FERRITE CHIP INDUCTORS

L252010 SERIES

L 2 5 2 0 1 0 1 R 0 M - □ □

(a) (b) (c) (d) (e)

(a) Series code

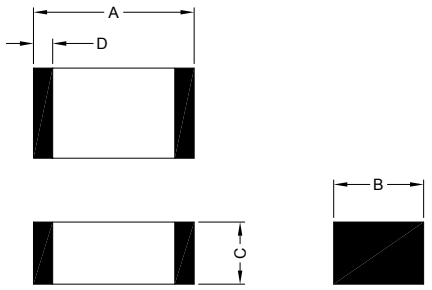
(b) Dimension code

(c) Inductance code : 1R0 = 1.0uH

(d) Tolerance code : M = ±20%, Y = ±30%

(e) Internal Controller Number

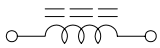
2. CONFIGURATION & DIMENSIONS :



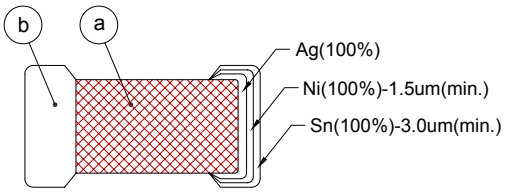
Unit:m/m

A	B	C	D
2.5 ±0.2	2.0 ±0.2	1.0 Max.	0.50 ±0.3

3. SCHEMATIC :



4. MATERIALS :



(a) Body : Ferrite

(b) Termination : Ag/Ni/Sn

5. GENERAL SPECIFICATION :

a) Temp. rise : 40°C Max.

b) Rated current : Base on temp. rise

c) Storage temp. : -40°C to +105°C

d) Operating temp. : -40°C to +105°C

e) Resistance to solder heat : 260°C.10secs

Pb

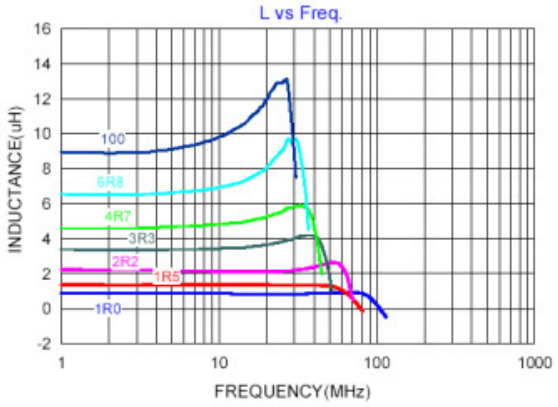
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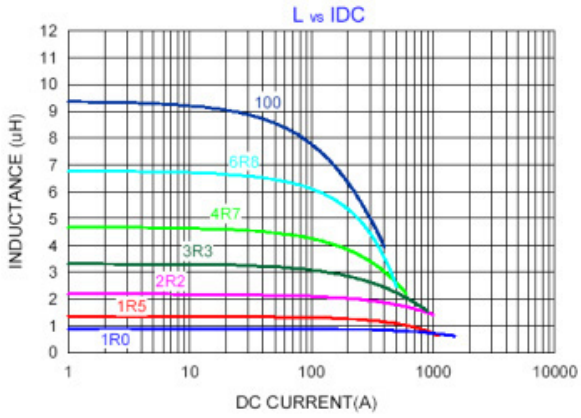
6. ELECTRICAL CHARACTERISTICS :

Part Number	Inductance (μH)	Test Frequency (MHz)	Rated Current (mA) Max	DC Resistance (Ω)	SRF (MHz) Min
L2520101R0M-□ □	1.0 ±20%	1	1500	0.10 ±30%	90
L2520101R5M-□ □	1.5 ±20%	1	1400	0.12 ±30%	60
L2520102R2M-□ □	2.2 ±20%	1	1300	0.14 ±30%	50
L2520103R3M-□ □	3.3 ±20%	1	1200	0.18 ±30%	40
L2520104R7M-□ □	4.7 ±20%	1	1000	0.23 ±30%	35
L2520106R8M-□ □	6.8 ±20%	1	900	0.25 ±30%	30
L252010100M-□ □	10 ±20%	1	800	0.30 ±30%	20

