# SMT Ferrite Chip Inductor
# SFI322522S Series

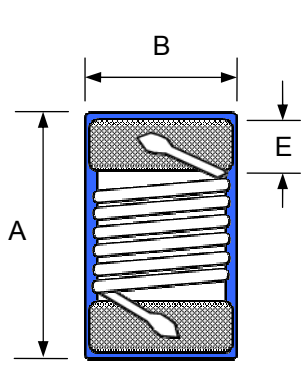
## ■ Feature

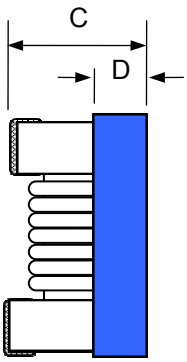
- Utilizing a miniaturized winding structure.
- These products provide high Q characteristics.
- Resin-coated surface enables excellent mounting.
- Low DC resistance design is ideal for low loss.
- Precision inductance tolerance is available.

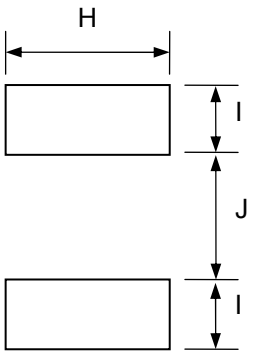
## ■ Application

- Personal computers, Hard disk drives.
- xDSL modem and Cable modem.
- Digital camera and other electronic equipment

## ■ SHAPES AND DIMENSIONS



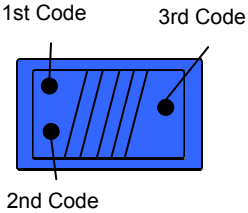




| Unit | A max | B max | C max | D ref | E |
|---|---|---|---|---|---|
| mm | 3.60 | 2.90 | 2.50 | 1.10 | 0.5 ±0.1 |
| inch | 0.142 | 0.114 | 0.098 | 0.043 | 0.02 ±0.004 |

Recommend PAD Layout

| H | I | J |
|---|---|---|
| 2.70 | 1.20 | 2.00 |
| 0.106 | 0.047 | 0.079 |

Marking： Color Coding




Equivalent circuit


RoHS

## ■ PART NUMBER CODE

| SFI | 322522 | S | 100 | J | A |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |

