHF201209H2N7□T	2.7	12	100	0.10	5500	500
AHF201209H3N3□T	3.3	12	100	0.13	5000	500

型号 Part NO	标称感量 Inductance (nH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHZ)min	额定电流 Ir (mA)Max
AHF201209H3N9□T	3.9	12	100	0.15	4500	500
AHF201209H4N7□T	4.7	12	100	0.20	4000	500
AHF201209H5N6□T	5.6	15	100	0.23	3500	500
AHF201209H6N8□T	6.8	15	100	0.25	3000	500
AHF201209H8N2□T	8.2	15	100	0.28	2500	500
AHF201209H10N□T	10	15	100	0.30	2200	500
AHF201209H12N□T	12	15	100	0.35	2000	500
AHF201209H15N□T	15	15	100	0.40	1800	500
AHF201209H18N□T	18	15	100	0.45	1600	300
AHF201209H22N□T	22	15	100	0.50	1500	300
AHF201209H27N□T	27	15	100	0.55	1400	300
AHF201209H33N□T	33	15	100	0.60	1300	300
AHF201209H39N□T	39	15	100	0.65	1100	300
AHF201209H47N□T	47	18	100	0.70	1000	300
AHF201209H56N□T	56	18	100	0.75	900	300
AHF201209H68N□T	68	18	100	0.80	850	300
AHF201209H82N□T	82	18	100	0.90	800	300
AHF201209HR10□T	100	18	100	0.90	700	300
AHF201209HR12□T	120	13	50	0.95	600	300
AHF201209HR15□T	150	13	50	1.20	550	300
AHF201209HR18□T	180	13	50	1.30	500	300
AHF201209HR22□T	220	12	50	1.50	400	300
AHF201209HR27□T	270	12	50	1.80	350	300
AHF201209HR33□T	330	12	50	2.00	300	300
AHF201209HR39□T	390	10	50	2.00	250	300
AHF201209HR47□T	470	10	50	2.00	200	300

◆可靠性测试方法
Reliability Test Method

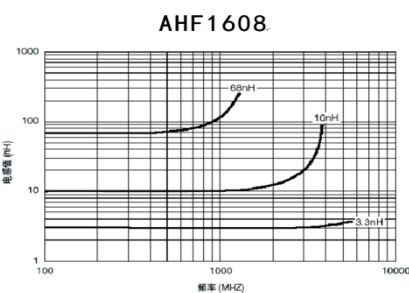
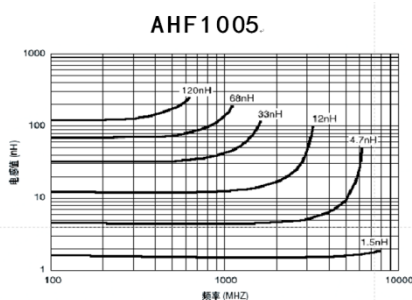
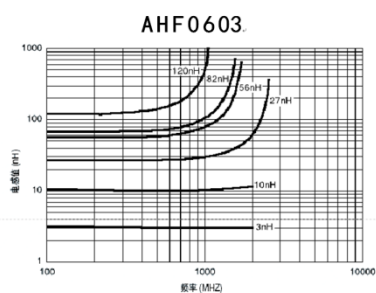
序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
1	工作温度范围 Operating Temperature Range	-55℃~+125℃	/
2	可焊性 Solder ability	无可见损伤; 电极面 95%以上覆盖新的焊料。 95% or more of electrode area shall be coated by new solder.	焊槽法; 无铅焊锡; 温度 (245±5) °C; 浸渍时间 (3±0.3) s。 Solder bath; Lead-free solder; Temperature (245±5) °C; Immersion timer (3±0.3) seconds.
3	耐焊接热 Resistance to Soldering Heat	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	方法 1: 焊槽法; 温度 (260±5) °C; 浸渍时间 (10±1) s。 Method 1: Solder bath; Temperature (260±5) °C; Immersion timer (10±1) seconds. 方法 2: 三次回流焊。 Method 2: 3 reflow soldering.
4	弯曲 Board flex	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	电感器安装在厚 1.6mm 环氧玻璃布板上, 以 1mm/s 的速度向下弯曲 2mm; 维持时间 60s±5s。 The testing samples shall be mounted on a 100mm×40mm FR4 PCB board, which is 1.6mm±0.2mm thick. Bending shall be applied to the 2.0mm with 1.0mm/sec; Duration: 60±5s.
5	振动 Vibration	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	频率 10Hz~2000Hz; 加速度 5g; 一个循环 20 分钟; X、Y、Z 三个方向每个方向 12 个循环, 共 36 个循环; The entire frequency range of 10 to 2000 Hz and return to 10 Hz shall be traversed in 20 minutes. This cycle shall be preformed 12 time in each of three mutually perpendicular directions (total of 36 times), so that the motion shall be applied for a total period of approximately 12 hours. Peak value 5g.
6	高温存储 High Temperature Exposure (Storage)	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	温度 125℃; 不通电; 持续时间 1000h; 试验结束后 (24±4)h 内进行电性能测量。 Temperature 125℃; Unpowered; Duration 1000h; Measurement at (24±4) hours after test conclusion.

