

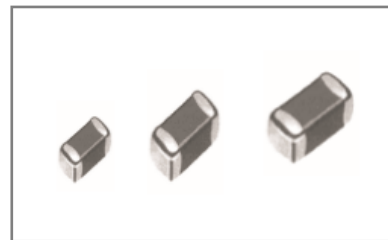
■车规叠层片式铁氧体电感器

Automotive Grade Multilayer Chip Ferrite Inductors

◆特征

Feature

- * 体积小
Miniature volume.
- * 漏磁小，不产生耦合，可靠性高
No cross coupling between inductors due to low magnetic shield and high reliability.
- * 无引线，不产生跟踪性，适合高密度表面贴装
No lead, ideal for high density SMT installation, with no directionality.
- * 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.



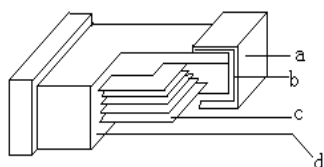
◆型号表示法

Part Number

AMI	201209	V	47N	K	T
①	②	③	④	⑤	⑥

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(μH) Inductance		⑤ 误差 Tolerance		⑥ 包装方式 Packaging Style	
AMI	车规叠层片式铁氧体电感器	160808	1.6×0.8×0.8	V	示例 Example		K	±10%	T	卷带盘装
	电感器	201209	2.0×1.2×0.9	U	47N	0.047	M	±20%		
	Automotive Grade Multilayer Chip Ferrite Inductors	321609	3.2×1.6×0.9		R10	0.10			B	Tape & Reel
					1R0	1.0				散装 Bulk
					N=0.0(nH)					
					R=0.0(μH)					

◆产品结构 Product Structure

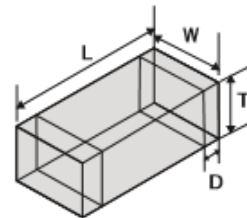


- a. 银层 Ag layer
- b. 镀层 Ni/Sn plating
- c. 内电极 Inner electrode
- d. 瓷体 Body

◆规格尺寸

Dimension

Part No	L(mm)	W(mm)	T(mm)	D(mm)
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)
321609 (1206)	3.2± 0.20 (0.126± 0.008)	1.6± 0.20 (0.063± 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

1608 Type

型号 Part NO	误差范围 Tolerance	标称感量 Inductance (μH)	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
AMI160808V47NKT	± 10%	0.047	15	50	0.20	260	50
AMI160808V56NKT	± 10%	0.056	15	50	0.20	260	50
AMI160808V68NKT	± 10%	0.068	15	50	0.20	250	50
AMI160808V82NKT	± 10%	0.082	15	50	0.20	245	50
AMI160808VR10KT	± 10%	0.10	20	25	0.25	240	50
AMI160808VR12KT	± 10%	0.12	20	25	0.30	205	50
AMI160808VR15KT	± 10%	0.15	20	25	0.30	180	50
AMI160808VR18KT	± 10%	0.18	20	25	0.30	165	50
AMI160808VR22KT	± 10%	0.22	20	25	0.40	150	50
AMI160808VR27KT	± 10%	0.27	20	25	0.45	136	50
AMI160808VR33KT	± 10%	0.33	20	25	0.50	125	50
AMI160808VR39KT	± 10%	0.39	20	25	0.60	110	50
AMI160808VR47KT	± 10%	0.47	20	25	0.70	105	50
AMI160808VR56KT	± 10%	0.56	20	25	0.70	95	50
AMI160808VR68KT	± 10%	0.68	20	25	0.90	90	50
AMI160808VR82KT	± 10%	0.82	20	25	1.00	85	50
AMI160808U1R0KT	± 10%	1.0	25	10	0.50	75	25
AMI160808U1R2KT	± 10%	1.2	25	10	0.55	65	25
AMI160808U1R5KT	± 10%	1.5	25	10	0.70	60	25
AMI160808U1R8KT	± 10%	1.8	25	10	0.75	55	25
AMI160808U2R2KT	± 10%	2.2	25	10	0.80	50	25
AMI160808U2R7KT	± 10%	2.7	25	10	0.90	45	15
AMI160808U3R3KT	± 10%	3.3	25	10	1.00	40	15
AMI160808U3R9KT	± 10%	3.9	25	10	1.30	35	15

