# Specification For Approval

| | |
|---|---|
| Customer | |
| Product Name | Wire Wound Molded SMD Power Inductors |
| Customer P/N: | |
| Cjiang P/N: | FXL0650 Series |

[ ■New Released, □ Revised] SPEC No.:

| REMARK： | | |
|---|---|---|
| Customer Approval Feedback | | |
| | | |

●深圳市长江微电科技有限公司

SZ CJIANG TECHNOLOGY CO.,LTD

ADD： 11F, International Science and Technology Building, Fuhong Road, Futian District, Shenzhen

Factory ADD:No. shanyang RD CJIANG Industrial Park HUAi'AN Section HUAI'AN City Jiangsu Province

TEL: 0755-82529562 FAX:0755-83977004

http://www.CJING.COM.CN

E-mail: BOND@Cjiang.com.cn； ann@cjiang.com.cn

| Version change history | | | | | |
|---|---|---|---|---|---|
| Rev | Date | Description | APPROVED | CHECKED | DRAWN |
| 1.0 | 2020/8/9 | 文件制定 | Bond | Charles | 王云燕 |

Caution :

All products listed in this specification are developed, designed and intended for use in general electronics equipment. The products are not designed or Warranted to meet the requirements of the applications listed below, whose performance and/or quality require especially high reliability, or whose failure, malfunction or trouble might directly cause damage to society, person, or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below. Please contact us for more details if you intend to use our products in the following applications.

1. Aircraft equipment.
2. Aerospace equipment.
3. Undersea equipment.
4. nuclear control equipment.
5. military equipment.
6. Power plant equipment.
7. Medical equipment.
8. Transportation equipment (automobiles, trains, ships,etc.)
9. Traffic signal equipment.
10. Disaster prevention / crime prevention equipment.
11. Data-processing equipment.
12. Applications of similar complexity or with reliability requirements comparable to the applications listed in the above.

# FXL0650 Series

RoHS compliant

## introduction

- ROHS，Halogen Free and REACH compliance
- High rated current
- 125℃ maximum total temperature operation
- 7.3×6.8×5.0mm maximum surface mount package
- Low core loss
- Ultra low buzz noise due to molding construction




## Applications

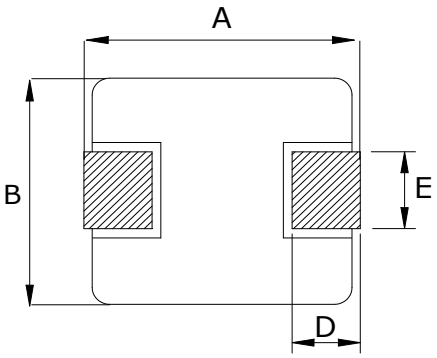
- Laptops and PCs
- Switch and servers
- Base stations
- DC/DC converters
- Battery powered devices
- SSD modules

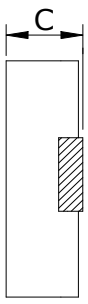
## Product Identification

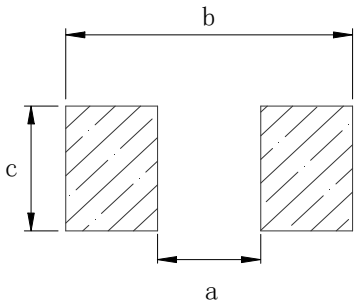
| FXL | 0650 | -6R8 | -M |
|---|---|---|---|
| ① | ② | ③ | ④ |

① FXL ---------- Series name
② 0650 ---------- Dimension
③ 6R8 ---------- Inductance Value (6R8 = 6.8μH)
④ M ----------Inductance Tolerance ( M= ± 20% )

## Dimensions (unit:mm)




Recommend Land Pattern

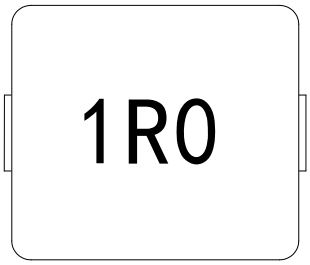
| A | B | C | D | E | a typ | b typ | c typ |
|---|---|---|---|---|---|---|---|
| 7.0±0.3 | 6.6±0.2 | 4.8±0.2 | 1.6±0.3 | 3.0±0.3 | 3.7 | 8.4 | 3.5 |