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
7	偏高湿度(高温高湿) Biased Humidity	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	温度 85℃; 湿度 85RH%; 持续时间 1000 小时, 不通电。 试验结束后 24±4 小时内进行测试。 Temperature 85℃; Relative humidity 85%; Duration 1000 h; Unpowered. Measurement at 24±4 hours after test conclusion.
8	工作寿命 Operational Life	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	温度 125℃; 施加电流: 额定电流; 持续时间: 1000 小时。 试验结束后 24±4 小时内进行测试。 Temperature 125℃; Test current: Rated current; Duration 1000 h; Measurement at 24±4 hours after test conclusion.
9	温度循环 Temperature Cycling	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	高温 125℃; 低温 -55℃; 高、低温下暴露时间各 30 分钟; 转换时间 ≤ 1min; 循环次数 1000 次。 试验结束后 24±4 小时内进行测试。 High Temperature +125℃; low temperature -55℃; Duration at each temperature 30 min; Transition time ≤ 1 min. Severity 1000 cycles; Measurement at 24±4 hours after test conclusion.
10	机械冲击 Mechanical Shock	无可见损伤; 电感量: $\Delta L/L \leq \pm 10\%$; Q 值: $\Delta Q/Q \leq \pm 20\%$ 。 No Visible damage; Inductance: $\Delta L/L \leq \pm 10\%$; Q: $\Delta Q/Q \leq \pm 20\%$ 。	正半弦波; 峰值加速度 100g; 脉冲持续时间 6ms; 三轴六向各 3 次, 共 18 次。 Half sine wave. Peak value 100g. Normal duration 6 ms; Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks)

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
11	端子强度 Terminal Strength (SMD)	无可见电极损伤和电极脱落; No visible electrode damage or electrode detachment.	<p>试样安装在环氧玻璃布板上, 施加 0603 规格: 2N, 1005 规格: 5N, ≥ 1608 规格: 17.7N 的力到试样的侧面, 保持 $60s \pm 1s$。</p> <p>The testing samples shall be mounted on the testing epoxy boards, exerting force on side of the samples, Size 0603: 2N ; Size 1005: 5N ; \geq Size 1608: 17.7N,</p> <p>Figure 1 图1</p>  <p>Duration $60s \pm 1s$。</p>

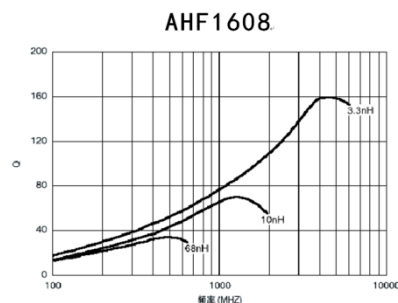
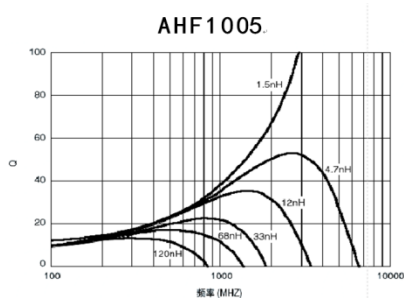
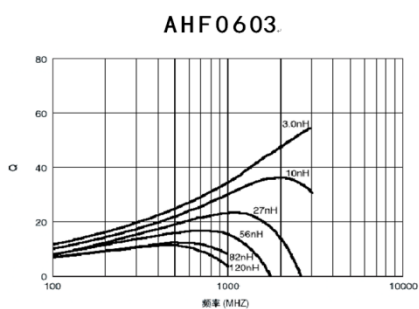
◆感量-频率特性