1. Series Name
2. Size Code
3. Type Code
4. Inductance (R=Decimal Point) Unit：uH

   100 = 10uH
5. Inductance tolerance：

   “J” ±5%; “K” ±10%.
6. Soldering：A=Lead free

## ■ ELECTRICAL CHARACTERISTICS

1. Test equipments

   1.1. L, Q, SRF: Agilent/HP E4991A+ Agilent/HP16197A or equivalent

   1.2. Rdc: Chroma 16502 Digital Milli-ohm Meter or equivalent

   1.3. Idc for Inductance drop 10% from its value without current.

   1.4. Operating temperature range -25℃ to 105℃

   1.5. Irms for a 25℃ rise above 25℃ ambient.

RoHS

## 2. Part Number and Characteristics Table

| Part Number | Inductance | Inductance | Q/MHz | SRF (MHz) | Rdc (Ω) | Idc (mA) | Color Coding | | |
|---|---|---|---|---|---|---|---|---|---|
| | (uH)/MHz | Tolerance | Min. | Typ. | Max. | Max. | 1st | 2nd | 3rd |
| SFI322522S-R12□A | 0.12/25 | K | 40/25 | 1000 | 0.07 | 2000 | Brown | Red | Brown |
| SFI322522S-R18□A | 0.18/25 | J, K | 40/25 | 900 | 0.12 | 1900 | Brown | Gray | Brown |
| SFI322522S-R22□A | 0.22/25 | J, K | 40/25 | 600 | 0.18 | 1700 | Red | Red | Brown |
| SFI322522S-R27□A | 0.27/25 | J, K | 40/25 | 600 | 0.23 | 1600 | Red | Violet | Brown |
| SFI322522S-R29□A | 0.29/25 | J, K | 40/25 | 550 | 0.25 | 1550 | Red | White | Brown |
| SFI322522S-R33□A | 0.33/25 | J, K | 40/25 | 500 | 0.27 | 1500 | Orange | Orange | Brown |
| SFI322522S-R39□A | 0.39/25 | J, K | 40/25 | 500 | 0.30 | 1500 | Orange | White | Brown |
| SFI322522S-R56□A | 0.56/25 | J, K | 35/25 | 440 | 0.35 | 1400 | Green | Blue | Brown |
| SFI322522S-R82□A | 0.82/25 | J, K | 35/25 | 340 | 0.38 | 1300 | Gray | Red | Brown |
| SFI322522S-1R0□A | 1.0/7.9 | J, K | 35/7.9 | 320 | 0.42 | 1200 | Brown | Black | Red |
| SFI322522S-1R2□A | 1.2/7.9 | J, K | 35/7.9 | 280 | 0.47 | 1100 | Brown | Red | Red |
| SFI322522S-1R5□A | 1.5/7.9 | J, K | 35/7.9 | 250 | 0.50 | 1100 | Brown | Green | Red |
| SFI322522S-1R8□A | 1.8/7.9 | J, K | 40/7.9 | 203 | 0.62 | 1000 | Brown | Gray | Red |
| SFI322522S-2R2□A | 2.2/7.9 | J, K | 33/7.9 | 200 | 0.65 | 1000 | Red | Red | Red |
| SFI322522S-2R7□A | 2.7/7.9 | J, K | 40/7.9 | 200 | 0.65 | 1000 | Red | Violet | Red |
| SFI322522S-3R0□A | 3.0/7.9 | J, K | 40/7.9 | 180 | 0.78 | 800 | Orange | Black | Red |
| SFI322522S-3R3□A | 3.3/7.9 | J, K | 30/7.9 | 146 | 0.83 | 1200 | Orange | Orange | Red |
| SFI322522S-3R9□A | 3.9/7.9 | J, K | 30/7.9 | 139 | 1.74 | 900 | Orange | White | Red |
| SFI322522S-4R7□A | 4.7/7.9 | J, K | 35/7.9 | 124 | 1.90 | 800 | Yellow | Violet | Red |
| SFI322522S-5R6□A | 5.6/7.9 | J, K | 30/7.9 | 114 | 2.05 | 700 | Green | Blue | Red |
| SFI322522S-6R8□A | 6.8/7.9 | J, K | 30/7.9 | 109 | 1.37 | 450 | Blue | Gray | Red |
| SFI322522S-8R2□A | 8.2/7.9 | J, K | 30/7.9 | 90 | 1.60 | 600 | Gray | Red | Red |
| SFI322522S-100□A | 10/2.5 | J, K | 23/2.5 | 90 | 1.70 | 590 | Brown | Black | Orange |
| SFI322522S-120□A | 12/2.5 | J, K | 23/2.5 | 67 | 2.12 | 420 | Brown | Red | Orange |
| SFI322522S-150□A | 15/2.5 | J, K | 25/2.5 | 67 | 2.22 | 340 | Brown | Green | Orange |
| SFI322522S-180□A | 18/2.5 | J, K | 25/2.5 | 57 | 2.42 | 330 | Brown | Gray | Orange |
| SFI322522S-220□A | 22/2.5 | J, K | 25/2.5 | 48 | 2.66 | 300 | Red | Red | Orange |
| SFI322522S-270□A | 27/2.5 | J, K | 25/2.5 | 38 | 2.99 | 250 | Red | Violet | Orange |
| SFI322522S-330□A | 33/2.5 | J, K | 25/2.5 | 26 | 3.24 | 220 | Orange | Orange | Orange |
| SFI322522S-390□A | 39/2.5 | J, K | 25/2.5 | 24 | 3.61 | 195 | Orange | White | Orange |
| SFI322522S-470□A | 47/2.5 | J, K | 25/2.5 | 22 | 3.96 | 195 | Yellow | Violet | Orange |