## Marking

The inductor is marked with a 3-digit code

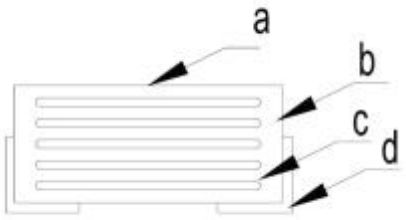
| Nominal Inductance | |
|---|---|
| Example | Nominal Value |
| 1R0 | 1.0 μH |
| 100 | 10 μH |
| 101 | 100 μH |

Note：Using Ink for marking




## Structure and Components

| Symbol | Components | Material |
|---|---|---|
| a | MARKING | Ink (black) |
| b | CORE | Alloy Sponge Powder |
| c | WIRE | Polyurethane copper wire |
| d | Terminal | Copper plated with Sn |



| Part No. | Inductance | DC Resistance | Saturation Current | Heating Rating Current |
|---|---|---|---|---|
| | L0 (μH) | DCR (mΩ) | Isat (A) | Irms (A) |
| | ±20 %, 100 kHz, 1V | MAX. | TYP. | TYP. |
| FXL0650-R47-M | 0.47 | 3.9 | 21 | 20 |
| FXL0650-R68-M | 0.68 | 4.5 | 18 | 16.5 |
| FXL0650-1R0-M | 1.0 | 6.6 | 16 | 12 |
| FXL0650-1R5-M | 1.5 | 10 | 13 | 9.5 |
| FXL0650-2R2-M | 2.2 | 12.5 | 11 | 9 |
| FXL0650-3R3-M | 3.3 | 22 | 10 | 8.5 |
| FXL0650-4R7-M | 4.7 | 29 | 8 | 6 |
| FXL0650-6R8-M | 6.8 | 41 | 6.3 | 5.8 |
| FXL0650-8R2-M | 8.2 | 48 | 5.5 | 5.5 |
| FXL0650-100-M | 10 | 60 | 5.3 | 4.5 |
| FXL0650-150-M | 15 | 90 | 4 | 3.1 |
| FXL0650-220-M | 22 | 140 | 3.5 | 2.6 |
| FXL0650-330-M | 33 | 190 | 3 | 2.3 |
| FXL0650-470-M | 47 | 230 | 2.6 | 2 |

**Notes**

1. All test data is referenced to 25 °C ambient
2. Operating temperature range - 55 °C to + 125 °C
3. Irms (A):DC current (A) that will cause an approximate ΔT of 40 °C(reference ambient temperature is 25 °C)
4. Isat(A):DC current (A) that will cause L0 to drop approximately 30 %
5. The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
6. For FXL series inductors,absolute maximum voltage:DC30V

| Mechanical Reliability | | |
|---|---|---|
| Item | Specification and Requirement | Test Method |
| Solderability | 1. No case deformation or change in apperarance<br>2. New solder coverage More than 95% | 1.Preheat：155℃±5℃ ，60S±2S<br>2.Tin: lead-free.<br>3.Temperature:240℃±5℃，flux 3.0S±0.5S. |
| Mechanical shock | 1. No case deformation or change in apperarance<br>2. △L/Lo≦±10% | 1. Acceleration： 100G<br>2. Pulse time:：6ms<br>3. 3 times in each positive and negative direction of 3 mutual perpendicular directions |
| Mechanical vibration | 1. No case deformation or change in apperarance<br>2. △L/Lo≦±10% | 1. Reflow: 2times<br>2. Frequency: 10HZ～55HZ～10HZ，20 Min/Cycles<br>3. Amplitude: 1.52 mm<br>4. Directions: X,Y,Z<br>5. Time: 12 cycle / direction |
| Endurance Reliability | | |
| Item | Specification and Requirement | Test Method |
| Thermal Shock | Inductance change: Within ± 10% Without distinct damage in appearance | 1. First -55℃ for 30 minutes，last 125℃ for 30 minutes as 1 cycle. Go through 1000 cycles.<br>2. Max transfer time is 3 minutes.<br>3. Measured at room temperature after placing for 24±2 hours |
| Humidity Resistance | Inductance change: Within ± 10% Without distinct damage in appearance | 1.Reflow 2 times,<br>2.85℃,85%RH,1000 hours<br>3.Measured at room temperature after placing for 24±2 hours |
| Low temperature storage | Inductance change: Within ± 10% Without distinct damage in appearance | 1. Temperature：-55 ± 2℃<br>2. Time：1000 hours<br>3. Measured at room temperature after placing for 24±2 hours |
| High temperature storage | Inductance change: Within ± 10% Without distinct damage in appearance | 1. Temperature：+125 ± 2℃<br>2. Time：1000 hours<br>3. Measured at room temperature after placing for 24±2 hours |

