

规格确认书

SPECIFICATION

客 户

CUSTOMER: _____

客 户 料 号

CUSTOMER P/N: _____

物 料 名 称

绕线片式电感

MODEL NO: _____

Wire Wound Chip Inductors

料 号

HWSD-FE 系列

P/N: _____

HWSD-FE series

文 件 编 号

FILE NO: _____

23-07

日期: 2023-07-06

承办人: 刘俊

DATE: July 06, 2023

ISSUEDER: Liu Jun

客户确认 APPROVED BY

签名:

日期:

SIGN:

DATE:

结论 RESULT: _____

确认后请回传 PLEASE RETURN BY ONE COPY

●特征

小尺寸，可表面贴装。
铁氧体材料具有大电感量。
单面封装，较普通系列厚度更薄。
工作温度范围-40℃ 至+85℃

●用途

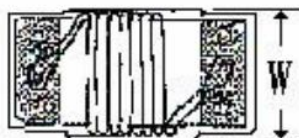
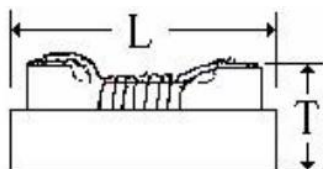
移动电话等电子设备。
蓝牙模块、TWS 耳机。

●品名系统

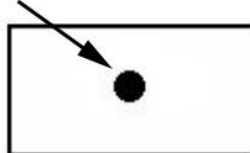
HWSD 1608 FE 4R7 K T
① ② ③ ④ ⑤ ⑥

- ① 产品代号: 小型绕线片式电感。
- ② 尺寸规格: 1005=1.0x0.5(mm)
1608=1.6x0.8(mm)
2012=2.0x1.25(mm)
2520=2.5x2.0(mm)
3225=3.2x2.5(mm)
4532=4.3x3.2(mm)
- ③ 材料代码:FE=铁氧体
- ④ 电感值: 4R7=4.7μH
- ⑤ 电感量公差:M=±20% K=±10% J=±5%
- ⑥ 包装: T=卷带包装。

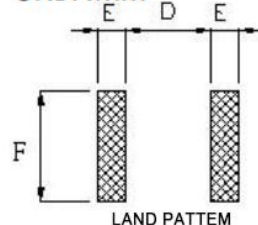
●结构及尺寸



Marking



UNIT:mm



Units:mm

Series	L (MAX)	W (MAX)	T (MAX)	E(Typ.)	F(Typ.)	D(Typ.)
1005	1.20	0.70	0.64	0.36	0.66	0.46
1608	1.80	1.25	1.10	0.64	1.02	0.64
2012	2.40	1.73	1.52	1.02	1.78	0.76
2520	2.92	2.70	2.23	1.02	2.54	1.27
3225	3.50	2.90	2.60	1.02	2.54	1.78
4532	4.95	3.85	3.43	1.14	3.05	3.00

●FEATURES

Small chip suitable for surface mounting.
Large inductance with ferrite material.
Single-sided package, thinner than normal Series.
Operating temperature range -40℃ to +85℃

●Applications

Mobile phones and other electronic devices.
Bluetooth modules and TWS earphones.

●Product Identification

HWSD 1608 FE 4R7 K T
① ② ③ ④ ⑤ ⑥

- ① Product symbol: Mini Wire Wound Chip Inductor
- ② Dimension: 1005=1.0x0.5(mm)
1608=1.6x0.8(mm)
2012=2.0x1.25(mm)
2520=2.5x2.0(mm)
3225=3.2x2.5(mm)
4532=4.3x3.2(mm)
- ③ Material Code:FE=Ferrite
- ④ Inductance: 4R7=4.7μH
- ⑤ Tolerance: M=±20% K=±10% J=±5%
- ⑥ Packing:T=Tape & Reel

●Structure And Dimension

●规格

Specifications

HWSD1005-FE 系列 (TYPE)