Inductance Vs. Frequency Characteristics



◆Q 值-频率特性

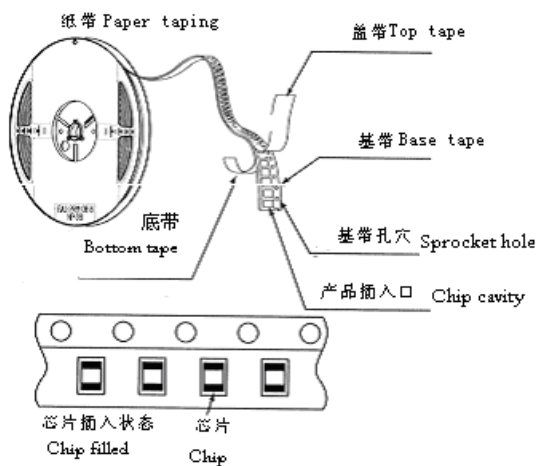
Q Value Vs. Frequency Characteristics



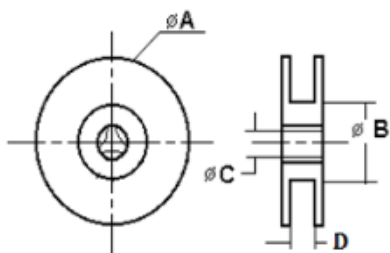
◆包装

Packaging

● 编带图 aping drawings



● 卷盘尺寸 Reel dimensions (Unit: mm)

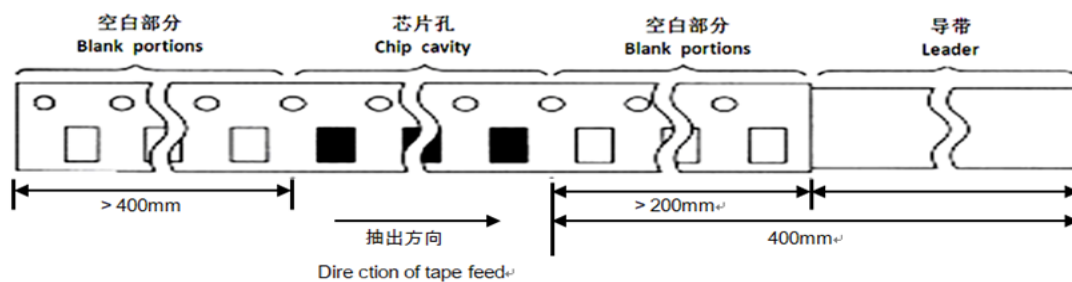


型号 Size	A	B	C	D
7 inch	178±2.0	60±2.0	13.0±1.0	9.5±2.0

说明：7 inch 适用 060303、100505、160808、201209、321609、322513、451616 尺寸。

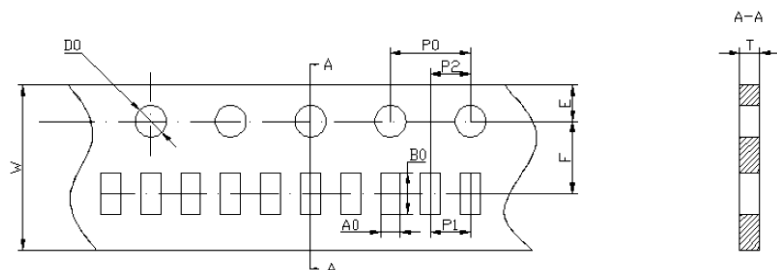
Note: 7 inch is available in 060303, 100505, 160808, 201209, 321609, 322513, 451616 sizes.