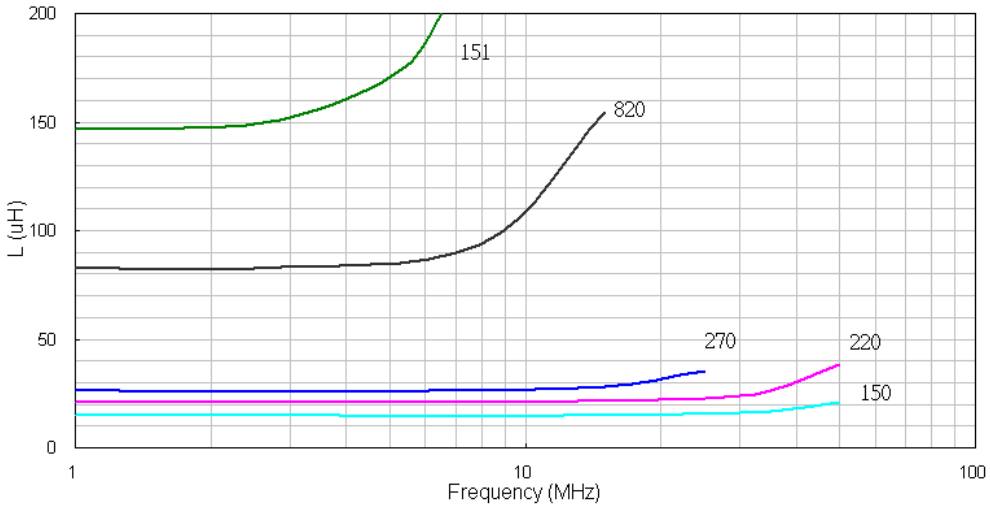
| Part Number | Inductance | Inductance | Q/MHz | SRF (MHz) | Rdc (Ω) | Idc (mA) | Color Coding | | |
|---|---|---|---|---|---|---|---|---|---|
| | (uH)/MHz | Tolerance | Min. | Typ. | Max. | Max. | 1st | 2nd | 3rd |
| SFI322522S-560□A | 56/2.5 | J, K | 25/2.5 | 20 | 4.36 | 190 | Green | Blue | Orange |
| SFI322522S-680□A | 68/2.5 | J, K | 23/2.5 | 15 | 4.50 | 340 | Blue | Gray | Orange |
| SFI322522S-820□A | 82/2.5 | J, K | 23/2.5 | 15 | 5.95 | 280 | Gray | Red | Orange |
| SFI322522S-101□A | 100/1 | J, K | 15/1 | 14 | 6.62 | 250 | Brown | Black | Yellow |
| SFI322522S-121□A | 120/1 | J, K | 15/1 | 11 | 7.53 | 190 | Brown | Red | Yellow |
| SFI322522S-151□A | 150/1 | J, K | 15/1 | 11 | 8.29 | 135 | Brown | Green | Yellow |
| SFI322522S-181□A | 180/1 | J, K | 15/1 | 10 | 11.53 | 100 | Brown | Gray | Yellow |
| SFI322522S-221□A | 220/1 | J, K | 15/1 | 8 | 12.48 | 80 | Red | Red | Yellow |

When ordering, please specify tolerance and packaging codes. Ex: SFI322522S-680KA ;
Tolerance : J = ±5% , K = ±10% ; Packaging: Clear tape and reel { standard }.