型号 Part Number	电感量 Inductance	公差 Tolerance	测试频率 L Test Freq.	自振频率Typ. Self-resonant Frequency	直流电阻 DC Resistance	额定电流 Typ.Rated Current
单位 Units	μH	-	MHz	MHz	Ω	mA
符号 Symbol	L	-	Freq.	S.R.F	DCR	Ir
HWSD1005FER10□T	0.1	K,M	7.9	1400	0.12±30%	900
HWSD1005FER15□T	0.15	K,M	7.9	1220	0.2±30%	630
HWSD1005FER18□T	0.18	K,M	7.9	1150	0.22±30%	560
HWSD1005FER20□T	0.2	K,M	7.9	1000	0.34±30%	400
HWSD1005FER22□T	0.22	K,M	7.9	1150	0.41±30%	380
HWSD1005FER25□T	0.25	K,M	7.9	900	0.69±30%	360
HWSD1005FER27□T	0.27	K,M	7.9	860	0.69±30%	360
HWSD1005FER30□T	0.3	K,M	7.9	860	0.69±30%	360
HWSD1005FER33□T	0.33	K,M	7.9	820	0.43±30%	350
HWSD1005FER36□T	0.36	K,M	7.9	810	0.69±30%	250
HWSD1005FER39□T	0.39	K,M	7.9	760	0.77±30%	200
HWSD1005FER47□T	0.47	K,M	7.9	650	0.77±30%	200
HWSD1005FER56□T	0.56	K,M	7.9	600	0.92±30%	200
HWSD1005FER68□T	0.68	K,M	7.9	290	1.23±30%	100
HWSD1005FER82□T	0.82	K,M	7.9	385	4.5±30%	90
HWSD1005FE1R0□T	1	J,K,M	7.9	200	5±30%	50
HWSD1005FE2R2□T	2.2	J,K,M	7.9	100	1.77±30%	40
HWSD1005FE4R7□T	4.7	J,K,M	7.9	50	3.69±30%	10

Notes

Tolerance:M=±20% K=±10% J=±5%

All test data is referenced to 25°C ambient.

Rated current: Isat or Irms, which ever is smaller.

Irms (A): DC current(A) that will cause an approximate ΔT of 40°C. (reference ambient temperature is 25°C)

●规格

Specifications

HWSD1608-FE 系列 (TYPE)

型号 Part Number	电感量 Inductance	公差 Tolerance	测试频率 L Test Freq.	自振频率Typ. Self-resonant Frequency	直流电阻DC Resistance	额定电流 Typ.Rated Current
单位 Units	μH	-	MHz	MHz	Ω	mA
符号 Symbol	L	-	Freq.	S.R.F	DCR	Ir
HWSD1608FE1R0□T	1	K,M	7.9	250	0.31±30%	700
HWSD1608FE1R5□T	1.5	K,M	7.9	160	0.40±30%	600
HWSD1608FE1R8□T	1.8	K,M	7.9	121	0.43±30%	580
HWSD1608FE2R2□T	2.2	K,M	7.9	103	0.56±30%	580
HWSD1608FE3R3□T	3.3	K,M	7.9	65	0.68±30%	450
HWSD1608FE4R7□T	4.7	K,M	7.9	51	0.97±30%	420
HWSD1608FE6R8□T	6.8	K,M	7.9	43	1.50±30%	340
HWSD1608FE100□T	10	J,K,M	2.5	36	1.85±30%	280
HWSD1608FE150□T	15	J,K,M	2.5	29	2.60±30%	240
HWSD1608FE220□T	22	J,K,M	2.5	24	3.60±30%	200
HWSD1608FE330□T	33	J,K,M	2.5	15	6.60±30%	120
HWSD1608FE470□T	47	J,K,M	2.5	5	9.23±30%	100

HWSD2012-FE 系列 (TYPE)