● 导带及空格部分 Leader and blank portion



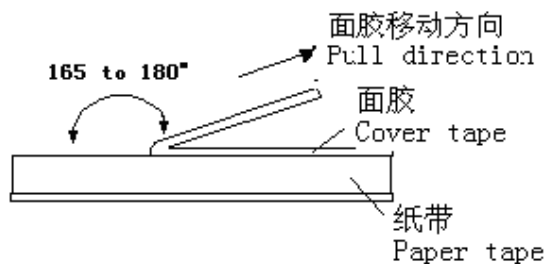
● 编带尺寸 Taping dimensions (Unit: mm)

* 纸带 Paper tape



Part NO.	A0	B0	W	F	E	P1	P2	P0	D0	T
060303	0.38±0.03	0.68±0.03	8.00±0.10	3.50±0.05	1.75±0.05	2.00±0.05	2.00±0.05	4.00±0.10	1.55±0.05	0.42±0.03
100505	0.59±0.10	1.12±0.10	8.00±0.20	3.50±0.10	1.75±0.20	2.00±0.10	2.00±0.10	4.00±0.20	1.55±0.10	0.60±0.10
160808	1.05±0.20	1.85±0.20	8.00±0.20	3.50±0.10	1.75±0.20	2.00±0.20	2.00±0.10	4.00±0.20	1.55±0.10	0.95±0.10
201209	1.45±0.20	2.35±0.20	8.00±0.20	3.50±0.10	1.75±0.20	2.00±0.20	2.00±0.10	4.00±0.20	1.55±0.10	0.95±0.10

*** 剥离力检验 Peeling off force**



(1) 盖带的剥离力：沿面胶移动方向拉时要求剥离力为 0.1N~0.7N。

Peeling force should be 0.1~0.7N pulling in the direction of arrow.

(2) 剥离速度：300mm/min。

Speed of peeling off: 300mm/min.

(3) 在纸带剥落时，面胶不能有破损，不能粘纸带。

The cover bond should not be damaged and bond the tape when it peeled off.

● 包装数量（单位：粒）Packaging number (Unit: Pcs)

型号 Size	201209	160808	100505	060303
每卷数量 REEL	4000	4000	10000	15000
每盒数量 BOX	40000	40000	100000	150000
每箱数量 CASE	240000	240000	600000	900000

● 标签粘贴位置 Label stick station

卷盘标签 Reel label	纸盒标签 Carton label	纸盒标签 Carton label	外箱标签 Outer box label
			

◆推荐焊接条件 Recommend Soldering Conditions

● 焊接条件 Soldering Conditions

* 产品适用于回流焊 Products can be applied to reflow soldering.

* 焊接要求

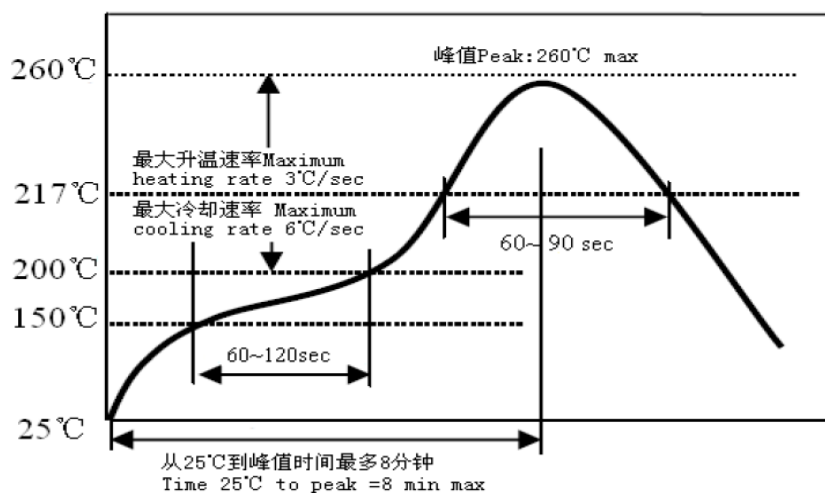
(1) 预热时, 产品表温与焊料温度的温差最大不允许超出 150°C , 焊接完冷却时, 产品表温与溶剂温度之间的温差最大不超过 100°C 。预热不足有可能引发产品表面裂纹, 从而导致产品品质下降。

Pre-heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150°C max. Also cooling into solvent after soldering should be in such way that the temperature difference is limited to 100°C max. Un-enough pre-heating may cause cracks on the ferrite, resulting in the deterioration of product quality.

(2) 产品要在以下画出的曲线允许的范围进行焊接。其它焊接条件可能引起产品电极的腐蚀。当焊接重复时, 允许的时间为第一次做的累计时间。

Products should be soldered within the following allowable range indicated by the slanted line. The excessive soldering conditions may cause the corrosion of the electrode. When soldering is repeated, allowable time is the accumulated time.

