

■ 绕线型片式铁氧体电感

Wire Wound Chip Ferrite Inductors

◆ 特征 Feature

- * 体积小, 适合高密度表面贴装
Minature Size, Suitable For SMT.
- * 采用端电极结构, 很好地抑制了引线引起的寄生元件效应, 具有高可靠性
Using Terminal Electrode Structure To Restrain The Parasitic Component Effect Quite Caused By Lead.
- * 精度高、Q 值高
Low DC Resistance , High Current And High Inductance.
- * 优良的焊接性和耐焊性
Excellent In Solderability And Heat Resistance.



◆ 应用 Application

- * 视听设备、无线通讯设备和各类通用电子设备
Wireless Communication Equipment And Various Types Of General Electronic Equipment.
- * 蓝牙模块、音频电路
Bluetooth, Audio Circuit.
- * 其它电子设备
Other Electronic Equipment.

◆ 型号表示法 Part Number

FHD	0402	UF	R68	J	S	T
①	②	③	④	⑤	⑥	⑦

①产品类型 Product Type:

FHW: 绕线型片式电感器系列

FHW: Wire Wound Inductor Series

②尺寸 Dimensions: 0402(1.0×0.5mm)、0603(1.6×0.8mm)

③材料代号 Material Code: PF/IF---铁氧体芯 Ferrite core

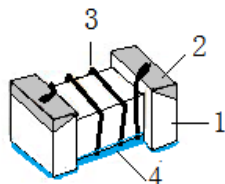
④标称电感量 Inductance: 010=10nH、R10=100nH、1R0=1.0μH、100=10μH

⑤标称电感值偏差 Tolerance: J---±5%; K---±10%; M---±20%

⑥电极表面镀层材料 Terminal: S---锡端头 Tin

⑦包装 Packaging: T: 编带包装 Tape & Reel B: 散装 Bulk

◆ 产品结构 Product Structure



1.磁芯 Core

2.电极 Electrode

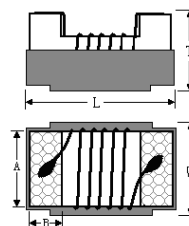
3.漆包线 Wire

4.封装层 Encapsulation Layer

◆规格尺寸 Dimension

单位 Unit: mm (inch)

Size	L (Max)	W (Max)	T (Max)	A	B
1005 (0402)	1.19 (0.047)	0.66 (0.026)	0.60 (0.024)	0.50 (0.020)	0.23 (0.009)
1608 (0603)	1.80 (0.071)	1.20 (0.047)	1.10 (0.043)	0.90 (0.035)	0.35 (0.014)


◆电性能参数 ELECTRICAL CHARACTERISTICS

0402IF Type

型号 Part NO	电感量 Inductance (nH)	偏差范围 Tolerance	自谐振频率 SRF (MHZ) Min	最大直流电阻 Rdc (Ω) Max	额定电流 Idc(mA) Max
FHD0402IFR16□ST	160@100MHz	J,K	900	0.33	480
FHD0402IFR18□ST	180@100MHz	J,K	1000	0.312	560
FHD0402IFR22□ST	220@100MHz	J,K	1400	0.47	450
FHD0402IFR27□ST	270@100MHz	J,K	730	0.52	420
FHD0402IFR33□ST	330@100MHz	J,K	520	0.56	390
FHD0402IFR39□ST	390@100MHz	J,K	450	0.62	370
FHD0402IFR47□ST	470@10MHz	J,K	380	0.66	350
FHD0402IFR56□ST	560@10MHz	J,K	300	0.71	300

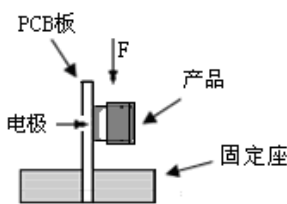
0603PF Type

型号 Part NO	电感量 Inductance (μH)	偏差范围 Tolerance	自谐振频率 SRF (MHZ) Min	最大直流电阻 Rdc (Ω) Max	额定电流 Idc(mA) Max
FHD0603PF1R0□ST	1.0@7.9MHz	K,M	200	0.32	860
FHD0603PF1R5□ST	1.5@7.9MHz	K,M	100	0.40	720
FHD0603PF1R8□ST	1.8@7.9MHz	K,M	95	0.56	640
FHD0603PF2R2□ST	2.2@7.9MHz	K,M	80	0.73	600
FHD0603PF4R7□ST	4.7@7.9MHz	K,M	40	1.26	400
FHD0603PF5R6□ST	5.6@7.9MHz	K,M	37	1.70	380
FHD0603PF6R8□ST	6.8@7.9MHz	K,M	34	1.95	340
FHD0603PF100□ST	10@2.5MHz	K,M	25	2.40	280
FHD0603PF150□ST	15@2.5MHz	K,M	23	3.40	240
FHD0603PF220□ST	22@2.5MHz	K,M	19	4.70	200