型号 Part Number	电感量 Inductance	公差 Tolerance	测试频率 L Test Freq.	自振频率Typ. Self-resonant Frequency	直流电阻DC Resistance	额定电流 Typ.Rated Current
单位 Units	μH	-	MHz	MHz	Ω	mA
符号 Symbol	L	-	Freq.	S.R.F	DCR	Ir
HWSD2012FER68□T	0.68	K,M	7.9	765	0.15±30%	1200
HWSD2012FE1R0□T	1	K,M	7.9	208	0.13±30%	1100
HWSD2012FE1R5□T	1.5	K,M	7.9	130	0.17±30%	880
HWSD2012FE2R2□T	2.2	K,M	7.9	80	0.24±30%	740
HWSD2012FE3R3□T	3.3	K,M	7.9	50	0.28±30%	620
HWSD2012FE4R7□T	4.7	K,M	7.9	51	0.43±30%	520
HWSD2012FE6R8□T	6.8	K,M	7.9	35	0.68±30%	420
HWSD2012FE100□T	10	J,K,M	2.5	25	0.90±30%	300
HWSD2012FE150□T	15	J,K,M	2.5	28	1.40±30%	280
HWSD2012FE180□T	18	J,K,M	2.5	27	1.55±30%	260
HWSD2012FE220□T	22	J,K,M	2.5	20	1.76±30%	240
HWSD2012FE330□T	33	J,K,M	2.5	18	2.00±30%	190
HWSD2012FE470□T	47	J,K,M	1	15	3.40±30%	160
HWSD2012FE101□T	100	J,K,M	1	5	7.50±30%	100

Notes

Tolerance:M=±20% K=±10% J=±5%

All test data is referenced to 25°C ambient.

Rated current:I_{sat} or I_{rms},which ever is smaller.

I_{rms} (A):DC current(A)that will cause an approximate ΔT of 40°C.(reference ambient temperature is 25°C)

●规格

Specifications

型号 Part Number	电感量 Inductance	公差 Tolerance	测试频率 L Test Freq.	自振频率Typ. Self-resonant Frequency	直流电阻 DC Resistance	额定电流 Typ.Rated Current	Q值
单位 Units	μH	-	MHz	MHz	Ω	mA	
符号 Symbol	L	-	Freq.	S.R.F	DCR	Ir	Min
HWSD2520FER39□T	0.39	K,MT	7.9	400	0.31±30%	500	12
HWSD2520FER47□T	0.47	K,MT	7.9	600	0.21±30%	700	12
HWSD2520FER56□T	0.56	K,MT	7.9	230	0.48±30%	700	12
HWSD2520FER68□T	0.68	K,MT	7.9	230	0.48±30%	700	12
HWSD2520FER82□T	0.82	K,MT	7.9	230	0.48±30%	700	12
HWSD2520FE1R0□T	1	K,MT	7.9	230	0.48±30%	700	18
HWSD2520FE1R2□T	1.2	K,MT	7.9	210	0.52±30%	650	18
HWSD2520FE1R5□T	1.5	K,MT	7.9	190	0.58±30%	630	18
HWSD2520FE1R8□T	1.8	K,MT	7.9	170	0.65±30%	600	18
HWSD2520FE2R0□T	2	K,MT	7.9	160	0.85±30%	550	18
HWSD2520FE2R2□T	2.2	K,MT	7.9	150	0.85±30%	520	18
HWSD2520FE2R7□T	2.7	K,MT	7.9	135	0.98±30%	490	18
HWSD2520FE3R3□T	3.3	K,MT	7.9	120	1.12±30%	450	18
HWSD2520FE3R9□T	3.9	K,MT	7.9	105	1.77±30%	300	18
HWSD2520FE4R7□T	4.7	K,MT	7.9	90	1.54±30%	400	18
HWSD2520FE5R6□T	5.6	K,MT	7.9	80	1.38±30%	380	15
HWSD2520FE6R8□T	6.8	K,MT	7.9	70	1.54±30%	360	15
HWSD2520FE8R2□T	8.2	K,MT	7.9	65	2.04±30%	330	15
HWSD2520FE100□T	10	J,K,MT	2.5	60	2.27±30%	300	12
HWSD2520FE150□T	15	J,K,MT	2.5	30	2.85±30%	280	12
HWSD2520FE180□T	18	J,K,MT	2.5	26	3.08±30%	160	12
HWSD2520FE220□T	22	J,K,MT	2.5	22	4.72±30%	270	12
HWSD2520FE330□T	33	J,K,MT	2.5	12	5.38±30%	200	10
HWSD2520FE390□T	39	J,K,MT	2.5	16	7.69±30%	180	10
HWSD2520FE470□T	47	J,K,MT	2.5	10	8.23±30%	160	10
HWSD2520FE560□T	56	J,K,MT	2.5	8	9.23±30%	170	10
HWSD2520FE680□T	68	J,K,MT	2.5	6	10.38 ± 30%	145	10
HWSD2520FE820□T	82	J,K,MT	2.5	6	15.38 ± 30%	100	8
HWSD2520FE101□T	100	J,K,MT	1	4	16.15 ± 30%	80	8

Notes

Tolerance:M=±20% K=±10% J=±5%

All test data is referenced to 25°C ambient.

