

## 承认书

## SPECIFICATION FOR APPROVAL

客户名称:

Customer Name: \_\_\_\_\_

(请填写贵司全名)

客户品名:

Customer Part No.: \_\_\_\_\_

(请填写客户物料编码)

大立品名:

DALI Part No.: \_\_\_\_\_

(请填写大立品名)

大立规格书编号:

Specification No.: \_\_\_\_\_

Spec-CWLF Series Rev.02


变更履历/Revised record:

Rev.	Effective Date	Changed Contents	Change Reasons	Approved By
01	2012-09-01	New released		Paul
02	2019-01-01	Format update		Paul

客户承认栏(请签名盖章并签署日期后回传)

Customer's Approval Chop: 客户承认盖章:
Approved By: 承认人:
Approved Date: 承认日期:

广州大立电子有限公司

Confirmed	Checked	Prepared
 Paul	Amy	Steven
Date: 2019-01-01		

Add:广州市南沙区进港大道

Tel: 020-39075998 Fax: 020-39075978

Type: CWLF1608,2012,2520,3216,3225      Operation Temperature : -40~+85°C(Includes temperature when the coil is heated)

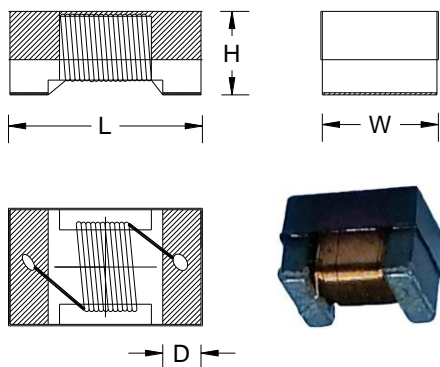
### Feature/特长

- Ferrite core wire wound type.
- Excellent solderability and heat resistance.
- High Q characteristics, high self-resonant frequency and high reliability.
- RoHS compliant.
- 绕线片式铁氧体电感。
- 良好的可焊性、耐热性。
- 高可靠性。
- RoHS指定对应。

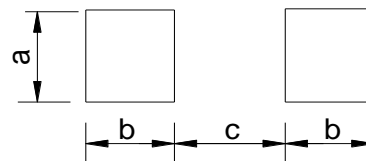
### Application/用途

For high frequency applications such as mobile phones, high frequency modules (PA, VCO, FEM etc.), Bluetooth, W-LAN, UWB and tuners. 携带电话、高周波数制品 (PA, VCO, FEM etc.), Bluetooth, W-LAN, UWB 及无线电收音机适用。

### Dimensions/外形图 (Unit: mm)



### Recommended Land Pattern/推荐贴装尺寸



Type	L	W	H	D	a	b	c	Packaging (pcs/reel)
CWLF1608 [0603]	1.85 max.	1.25 max.	1.25 max.	0.35±0.2	1.02	0.64	0.64	2000
CWLF2012 [0805]	2.45 max.	1.75 max.	1.55 max.	0.50±0.3	1.78	1.02	0.76	2000
CWLF2520 [1008]	3.00 max.	2.85 max.	2.30 max.	0.50±0.3	2.54	1.02	1.27	2000
CWLF3216 [1206]	3.75 max.	2.30 max.	1.70 max.	0.50±0.3	1.93	1.02	1.78	2000
CWLF3225 [1210]	3.75 max.	3.10 max.	2.80 max.	0.50±0.3	3.02	1.02	1.78	2000

### Product Identification/品名注释

C W L F 1608 - 47N J C  
(1) (2) (3) (4) (5) (6) (7) (8)

(1) SMD/表面安装制品

(2) Wire Wound Chip/绕线片式

(3) Inductors/电感

(4) Ferrite/铁氧体

(5) Dimension symbol/尺寸表示:

1608=1.6 x 0.8 mm (L x W)

(6) Inductance value/电感值:

47N=47nH, R47=0.47uH, 4R7=4.7uH, 100=10uH

(7) Tolerance/公差: K=±10%, M=±20%

(8) Packing Style/包装形态: C=Carrier taping/编带包装

## CWLF1608 Electrical Characteristics

Part Number	Inductance (μH)	Inductance tolerance	Test frequency L/Q(MHz)	Q min.	DCR max. (Ω)	Rated current (mA)	SRF(MHz) min.
CWLF1608-47N□C	0.047	K,M	7.96	10	0.08	1500	1600
CWLF1608-85N□C	0.085	K,M	7.96	10	0.10	1500	1500
CWLF1608-R10□C	0.10	K,M	7.96	10	0.13	1500	1500
CWLF1608-R12□C	0.12	K,M	7.96	10	0.15	1500	1300
CWLF1608-R15□C	0.15	K,M	7.96	10	0.15	1450	1300
CWLF1608-R18□C	0.18	K,M	7.96	10	0.15	1400	1100
CWLF1608-R22□C	0.22	K,M	7.96	10	0.15	1350	1000
CWLF1608-R24□C	0.24	K,M	7.96	10	0.19	1300	1000
CWLF1608-R27□C	0.27	K,M	7.96	10	0.20	1250	1000
CWLF1608-R33□C	0.33	K,M	7.96	10	0.35	1200	850
CWLF1608-R39□C	0.39	K,M	7.96	10	0.39	1200	800
CWLF1608-R47□C	0.47	K,M	7.96	10	0.43	1050	700
CWLF1608-R56□C	0.56	K,M	7.96	10	0.44	850	600
CWLF1608-R68□C	0.68	K,M	7.96	10	0.52	850	600
CWLF1608-R82□C	0.82	K,M	7.96	10	0.69	750	450
CWLF1608-1R0□C	1.0	K,M	7.96	10	0.81	600	300
CWLF1608-1R2□C	1.2	K,M	7.96	10	0.87	550	250
CWLF1608-1R5□C	1.5	K,M	7.96	10	0.96	540	250
CWLF1608-1R8□C	1.8	K,M	7.96	10	1.10	520	230
CWLF1608-2R2□C	2.2	K,M	7.96	10	1.20	500	140
CWLF1608-2R7□C	2.7	K,M	7.96	10	1.50	480	100
CWLF1608-3R3□C	3.3	K,M	7.96	10	1.50	440	80
CWLF1608-3R9□C	3.9	K,M	7.96	10	1.60	430	80
CWLF1608-4R7□C	4.7	K,M	7.96	10	2.10	420	65
CWLF1608-5R6□C	5.6	K,M	7.96	10	2.60	420	65
CWLF1608-6R8□C	6.8	K,M	7.96	10	3.10	400	55
CWLF1608-8R2□C	8.2	K,M	7.96	10	3.60	400	40
CWLF1608-100□C	10	K,M	2.52	10	4.80	300	40

□ Tolerance: K=±10%, M=±20%.

• Test equipments: Inductance Q : HP4291A+16193A, or equivalent; SRF: HP8720C, or equivalent; DCR: YOKOGAWA TYPE7561, or equivalent.

• Rated current: The DC current at which the temperature rise is  $\Delta t=40^{\circ}\text{C}$  max.( $T_a=25^{\circ}\text{C}$ ).

• All test data is referenced to 25°C ambient.