2012 Type

型号 Part NO	误差范围 Tolerance	标称感量 Inductance (μH)	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
AMI201209V47NKT	±10%	0.047	25	50	0.15	320	300
AMI201209V56NKT	±10%	0.056	25	50	0.15	320	300
AMI201209V68NKT	±10%	0.068	25	50	0.20	280	300
AMI201209V82NKT	±10%	0.082	25	50	0.20	280	300
AMI201209VR10KT	±10%	0.10	20	25	0.20	235	250
AMI201209VR12KT	±10%	0.12	20	25	0.25	220	250
AMI201209VR15KT	±10%	0.15	20	25	0.25	200	250
AMI201209VR18KT	±10%	0.18	20	25	0.30	185	250
AMI201209VR22KT	±10%	0.22	20	25	0.30	170	250
AMI201209VR27KT	±10%	0.27	20	25	0.40	150	250
AMI201209VR33KT	±10%	0.33	20	25	0.40	145	250
AMI201209VR39KT	±10%	0.39	25	25	0.50	135	200
AMI201209VR47KT	±10%	0.47	25	25	0.50	125	200
AMI201209VR56KT	±10%	0.56	25	25	0.60	115	150
AMI201209VR68KT	±10%	0.68	25	25	0.65	105	150
AMI201209VR82KT	±10%	0.82	25	25	0.70	100	150
AMI201209U1R0KT	±10%	1.0	35	10	0.40	75	50
AMI201209U1R2KT	±10%	1.2	35	10	0.40	65	50
AMI201209U1R5KT	±10%	1.5	35	10	0.40	60	50
AMI201209U1R8KT	±10%	1.8	35	10	0.40	55	50
AMI201209U2R2KT	±10%	2.2	35	10	0.60	50	50
AMI201209U2R7KT	±10%	2.7	35	10	0.60	45	50
AMI201209U3R3KT	±10%	3.3	35	10	0.60	41	50
AMI201209U3R9KT	±10%	3.9	35	10	0.80	38	50
AMI201209U4R7KT	±10%	4.7	35	10	0.90	35	30

3216 Type

型号 Part NO	误差范围 Tolerance	标称感量 Inductance (μH)	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
AMI321609V47NKT	±10%	0.047	30	50	0.15	320	300
AMI321609V56NKT	±10%	0.056	30	50	0.20	320	300
AMI321609V68NKT	±10%	0.068	30	50	0.25	280	300
AMI321609V82NKT	±10%	0.082	30	50	0.25	280	300
AMI321609VR10KT	±10%	0.10	25	25	0.25	235	250
AMI321609VR12KT	±10%	0.12	25	25	0.25	220	250
AMI321609VR15KT	±10%	0.15	25	25	0.25	200	250
AMI321609VR18KT	±10%	0.18	25	25	0.30	185	250
AMI321609VR22KT	±10%	0.22	25	25	0.30	170	250
AMI321609VR27KT	±10%	0.27	25	25	0.30	150	250

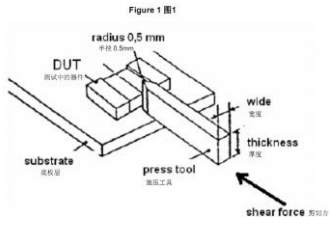
型号 Part NO	误差范围 Tolerance	标称感量 Inductance (μH)	Q 值 (min)	测试频率 Test frequency(MHz)	直流电阻 DCR (Ω)Max	自谐振频率 SRF(MHz)min	额定电流 Ir (mA)Max
AMI321609VR33KT	± 10%	0.33	25	25	0.30	145	250
AMI321609VR39KT	± 10%	0.39	30	25	0.50	135	200
AMI321609VR47KT	± 10%	0.47	30	25	0.50	125	200
AMI321609VR56KT	± 10%	0.56	30	25	0.50	115	150
AMI321609VR68KT	± 10%	0.68	30	25	0.50	105	150
AMI321609VR82KT	± 10%	0.82	30	25	0.60	100	150
AMI321609U1R0KT	± 10%	1.0	35	10	0.30	75	100
AMI321609U1R2KT	± 10%	1.2	35	10	0.40	65	100
AMI321609U1R5KT	± 10%	1.5	35	10	0.40	60	50
AMI321609U1R8KT	± 10%	1.8	35	10	0.40	55	50
AMI321609U2R2KT	± 10%	2.2	35	10	0.50	50	50
AMI321609U2R7KT	± 10%	2.7	35	10	0.50	45	50
AMI321609U3R3KT	± 10%	3.3	35	10	0.50	41	50
AMI321609U3R9KT	± 10%	3.9	35	10	0.60	38	50
AMI321609U4R7KT	± 10%	4.7	35	10	0.65	35	25