Rated current:I_{sat} or I_{rms},which ever is smaller.

I_{rms} (A):DC current(A)that will cause an approximate ΔT of 40°C.(reference ambient temperature is 25°C)

●规格

Specifications

型号 Part Number	电感量 Inductance	公差 Tolerance	测试频率 L Test Freq.	自振频率Typ. Self-resonant Frequency	直流电阻 DC Resistance	额定电流 Typ.Rated Current	Q值
单位 Units	μH	-	MHz	MHz	Ω	mA	
符号 Symbol	L	-	Freq.	S.R.F	DCR	Ir	Min
HWSD3225FER56□T	0.56	K,M	25	180	0.42±30%	450	20
HWSD3225FER82□T	0.82	K,M	7.9	200	0.31±30%	450	20
HWSD3225FE1R0□T	1	K,M	7.9	200	0.31±30%	450	20
HWSD3225FE1R2□T	1.2	K,M	7.9	200	0.31±30%	450	20
HWSD3225FE1R5□T	1.5	K,M	7.9	200	0.31±30%	450	20
HWSD3225FE1R8□T	1.8	K,M	7.9	195	0.62±30%	450	20
HWSD3225FE2R2□T	2.2	K,M	7.9	175	0.62±30%	450	30
HWSD3225FE3R3□T	3.3	K,M	7.9	150	0.92±30%	400	20
HWSD3225FE4R7□T	4.7	K,M	7.9	60	1±30%	350	18
HWSD3225FE5R6□T	5.6	K,M	7.9	50	1.54±30%	320	18
HWSD3225FE6R8□T	6.8	K,M	7.9	35	1.15±30%	310	18
HWSD3225FE8R2□T	8.2	K,M	7.9	33	1.23±30%	305	15
HWSD3225FE100□T	10	J,K,M	2.5	30	0.77±30%	300	15
HWSD3225FE120□T	12	J,K,M	2.5	25	1.38±30%	300	15
HWSD3225FE150□T	15	J,K,M	2.5	22	1.54±30%	225	15
HWSD3225FE180□T	18	J,K,M	2.5	22	1.58±30%	215	15
HWSD3225FE220□T	22	J,K,M	2.5	20	1.85±30%	210	15
HWSD3225FE270□T	27	J,K,M	2.5	20	2.15±30%	160	15
HWSD3225FE330□T	33	J,K,M	2.5	15	2.23±30%	160	15
HWSD3225FE470□T	47	J,K,M	2.5	10	4±30%	140	15
HWSD3225FE560□T	56	J,K,M	2.5	8	4.31±30%	125	8
HWSD3225FE680□T	68	J,K,M	1	10	10±30%	100	6
HWSD3225FE820□T	82	J,K,M	1	10	10±30%	100	6
HWSD3225FE101□T	100	J,K,M	1	10	10±30%	100	6
HWSD3225FE221□T	220	J,K,M	1	2.6	23.08 ± 30%	65	8
HWSD3225FE331□T	330	J,K,M	1	2.3	26.92 ± 30%	55	8
HWSD3225FE471□T	470	J,K,M	1	2	32.31 ± 30%	40	8
HWSD3225FE561□T	560	J,K,M	1	3	46.15 ± 30%	10	8
HWSD3225FE621□T	620	J,K,M	1	2	65.38 ± 30%	10	8
HWSD3225FE681□T	680	J,K,M	1	2	69.23 ± 30%	10	6
HWSD3225FE102□T	1000	J,K,M	1	1	100±30%	30	6