## CWLF2012 Electrical Characteristics

Part Number	Inductance (μH)	Inductance tolerance	Test frequency L/Q(MHz)	Q min.	DCR max. (Ω)	Rated current (mA)	SRF(MHz) min.
CWLF2012-R47□C	0.47	K,M	7.96	10	0.20	750	720
CWLF2012-R56□C	0.56	K,M	7.96	10	0.21	730	665
CWLF2012-R68□C	0.68	K,M	7.96	10	0.28	670	565
CWLF2012-R82□C	0.82	K,M	7.96	10	0.31	650	545
CWLF2012-1R0□C	1.0	K,M	7.96	10	0.34	615	525
CWLF2012-1R2□C	1.2	K,M	7.96	10	0.39	550	473
CWLF2012-1R5□C	1.5	K,M	7.96	10	0.45	520	300
CWLF2012-1R8□C	1.8	K,M	7.96	10	0.48	500	230
CWLF2012-2R2□C	2.2	K,M	7.96	10	0.67	420	215
CWLF2012-2R7□C	2.7	K,M	7.96	10	0.74	410	140
CWLF2012-3R3□C	3.3	K,M	7.96	10	0.81	385	95
CWLF2012-3R9□C	3.9	K,M	7.96	10	0.88	372	57
CWLF2012-4R7□C	4.7	K,M	7.96	10	0.99	345	51
CWLF2012-5R6□C	5.6	K,M	7.96	10	1.06	335	44
CWLF2012-6R8□C	6.8	K,M	7.96	10	1.21	315	39
CWLF2012-8R2□C	8.2	K,M	7.96	10	1.33	295	33
CWLF2012-100□C	10	K,M	2.52	10	1.79	260	30
CWLF2012-120□C	12	K,M	2.52	10	1.98	250	27
CWLF2012-150□C	15	K,M	2.52	10	2.68	215	22
CWLF2012-180□C	18	K,M	2.52	10	3.12	195	20
CWLF2012-220□C	22	K,M	2.52	10	3.48	180	18
CWLF2012-270□C	27	K,M	2.52	10	3.84	170	16
CWLF2012-330□C	33	K,M	2.52	10	4.34	145	15
CWLF2012-470□C	47	K,M	2.52	10	13.8	55	14
CWLF2012-680□C	68	K,M	2.52	10	17.5	40	11

□ Tolerance: K=±10%, M=±20%.

• Test equipments: Inductance Q : HP4291A+16193A, or equivalent; SRF: HP8720C, or equivalent; DCR: YOKOGAWA TYPE7561, or equivalent.

• Rated current: The DC current at which the temperature rise is  $\Delta t=40^{\circ}\text{C}$  max.( $T_a=25^{\circ}\text{C}$ ).

• All test data is referenced to 25°C ambient.

## CWLF2520 Electrical Characteristics

Part Number	Inductance (μH)	Inductance tolerance	Test frequency L/Q(MHz)	Q min.	DCR max. (Ω)	Rated current (mA)	SRF(MHz) min.
CWLF2520-1R0□C	1.0	K,M	7.96	12	0.13	1000	345
CWLF2520-1R2□C	1.2	K,M	7.96	12	0.17	850	100
CWLF2520-1R5□C	1.5	K,M	7.96	12	0.17	850	100
CWLF2520-1R8□C	1.8	K,M	7.96	12	0.21	775	78
CWLF2520-2R2□C	2.2	K,M	7.96	12	0.21	775	78
CWLF2520-2R7□C	2.7	K,M	7.96	12	0.26	715	48
CWLF2520-3R3□C	3.3	K,M	7.96	12	0.26	715	48
CWLF2520-3R9□C	3.9	K,M	7.96	12	0.52	505	46
CWLF2520-4R7□C	4.7	K,M	7.96	12	0.52	505	46
CWLF2520-5R6□C	5.6	K,M	7.96	12	0.72	432	33
CWLF2520-6R8□C	6.8	K,M	7.96	12	0.72	432	33
CWLF2520-8R2□C	8.2	K,M	2.52	12	0.76	410	30
CWLF2520-100□C	10	K,M	2.52	12	0.86	392	28
CWLF2520-150□C	15	K,M	2.52	12	1.09	342	21
CWLF2520-220□C	22	K,M	2.52	12	1.96	260	18
CWLF2520-330□C	33	K,M	2.52	12	2.47	236	15

## CWLF3216 Electrical Characteristics

Part Number	Inductance (μH)	Inductance tolerance	Test frequency L/Q(MHz)	Q min.	DCR max. (Ω)	Rated current (mA)	SRF(MHz) min.
CWLF3216-1R5□C	1.5	K,M	7.96	25	1.2	320	260
CWLF3216-1R8□C	1.8	K,M	7.96	25	1.2	320	250
CWLF3216-2R2□C	2.2	K,M	7.96	25	1.3	300	240
CWLF3216-2R7□C	2.7	K,M	7.96	25	1.4	300	230
CWLF3216-3R3□C	3.3	K,M	7.96	25	1.5	280	200
CWLF3216-3R9□C	3.9	K,M	7.96	25	1.9	280	190
CWLF3216-4R7□C	4.7	K,M	7.96	25	2.2	280	170
CWLF3216-5R6□C	5.6	K,M	7.96	25	2.4	260	160
CWLF3216-6R8□C	6.8	K,M	7.96	25	2.8	240	150
CWLF3216-8R2□C	8.2	K,M	7.96	25	3.1	220	130
CWLF3216-100□C	10	K,M	7.96	25	4.0	200	120
CWLF3216-120□C	12	K,M	2.52	18	4.6	200	110
CWLF3216-150□C	15	K,M	2.52	18	8.2	160	90
CWLF3216-180□C	18	K,M	2.52	16	9.0	130	80

□ Tolerance: K=±10%, M=±20%.