6-1. INDUCTANCE VS. FREQUENCY CURVE :



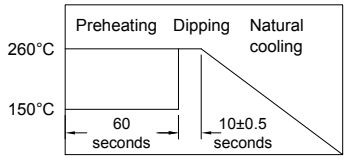
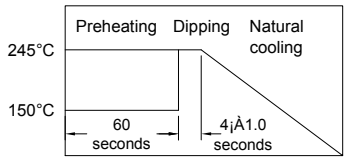
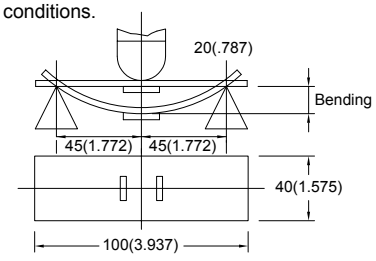
6-2 INDUCTANCE-CURRENT CURVE :



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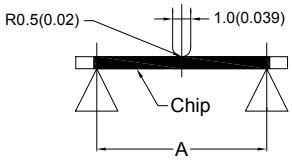
7. RELIABILITY & TEST CONDITION :

ITEM	PERFORMANCE	TEST CONDITION
Operating Temperature	-40~+105°C (Including self-temperature rise)	
Storage Temperature	-40~+105°C	Long storage conditions, please see the aplication notice
Inductance	Refer to standard electrical characteristics list	HP4291, HP E4991+HP4287 +HP16192
DC Resistance		HP4338
Rated Current		DC Power Supply, over rated current ,there will be some risk
Temperature Rise Test	40°C max. (Δt)	1. Applied the allowed DC current. 2. Temperature measured by digital surface thermometer.
Solder Heat Resistance	No mechanical damage Remaining terminal electrode : 75% min. Appearance: No significant abnormality. Inductance change: Within ± 10%. 	Preheat : 150°C, 60sec. Solder : Sn-Cu0.5 Solder Temperature : 260±5°C Flux for lead free : ROL0 Dip Time : 10±0.5sec.
Solderability	More than 95% of the terminal electrode should be covered with solder. 	Preheat : 150°C, 60sec. Solder : Sn-Cu0.5 Solder Temperature : 245±5°C Flux for lead free : ROL0 Dip Time : 4±1sec.
Terminal Strength	The terminal electrode & the dielectric must not be damaged by the forces applied on the right conditions. 	<table><tr><td>Size</td><td>Force (Kfg)</td><td>Time (sec)</td></tr><tr><td>L252010</td><td>1.0</td><td>> 30</td></tr></table>
Flexture Strength	The terminal electrode & the dielectric must not be damaged by the forces applied on the right conditions. 	Solder a chip on a test substrate, bend the substrate by 2mm (0.079in) and return. The duration of the applied forces shall be 60(+5) Sec

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7. RELIABILITY & TEST CONDITION :

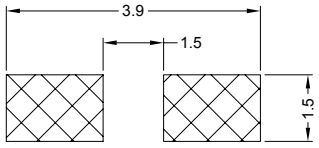
<table>
<tr><th>ITEM</th><th>PERFORMANCE</th><th>TEST CONDITION</th></tr>
<tr><td>Bending Strength</td><td>The ferrite should not be damaged by forces applied on the right condition.