● 回流焊曲线 Reflow soldering profile



(1) 预热条件: $150 \sim 200^{\circ}\text{C} / 60 \sim 120$ 秒; PREHEAT CONDITION: $150 \sim 200^{\circ}\text{C} / 60 \sim 120\text{SEC}$

(2) 允许大于 217°C 时间: 60—90 秒; ALLOWED TIME ABOVE 217°C : 60~90SEC

(3) 最大温度: 260°C ; MAX TEMP: 260°C

(4) 最高温的最大时间: 10 秒; MAX TIME AT MAX TEMP: 10 SEC

(5) 焊膏: $\text{SN}/3.0\text{Ag}/0.5\text{Cu}$; SOLDER PASTE: $\text{SN}/3.0\text{Ag}/0.5\text{Cu}$

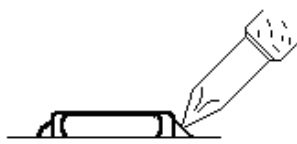
(6) 回流焊次数: 最多 2 次; ALLOWED REFLOW TIME: 2X MAX

● 手工焊接 Iron soldering

烙铁温度: 350°C Perform soldering at 350°C on 30W max

功率: 最大为 30W Time: < 5S

烙铁停留时间: < 5S (注意不要将烙铁碰到产品端电极) Take care not to apply the tip of the soldering iron to the terminal electrodes



◆清洗 Cleaning

● 清洗条件 Cleaning Conditions

- (1) 清洗温度: 60°C (最高) Cleaning temperature : 60°C max
- (2) 清洗时间: 1 分钟 (最少) Cleaning time: 1 minute min.
- (3) 超声波功率: 最大为 200W Ultrasonic output power: 200W max

◆存储要求 Storage Requirements

● 存储期限 Storage period

距电感公司出厂检验时间 1 年内, 产品可以使用检验时间可以通过包装外侧标记的检验号确认。若时间超过 1 年, 应检查焊接性能后方可使用。

Products which inspected inductor company over 1 year ago should be examined and used, which can be Confirmed with inspection No. marked on the container. Solder ability should be checked if this period is exceeded.

● 存储条件 Storage conditions

- (1) 存放货物的库房应满足以下条件: 温度: -10 ~ +40°C, 相对湿度: 30 ~ 70%。
- (2) 禁止将产品保管在腐蚀性物质中, 如硫磺、氯气或酸, 否则将引起端头氧化, 导致降低焊接性。
- (3) 为了避免受潮气、灰尘等物质的影响, 产品应保管于货架上。
- (4) 产品保管在库房中, 应避免热冲击、振动以及直接光照等等。
- (5) 产品应密封包装。

- (1) Products should be storage in the warehouse on the following conditions:

Temperature : -10~+40°C Humidity: 30~70% relative humidity

- (2) Don't keep products in corrosive gases such as sulfur, chlorine gas or acid , or it may case oxidization of Electrodes resulting in poor solder ability.

- (3) Products should be stored on the palette for the prevention of the influence from humidity, dust and so on.

- (4) Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.

- (5) Products should be stored under the airtight packaged condition.

◆ODS (消耗臭氧层物质) 的使用情况 Usage Of ODS

对于以下所列物质, 我公司在生产过程中绝不使用。

ODS: CCl₄ (四氯化碳)、HCFC 等。

For ODS listed below , we don't use in process.

ODS: CCl₄, HCFC, etc.

◆注意事项 Notes

- (1) 若本次承认的为“整体无铅”产品, 则表明该产品符合 RoHS 指令的要求。

(2) 本承认书保证我司产品作为一个单体时的质量情况, 当我司产品被安装到贵司产品上时请保证贵司的产品已根据贵司的规范进行了有效评价和确认。

(3) 如果贵司对我司产品的试用已超过了本测试规范所界定的产品功能, 对于此所引发的失效我司将不予保证。

(1) If the parcel label on product is "Unitary lead free" that indicate the products in accord with ROHS appointed requests.

(2) This product specification guarantees the quality of our product as a single unit, Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.

(3) We can't warrant against failure caused by any use of our product that deviates from the intended use as described in this product specification.

[illegible]

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