## Recommended Soldering Technologies

### (1)Re-flowing Profile

Preheat condition: 150 ~200℃/60~180sec.

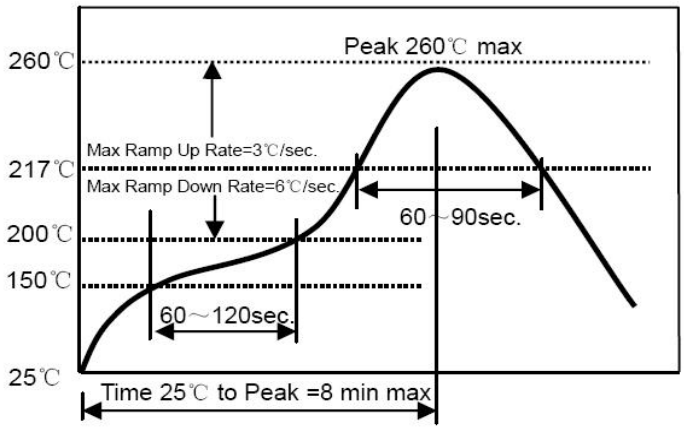
Allowed time above 217℃: 80~120sec.

Max temp: 260℃

Max time at max temp: 10 sec.

Solder paste: Sn/3.0Ag/0.5Cu

Allowed Reflow time: 2x max




### (2)Iron Soldering Profile

Iron soldering power: Max. 30W

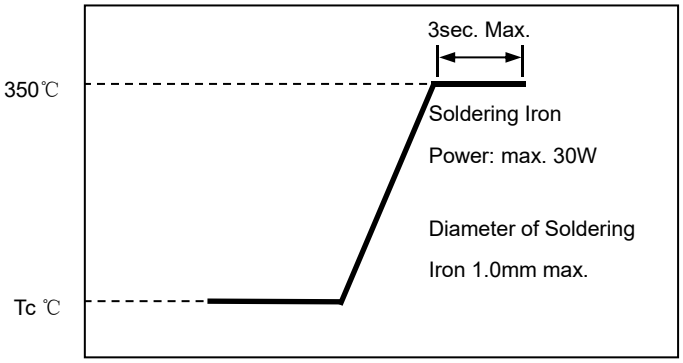
Pre-heating: 150℃/60sec.

Soldering Tip temperature: 350℃ Max.

Soldering time: 3sec. Max.

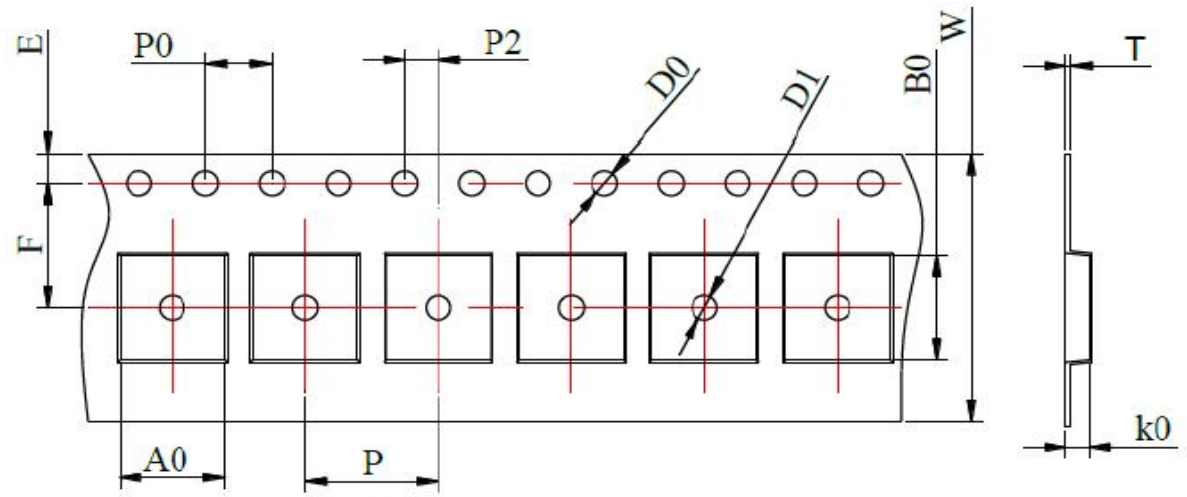
Solder paste: Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering



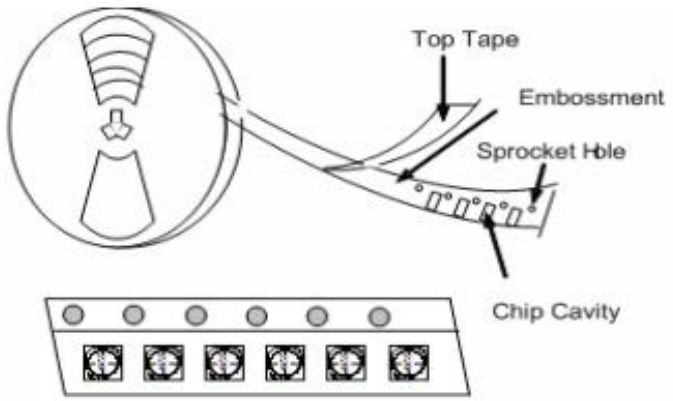
## Packaging Information

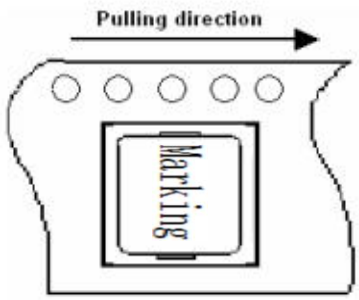
### (1) Tape Packaging Dimensions（Unit：mm）



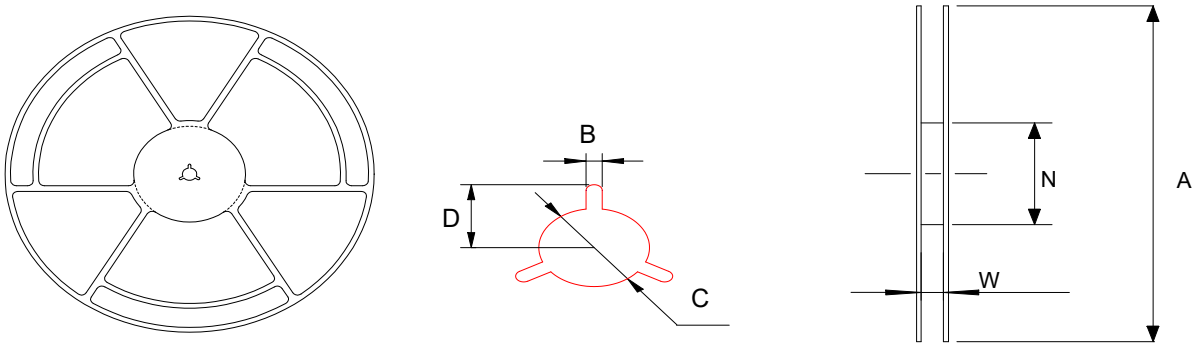

| Type | Tape dimensions (mm) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | P | P0 | P2 | D0 | D1 | T | A0 | B0 | K0 | E | F |
| FXL0650 | 16 ±0.3 | 12 ±0.1 | 4 ±0.1 | 2 ±0.1 | 1.5 ±0.1 | 1.5 ±0.1 | 0.4 ±0.05 | 6.9 ±0.1 | 7.5 ±0.1 | 5.4 ±0.1 | 1.75 ±0.1 | 7.5 ±0.1 |