0603IFType

型号 Part NO	电感量 Inductance (μH)	偏差范围 Tolerance	Q 值 Q (Min)	自谐振频率 SRF (MHZ) Min	最大直流电阻 Rdc (Ω) Max	额定电流 Idc(mA) Max
FHD0603IF2R2□ST	2.2@7.9MHz	J,K	12	180	2.3	280
FHD0603IF4R7□ST	4.7@7.9MHz	J,K	12	80	4.0	200
FHD0603IF6R8□ST	6.8@7.9MHz	J,K	10	28	3.9	200
FHD0603IF100□ST	10@2.5MHz	J,K	10	25	4.8	180
FHD0603IF150□ST	15@2.5MHz	J,K	9	18	8.5	150
FHD0603IF220□ST	22@2.5MHz	J,K	9	10	12.0	100

◆可靠性测试方法 Reliability Test Method

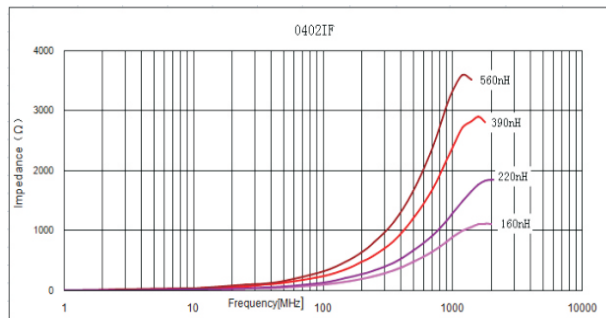
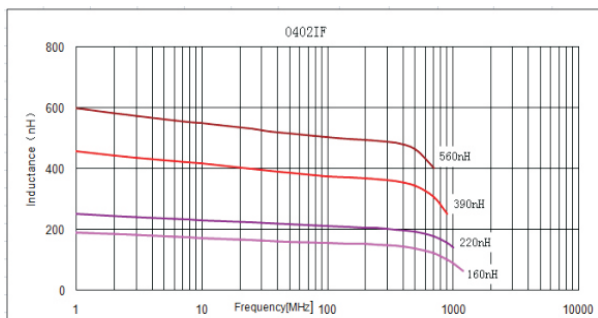
序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks										
1	可焊性 Solder ability	①外观无可见损伤痕迹; No visible mechanical damage. ②端电极表面焊锡覆盖率。 Electrode surface solder coverage. FHW-UC/HC series: ≥80%。	在 245±3℃熔融的焊锡（96.5%Sn/3.0%Ag/0.5%Cu）中浸置 3±0.3s。 Dip pads in flux and dip in solder pot(96.5Sn/3.0Ag/0.5Cu)at 245±3℃ for 3±0.3s.										
2	耐焊接热 Resistance to Soldering	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%。 Q shall not change more than±10%.	在 260±5℃熔融的焊锡（96.5%Sn/3.0%Ag/0.5%Cu）中浸置 10±1s。 Dip pads in flux and dip in solder pot(96.5Sn/3.0Ag/0.5Cu)at 260±5℃ for 10±1s.										
3	振动 Vibration	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%。 Q shall not change more than±10%.	振幅 1.5mm, 频率 10~55Hz, 每个方向(X、Y、Z)保持 2 小时。Inductors shall be subjected to vibration of 1.5mm amplitude frequency 10~55Hz (10Hz to 55Hz to 10Hz in a period of 1 minute) for 2h in each of three(X、Y、Z) axes.										
4	端电极强度 Adhesion of electrode	①试验后端电极无脱落; The end electrode did not fall off after the test. ②外观无可见损伤痕迹。 No visible mechanical damage.	将产品焊在 PCB 板上, 按下图、表所示方向及要求施加作用力。Weld the product on the PCB board, and apply force as shown in the diagram, direction and requirement.  <table><tr><th>尺寸规格 Size</th><th>施加力要求</th></tr><tr><td>0402IF Series</td><td>3 N</td></tr><tr><td>0603PF/IF Series</td><td>7 N</td></tr><tr><td colspan="2">Keep time: (10±1)s</td></tr><tr><td colspan="2">Speed: 1.0 mm/s.</td></tr></table>	尺寸规格 Size	施加力要求	0402IF Series	3 N	0603PF/IF Series	7 N	Keep time: (10±1)s		Speed: 1.0 mm/s.	
尺寸规格 Size	施加力要求												
0402IF Series	3 N												
0603PF/IF Series	7 N												
Keep time: (10±1)s													
Speed: 1.0 mm/s.													