●规格

Specifications

型号 Part Number	电感量 Inductance	公差 Tolerance	测试频率 L Test Freq.	自振频率Typ. Self-resonant Frequency	直流电阻 DC Resistance	额定电流 Typ.Rated Current	Q值
单位 Units	μH	-	MHz	MHz	Ω	mA	
符号 Symbol	L	-	Freq.	S.R.F	DCR	Ir	Min
HWSD4532FE1R0□T	1	K,M	7.9	250	0.35±30%	600	25
HWSD4532FE2R2□T	2.2	K,M	7.9	200	0.38±30%	600	25
HWSD4532FE4R7□T	4.7	K,M	7.9	100	0.46±30%	600	25
HWSD4532FE6R8□T	6.8	K,M	7.9	80	0.62±30%	600	25
HWSD4532FE100□T	10	K,M	2.5	50	0.85±30%	490	20
HWSD4532FE120□T	12	K,M	2.5	55	0.85±30%	490	20
HWSD4532FE150□T	15	K,M	2.5	35	0.92±30%	450	18
HWSD4532FE180□T	18	K,M	2.5	29	0.92±30%	430	18
HWSD4532FE220□T	22	K,M	2.5	20	1±30%	400	18
HWSD4532FE330□T	33	K,M	2.5	18	1.31±30%	350	18
HWSD4532FE470□T	47	K,M	2.5	24	3.85±30%	200	42 (Typ)
HWSD4532FE101□T	100	J,K,M	1	3	4.54±30%	130	15
HWSD4532FE181□T	180	J,K,M	1	3	3.46±30%	200	10@7.9MHZ
HWSD4532FE221□T	220	J,K,M	1	5	11.54 ± 30%	100	18@2.5MHZ
HWSD4532FE561□T	560	J,K,M	1	2	9.62±30%	110	10@7.9MHZ
HWSD4532FE681□T	680	J,K,M	1	3	23.08 ± 30%	50	8@7.9MHZ
HWSD4532FE102□T	1000	J,K,M	1	1	15.38 ± 30%	50	10@1MHZ

Notes

Tolerance:M=±20% K=±10% J=±5%

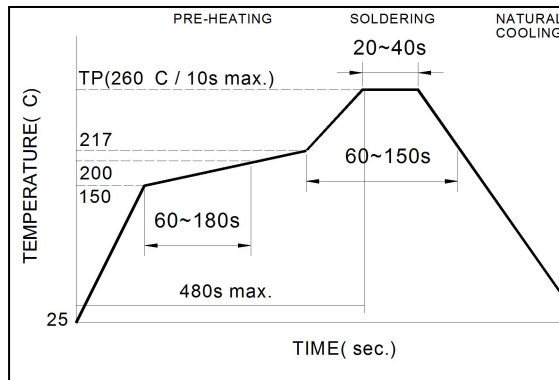
All test data is referenced to 25°C ambient.

Rated current: Isat or Irms, which ever is smaller.

Irms (A): DC current(A) that will cause an approximate ΔT of 40°C. (reference ambient temperature is 25°C)

● SOLDERING CONDITIONS

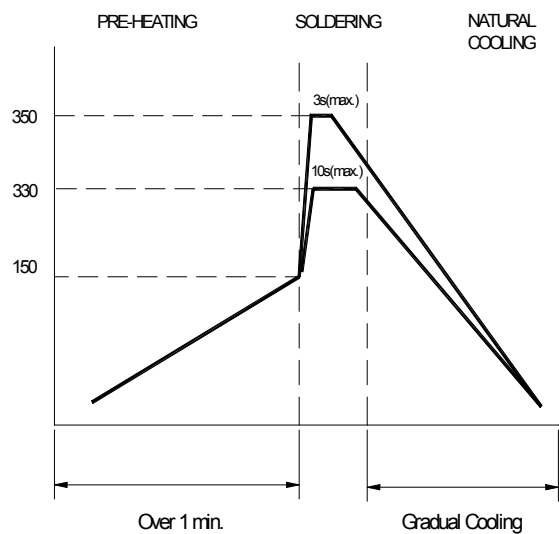
**Figure 1.
Re-flow
Soldering
(Lead Free)**



Note:

- Preheat circuit and products to 150°C
- 260°C tip temperature (max)
- Reflow times: no more than 2 times
- Solder paste thickness: the best 0.08mm is ,but max is 0.1mm

**Figure 2.
Hand
Soldering**



Note:

- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 3 sec.