### Taping Drawings (UNIT:mm)



**(2) Reel Dimensions（Unit：mm）**




| A | W | N | B | C | D |
|---|---|---|---|---|---|
| 330+2.0 | 16.8+0.2 | 97+0.5 | 2.2+0.5 | 13.2±0.2 | 10.75±0.25 |

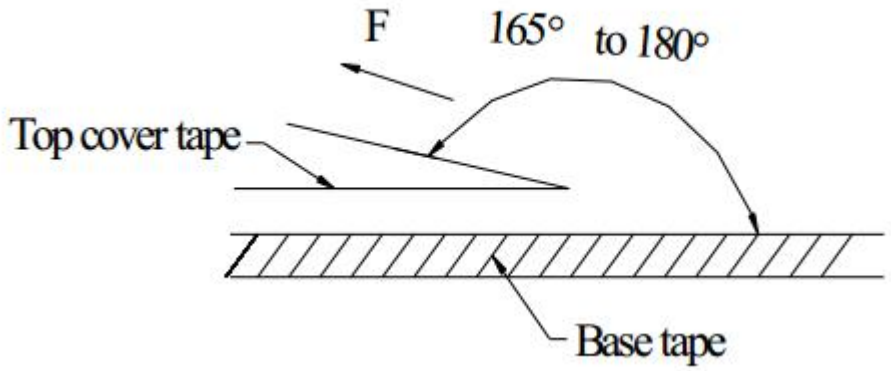
**(3) Packaging Quantity(PCS)**

| Type | Standard Quantity | | |
|---|---|---|---|
| | Reel | Inner box | Carton box |
| FXL0650 | 1000pcs / reel | 3Reel / box (3000 pcs) | 3 Middle boxes, (9000 pcs) |

**(4) Peel force of top cover tape**

The peel speed shall be about 300mm/minute

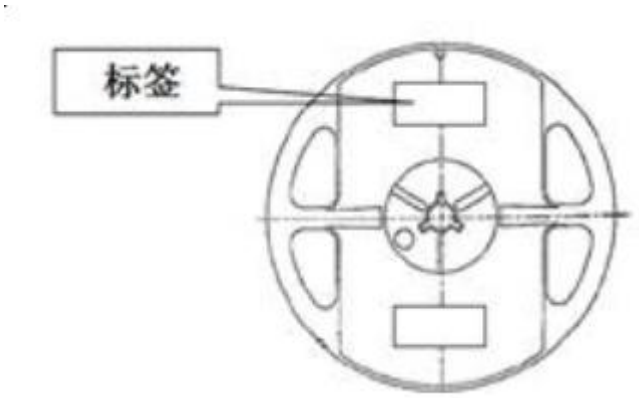
The peel force of top cover tape shall be between 0.1 to 1.3 N



**(5) Reel Label**

Label on the reel

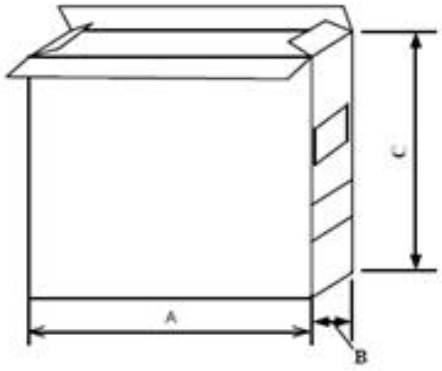
- Customer's part Number
- Lot Number
- Quantity
- date code




Shipping Label

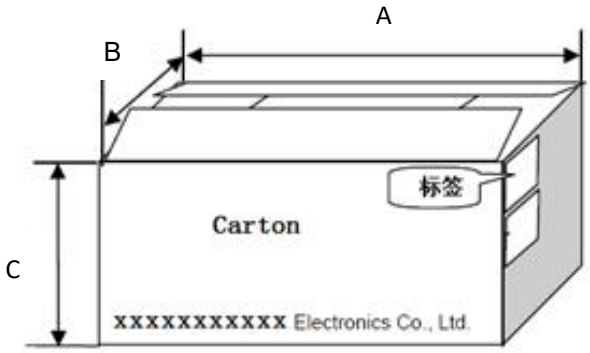
- Customer's part Number
- Manufacturer's part Number
- Quantity
- date code

**(6) Inner Box**




| Packaging type | A(mm) | B(mm) | B(mm) |
|---|---|---|---|
| inner box | 354 | 335 | 86 |

**(7) Carton**




| Packaging type | A(mm) | B(mm) | B(mm) |
|---|---|---|---|
| type | 370 | 365 | 285 |