5	耐低温 Low temperature resistance	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%。 Q shall not change more than±10%.	①FHD-PF/IF 系列产品放置于温度-40±2℃的环境中存放 +24 1000 —0 h FHD-PF/IF series shall be subjected to-40±2℃ for 1000 +24 —0 h
6	耐高温 High temperature resistance	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%。 Q shall not change more than±10%.	①FHD-PF/IF 系列产品放置于温度+85±5℃的环境中存放 +24 1000 —0 h FHD-PF/IF series shall be subjected to +85±5℃ for1000 +24 —0 h
7	温度冲击 Temperature Shock	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%。 Q shall not change more than±10%.	①FHD-PF/IF 系列: +85℃ 30 分钟 ↔ -40℃ 30 分钟, 循环 100 次; FHD-PF/IF series : +85℃ 30minutes ↔ -40℃ 30minutes 100 Cycles.
8	高温负载 High temperature load	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%。 Q shall not change more than±10%.	①FHD-PF/IF 系列产品加额定电流在 85±2℃温度条件下 +24 存放 1000 —0 h FHD-PF/IF series shall be store at 85±2℃ for 1000 —0 +24 h with rated current applied.
9	恒定湿热 Static Humidity	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%。 Q shall not change more than±10%.	将电感器放置于湿度 90%~95%,温度 60±2℃的环境中 +24 存放 1000 —0 h Inductors shall be subjected to 90%~95%RH. at 60±2℃ +24 for 1000 —0 h
10	抗弯强度 Bending strength	外观无可见损伤痕迹; No visible mechanical damage.	①将电感器安装于试验基板上; 在垂直方向施加力(如下图 所示)。Install the inductor on the test substrate; Apply force in the vertical direction (as shown below). ②该板应在(1±0.5) mm/s 的弯曲速率向下弯曲(2±0.2) mm, 保持时间(20±1) s。The epoxy plate should bend down to (2±0.2) mm at the bending rate of (1±0.5)

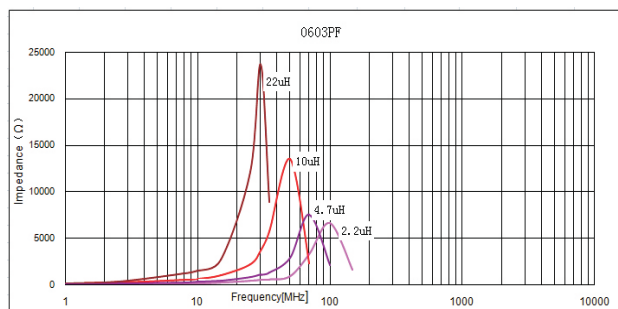
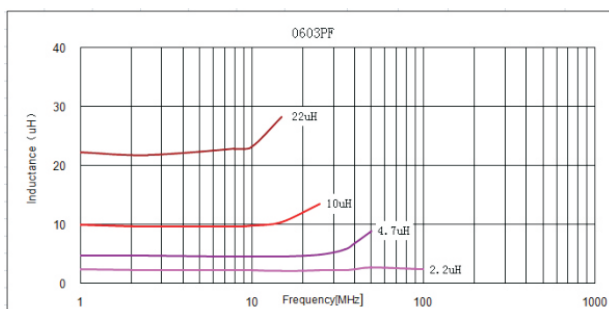
			mm/s, Keep time (20±1) sec.
11	耐溶剂性 Solvent Resistance	①外观无可见损伤痕迹; No visible mechanical damage. ②感量变化不超过±5%; Inductance shall not change more than ±5%; ③Q 值变化不超过±10%. Q shall not change more than±10%.	将元件浸泡在 23±5°C 的异丙醇溶液中, 保持 5±0.5 分钟。 Soak in the element 23±5°C in isopropyl alcohol solution, keep 5±0.5 min.