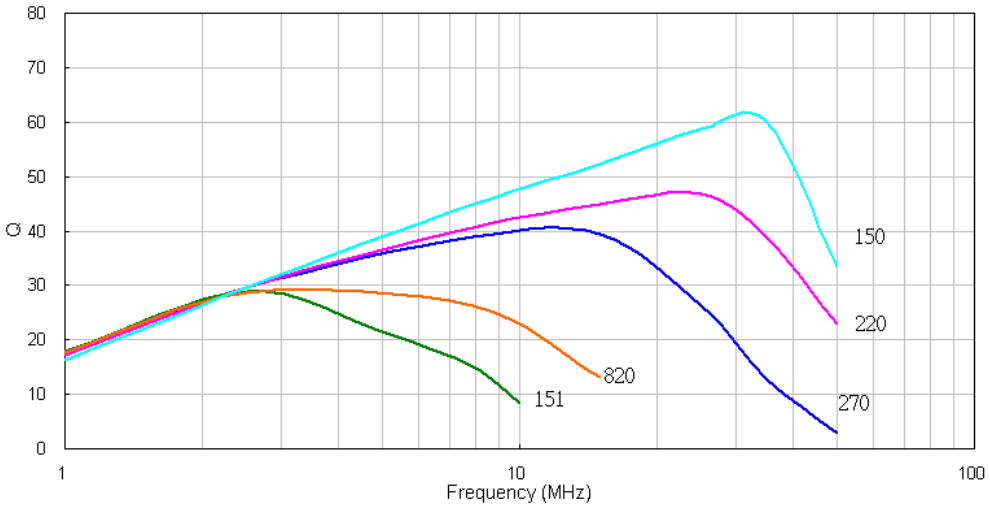
RoHS

## ■ TYPICAL CHARACTERISTICS CURVE

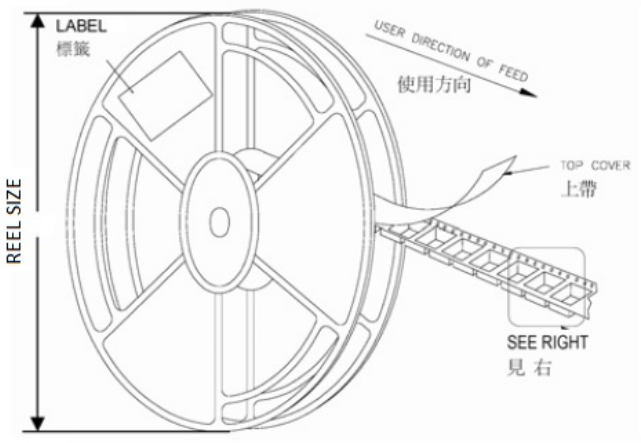
### 1. L VS. FREQUENCY CHARACTERISTICS

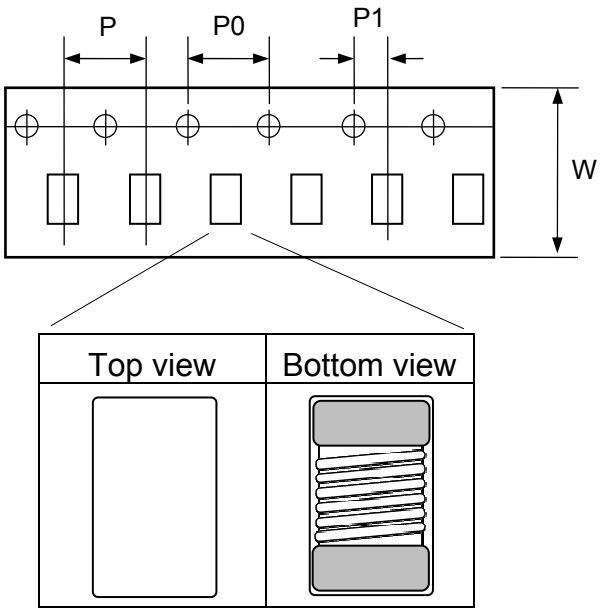



### 2. Q VS. FREQUENCY CHARACTERISTICS



## ■ REEL DIMENSIONS AND PACKAGING QUANTITY

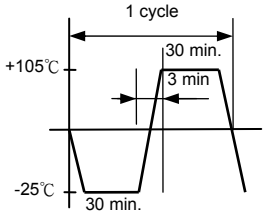



Unit: mm

| TYPE | W | P | P0 | P1 | REEL SIZE | PCS / REEL |
|---|---|---|---|---|---|---|
| **SFI322522S** | 8 | 4 | 4 | 2 | 180 mm (7”) | 2000 |