• Test equipments: Inductance Q : HP4291A+16193A, or equivalent; SRF: HP8720C, or equivalent; DCR: YOKOGAWA TYPE7561, or equivalent.

• Rated current: The DC current at which the temperature rise is  $\Delta t=40^{\circ}\text{C}$  max.( $T_a=25^{\circ}\text{C}$ ).

• All test data is referenced to 25°C ambient.

## CWLF3225 Electrical Characteristics

Part Number	Inductance (μH)	Inductance tolerance	Test frequency L/Q(MHz)	Q min.	DCR max. (Ω)	Rated current (mA)	SRF(MHz) min.
CWLF3225-1R0□C	1.0	K,M	7.96	10	0.12	1200	290
CWLF3225-1R5□C	1.5	K,M	7.96	10	0.13	1000	260
CWLF3225-2R2□C	2.2	K,M	7.96	10	0.17	880	190
CWLF3225-3R3□C	3.3	K,M	7.96	10	0.22	775	64
CWLF3225-4R7□C	4.7	K,M	7.96	10	0.26	710	54
CWLF3225-6R8□C	6.8	K,M	7.96	10	0.30	660	34
CWLF3225-100□C	10	K,M	2.52	10	0.39	570	25
CWLF3225-150□C	15	K,M	2.52	10	0.66	440	17
CWLF3225-220□C	22	K,M	2.52	10	0.82	400	16
CWLF3225-330□C	33	K,M	2.52	10	1.50	285	12
CWLF3225-390□C	39	K,M	2.52	10	1.66	270	12
CWLF3225-470□C	47	K,M	2.52	10	1.90	260	10
CWLF3225-680□C	68	K,M	2.52	10	2.29	235	9.0
CWLF3225-101□C	100	K,M	1.00	10	3.48	190	7.0
CWLF3225-151□C	150	K,M	1.00	10	6.55	140	5.0
CWLF3225-221□C	220	K,M	1.00	10	8.23	115	4.0
CWLF3225-331□C	330	K,M	1.00	10	13.7	98	2.8
CWLF3225-471□C	470	K,M	1.00	10	18.1	86	2.6
CWLF3225-681□C	680	K,M	1.00	10	22.0	76	2.3

□ Tolerance: K=±10%, M=±20%.

• Test equipments: Inductance Q : HP4291A+16193A, or equivalent; SRF: HP8720C, or equivalent; DCR: YOKOGAWA TYPE7561, or equivalent.

• Rated current: The DC current at which the temperature rise is  $\Delta t=40^{\circ}\text{C}$  max.( $T_a=25^{\circ}\text{C}$ ).

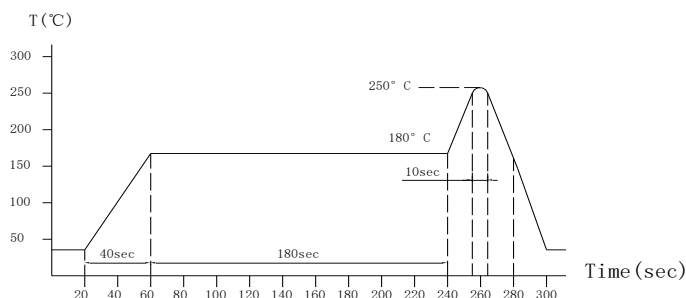
• All test data is referenced to 25°C ambient.