◆产品特性曲线图 Product Characteristic Curve

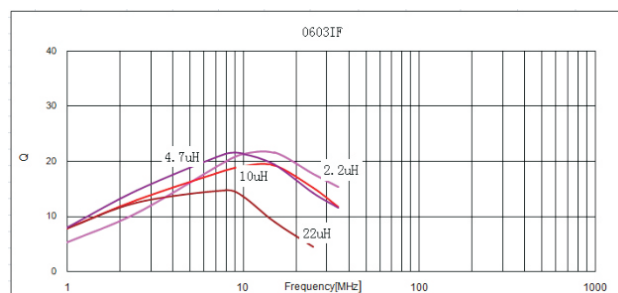
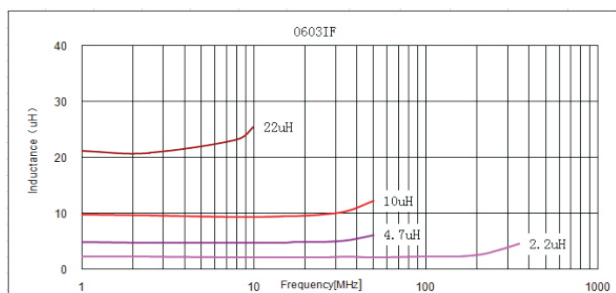
FHD0402 Type.



FHD0603PF Type.

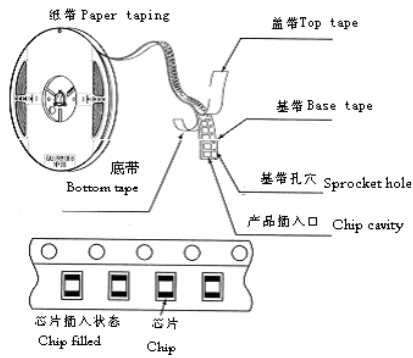


FHD0603IF Type.

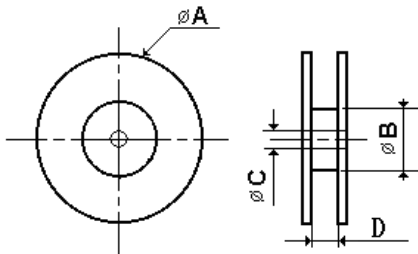


◆包装 Packaging

*编带图 Taping drawings

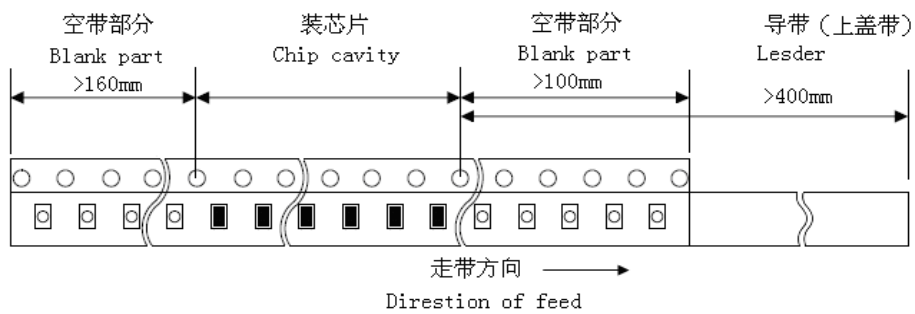


*卷盘尺寸 Reel dimensions (Unit:mm)



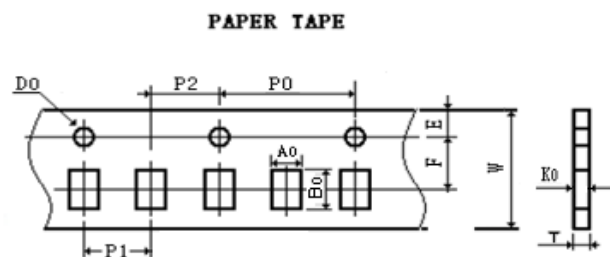
Part NO.	ΦA typ.	ΦB typ.	ΦC typ.	D typ.
0402-0603	178	60	13	8.4

*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.	W	E	F	D0	P0	P1	P2	P0×10	A0	B0	K0	T
0402	8.00	1.75	3.50	1.55	4	2	2	40	0.66	1.20	0.60	0.75
0603	8.00	1.75	3.50	1.55	4	4	2	40	1.20	1.90	1.05	1.15

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

尺寸 Size		0402	0603
每卷数量 Per Reel		5000	4000
每盒数量 Per Box	3 卷盒	15000	12000
	5 卷盒	25000	20000
	10 卷盒	50000	40000
每箱数量 Per Case	1.5 盒箱	75000	60000
	3 盒箱	150000	120000
	4 盒箱	200000	160000
	5 盒箱	300000	240000