## ■ RELIABILITY AND TEST CONDITION

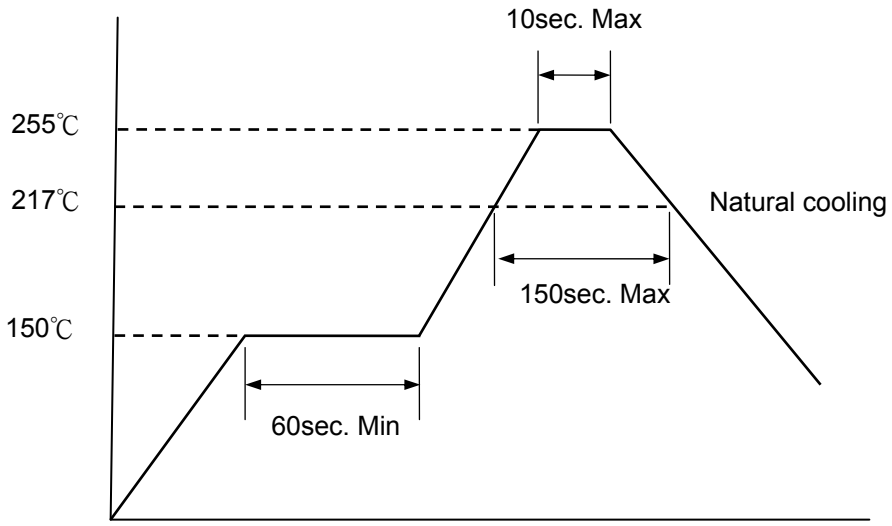
| Item (項目) | Required Characteristics (要求) | Test Method/Condition (測試方法) |
|---|---|---|
| Solderability | The metalized area must have 90% minimum solder coverage. | Dip pads in flux and dip in solder pot ( 96.5 Sn/3.5 Ag solder) at 255°C ±5°C. |
| Resistance to soldering heat | There must be no case deformation or change in dimensions.<br>Inductance must not change more than the stated tolerance. | Inductors shall be reflowed onto a PC board using 96.5 Sn/3.5 Ag solder paste.<br>Solder process shall be at a maximum temperature of 260°C.<br>For 96.5 Sn/3.5 Ag solder paste:>217°C for 90 seconds |
| Vibration | There must be no case deformation or change in dimensions.<br>Inductance must not change more than the stated tolerance. | Solder specimen inductor on the test printed circuit board. Apply vibrations in each of the x, y and z directions for 2 house for a total of 6 hours.<br>Frequency : 10~50 Hz<br>Amplitude : 1.5mm |
| High temperature resistance | There must be no case deformation or change in dimensions.<br>Inductance must not change more than the stated tolerance. | Inductors shall be subjected to temperature 105±2℃ for 500±12 hours.<br>Measure the test items after leaving the inductors at room temperature and humidity for 2 hours. |
| Static Humidity | Inductors must not have a shorted or open winding. | Inductors shall be subjected to temperature 85±2℃ and 90 to 95%RH for ten 24hours.<br>Measure the test items after leaving the inductors at room temperature and humidity for 2 hours. |
| Component adhesion (push test) | Inductors shall be subjected to 1.8Kg | Inductors shall be reflow soldered (255°C ±5°C for 10 seconds) to a tinned copper substrate.<br>A force gauge shall be applied to the side of the component.<br>The device must withstand the stated force without a failure of the termination. |
| Low temperature storage | There must be no case deformation or change in dimensions.<br>Inductance must not change more than the stated tolerance. | Inductors shall be subjected to temperature -25±2℃ for 500±12 hours.<br>Measure the test items after leaving the inductors at room temperature and humidity for 1 to 2 hours. |
| Resistance to solvent | There must be no case deformation, change in dimensions, or obliteration of marking. | Inductors must withstand 6 minutes of alcohol or water. |
| Thermal shock | There must be no case deformation or change in dimensions.<br>Inductance must not change more than the stated tolerance. | Inductors shall be subjected to 10 cycles to the following temperature cycle:<br>  <br><br>Measure the test items after leaving the inductors at room temperature and humidity for 2 hours. |

## ■ RECOMMENDED SOLDERING CONDITIONS

**Please use this product by reflow soldering**

### 1. Recommended Reflow Pattern

Reflow : until two times




### 2. Iron Soldering

Use a solder iron of less than 30W when soldering, do not allow the soldering iron tip directly touch the Ceramic body outside of terminal electrode.
5 seconds max. at 260℃.

### 3. Attention in Case of Using

In case of using product, please avoid following matters:

Splashing water or salt water
Dew condenses
Toxic gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
Vibrations or shocks which exceed the specified condition

Please be careful for the stress to this product by board flexure or something after the mounting.

### 4. Other

Operating temperature range : Ferrite Series :-25~+105℃
Storage condition : Temperature 20˚~25℃, Relative Humidity 40%~60%
Recommended wire wound inductors should be used within 6 months from the time of delivery.

RoHS