General Characteristics/一般特性

Operation Temperature Range /使用温度范围	-40~+85°C(Includes temperature when the coil is heated) / -40~+85°C(包含线圈自身发热)
Storage Conditions /保存条件(产品安装基板前)	To maintain the solderability of terminal electrodes: / 为了保持电极的可焊性, 请按以下保存条件存储: 1. Temperature and humidity conditions: 5~40°C and 30~70% RH; / 温度、湿度条件: 5~40°C、相对湿度 30~70%; 2. Recommended products should be used within 6 months form the time of delivery; / 产品应在交货后 6 个月内使用; 3. The products Should be stored in the complete package provided by the supplier; The packaging material should be kept where no chlorine or sulfur exists in the air; The packaging should be placed on the shelf. / 产品须存储在供方提供的完整的包装内; 产品包装应存放在空气中不含氯或硫的地方; 产品包装应放在货架上。
Transport Attentions /搬运注意事项	1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils; / 1. 产品搬运时应小心处理, 避免因出汗和皮肤油渍而造成损坏或污染; 2. The use of tweezers or vacuum pick up is strongly recommended for individual components; / 2. 强烈建议对单个部件使用镊子或真空吸嘴; 3. Bulk handling should ensure that abrasion and mechanical shock are minimized. / 3. 散货搬运应确保磨损和机械冲击最小化。
External Appearance/外观	On visual inspection, the coil has no external defects. / 目视检查时, 外观没有明显的缺陷。
Solderability Test/可焊性测试	The terminal shall be at least 90% covered with solder. Test condition: after fluxing, inductor shall be dipped in a melted solder bath at 245 ±5°C for 5 Sec. / 电极应至少覆盖 90% 的焊料。测试条件: 电极涂上助焊剂后在 245±5°C 的熔化焊槽中浸泡 5 秒。
Humidity Characteristics /耐湿度特性	Inductance deviation within ±10%, after 96 hours in 90~95% relative humidity at 40±2°C and 1 hour drying under normal condition. / 温度在 40±2°C, 相对湿度在 90~95% 条件下存放 96 小时后取出, 用布擦干, 然后在常温常湿中放置 1 小时, 电感值变化率±10%以内。
Thermal shock test /冷热冲击特性	Inductance deviation within ±10%, after 20 cycles of -40°C for 30 minutes, +85°C for 30 minutes. Characteristics are measured after the ambient air exposure of 1 hour. / -40°C 放置 30 分钟后转换为 +85°C 放置 30 分钟, 20 次循环, 然后在常温常湿中放置 1 小时, 电感值变化率±10%以内。
High temperature storage test /高温保存测试	Inductance deviation within ±10%, after 96 hours in +85°C±2°C characteristics are measured after ambient are exposure of 1 hour. / +85°C±2°C 放置 96 小时, 然后在常温常湿中放置 1 小时, 电感值变化率±10%以内。
Low temperature storage test /低温保存测试	Inductance deviation within ±10%, after 96 hours in -40°C±2°C characteristics are measured after ambient are exposure of 1 hour. / -40°C±2°C 放置 96 小时, 然后在常温常湿中放置 1 小时, 电感值变化率±10%以内。

Recommended Reflow Conditions (Lead-free)

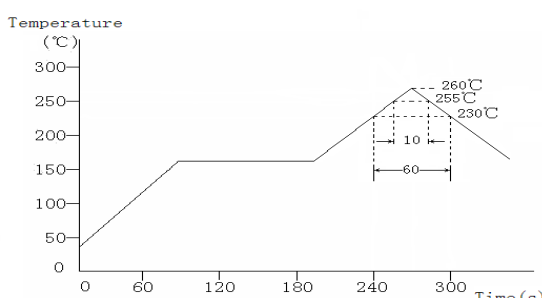
/推荐回流焊条件(无铅)



The reflow condition recommended above is according to the machine used by our company. Big differences will arises a result of the type of machine, reflow conditions, method, used etc. Hence, before setting up your reflow conditions, please confirm with the above. / 上面推荐的回流焊试验条件是根据本公司的回流焊设备测试结果得到。不同的试验设备、试验条件和试验方法及试

Reflow Soldering Heat Endurance

/回流焊耐热



No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours. / 在该条件下进行回流焊, 常温常湿条件下放置 2 个小时后, 无机械、电气特性缺陷发生。  
 Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions. / 在常温常湿条件下, 间隔 1 个小时可进行两次回流焊。The reflow test profile may vary with the testing