◆可靠性测试方法

Reliability Test Method

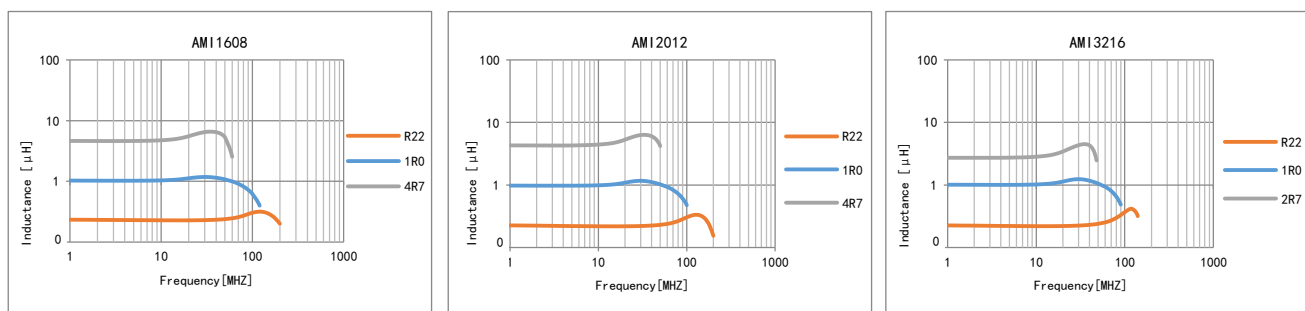
序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
1	高温存储 High Temperature Exposure (Storage)	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	温度 125℃; 不通电; 持续时间 1000h; 周期测试 250h,500h; 试验结束后 (24±4)h 内进行电性能测量。 Temperature 125℃; Unpowered; Duration 1000h; Examination at 250h ,500h and 1000h; Measurement at (24±4) hours after test conclusion.
2	温度循环 Temperature Cycling	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	高温 125℃; 低温-40℃; 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 -40℃; Duration at each temperature 30 min; Transition time ≤ 1 min. Severity 1000 cycles; 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
3	偏高湿度(高温高湿) Biased Humidity	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	温度 85℃; 湿度 85RH%; 持续时间 1000 小时, 不通电。周期测量 250 小时、500 小时。 试验结束后 24±4 小时内进行测试。 Temperature 85℃; Relative humidity 85%; Duration 1000 h; Unpowered. Examination at 250h, 500h and 1000h; Measurement at 24±4 hours after test conclusion.
4	工作寿命 Operational Life	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	温度 125℃; 施加电流: 常温额定电流的 1/2; 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: half of Rated current at normal temperature; Duration 1000 h; Measurement at 24±4 hours after test conclusion.
5	机械冲击 Mechanical Shock	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	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)
6	振动 Vibration	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	频率 10Hz~2000Hz; 加速度 5 克; 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.
7	耐焊接热 Resistance to Soldering Heat	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	焊槽法; 温度 (260±5) °C; 浸渍时间 (10±1) s。 Solder bath; Temperature (260±5) °C; Immersion timer (10±1) seconds.
8	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.

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
9	弯曲 Board flex	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	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 \pm 5s。 The testing samples shall be mounted on a 100mm \times 40mm FR4 PCB board, which is 1.6mm \pm 0.2mm thick. Bending shall be applied to the 2.0mm with 1.0mm/sec: Duration: 60 \pm 5s.
10	端子强度 Terminal Strength (SMD)	无可见损伤; 阻抗: $\Delta L/L \leq \pm 20\%$; Q 值: $\Delta Q/Q \leq \pm 30\%$; No Visible damage; Impedance: $\Delta L/L \leq \pm 20\%$; Q: $\Delta Q/Q \leq \pm 30\%$;	试样安装在环氧玻璃布板上, 施加 1005 规格: 5N, \geq 1608 规格: 17.7N 的力到试样的侧面, 保持 60s \pm 1s。 The testing samples shall be mounted on the testing epoxy boards, exerting force on side of the samples, Size 1005: 5N; \geq Size 1608: 17.7N, Duration 60s \pm 1s. 

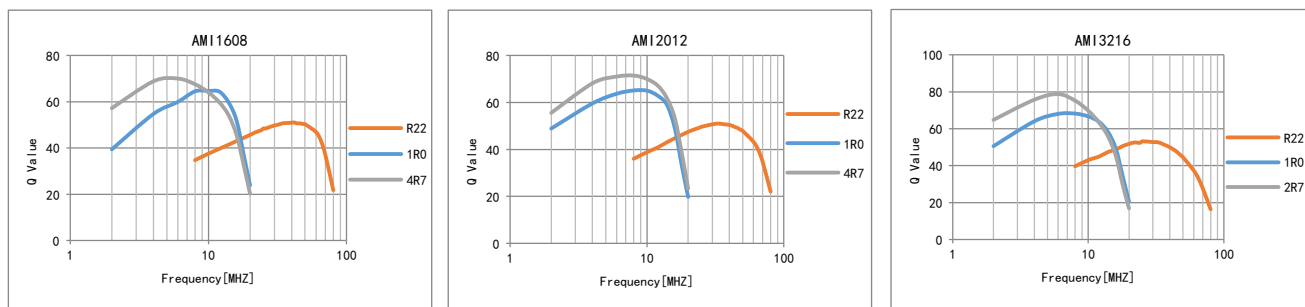
◆感量-频率特性

Inductance Vs. Frequency Characteristics



◆感量-频率特性

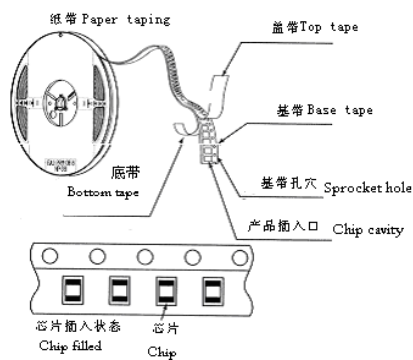
Q Value Vs. Frequency Characteristics



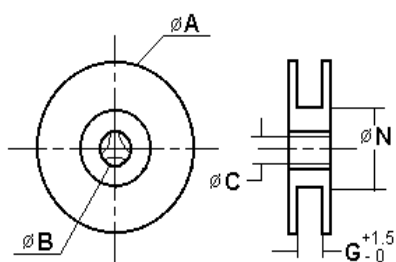
◆包装

Packaging

* 编带图 Taping drawings

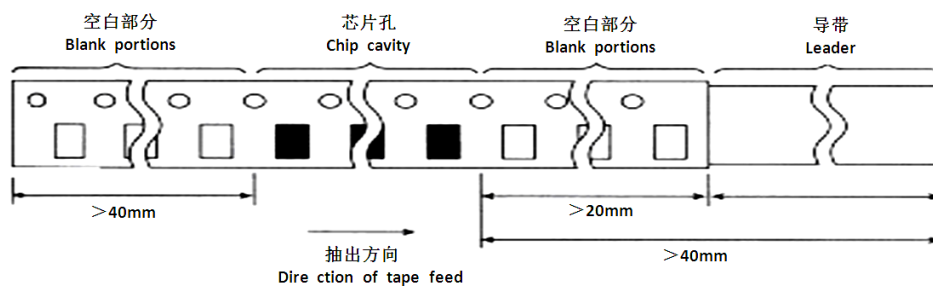


* 卷盘尺寸 Reel dimensions (Unit: mm)



型号 Size	A	B	C	N	G
CF-8	178±2.0	22.0±2.0	12.5±1.5	57±2.0	8

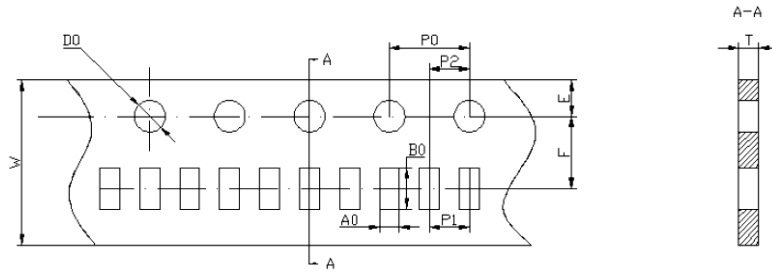
* 导带及空格部分 Leader and blank portion



* 编带尺寸 Taping dimensions (Unit: mm)

纸带 Paper tape

Part NO.	A0	B0	W	F	E	P1	P2	P0	D0	T
100505	0.65±0.1	1.15±0.1	8.0±0.2	3.5±0.1	1.75±0.2	2.0±0.1	2.0±0.1	4.0±0.2	1.55±0.1	0.60±0.1
160808	1.10±0.2	1.90±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.1	4.0±0.2	1.55±0.1	0.95±0.1
201209	1.50±0.2	2.30±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.1	4.0±0.2	1.55±0.1	0.95±0.1
321609	1.90±0.2	3.50±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.1	4.0±0.2	1.55±0.1	0.95±0.1



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

类型 SIZE	321609	201209	160808	100505
每卷数量 REEL	4000	4000	4000	10000
每盒数量 BOX	40000	40000	40000	100000
每箱数量 CASE	240000	240000	240000	600000