</td><td><table><tr><th>Size</th><th>mm (inches)</th><th>P-Kgf</th></tr><tr><td>L252010</td><td>1.40(0.055)</td><td>1.0</td></tr></table></td></tr>
<tr><td>Random Vibration Test</td><td>Appearance : Cracking, Chipping & any other defects harmful to the characteristics should not be allowed.
Inductance: within±30%</td><td>Frequency : 10-55-10Hz for 15 min.
Amplitude : 1.52mm
Directions & times : X, Y, Z directions for 15 mins
This cycle shall be performed 12 times in each of three mutually perpendicular direction.(Total 9 hours)</td></tr>
<tr><td>Drop</td><td>No mechanical damage
Inductance change : within±10%</td><td>Drop 10 times on a concrete floor from a height of 75cm.</td></tr>
<tr><td>Life testing at high temperature Temperature</td><td rowspan="2">Appearance : No damage.
Inductance : Within ±10% of initial value.</td><td>Temperature : 105±2°C
Applied Current : rated current
Duration : 1008±12hrs
Measured at room temperature after placing for 2 to 3hrs.</td></tr>
<tr><td>Humidity</td><td>Humidity : 90~95% RH.
Temperature : 40±2°C
Duration : 504±8hrs
Measured at room temperature after placing for 2 to 3hrs.</td></tr>
<tr><td>Thermal Shock</td><td>Appearance : No damage.
Inductance : Within ±10% of initial value.
<table><tr><th>Phase</th><th>Temperature (°C)</th><th>Times (min.)</th></tr><tr><td>1</td><td>-40±2°C</td><td>30±5</td></tr><tr><td>2</td><td>room temp</td><td><0.5</td></tr><tr><td>3</td><td>+105±2°C</td><td>30±5</td></tr></table>Measured : 500 times</td><td>Condition for 1 cycle
Step1 : -40±2°C 30±5 min.
Step2 : +105±5°C 30±5 min.
Number of cycles : 500
Measured at room temperature after placing for 2 to 3hrs.</td></tr>
<tr><td>Low temperature storage test</td><td>Appearance : No damage.
Inductance : Within ±30% of initial value.</td><td>Temperature : -40±2°C
Duration : 500±8hrs
Measured at room temperature after placing for 2 to 3hrs.</td></tr>
</table>

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8. SOLDERING AND MOUNTING :

8-1. Recommended PC Board Pattern



PC board should be designed so that products are not sufficient under mechanical stress as warping the board.
Products shall be positioned in the sideway direction against the mechanical stress to prevent failure.

8-2. Soldering

Mildly activated rosin fluxes are preferred. The minimum amount of solder can lead to damage from the stresses caused by the difference in coefficients of expansion between solder, chip and substrate. The terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

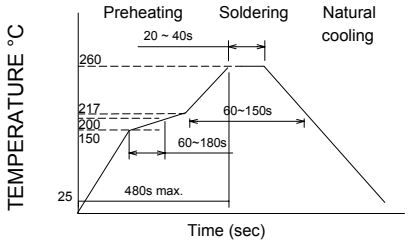
8-2.1 Lead Free Solder Re-flow :

Recommended temperature profiles for re-flow soldering in Figure 1.

8-2.2 Soldering Iron (Figure 2) :

Products attachment with soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.
Note :

a) Preheat circuit and products to 150°C.
b) 350°C tip temperature (max)
c) Never contact the ceramic with the iron tip
d) 1.0mm tip diameter (max)
e) Use a 20 watt soldering iron with tip diameter of 1.0mm
f) Limit soldering time to 4~5 secs.



Reflow 3 times max.

Figure 1. Re-flow Soldering (Pb Free)

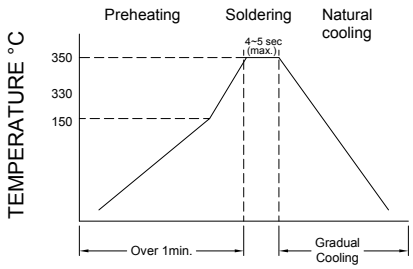


Figure 2. Hand Soldering

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8-3. Solder Volume

Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceed as shown in Fig. 4.

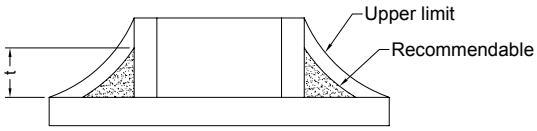
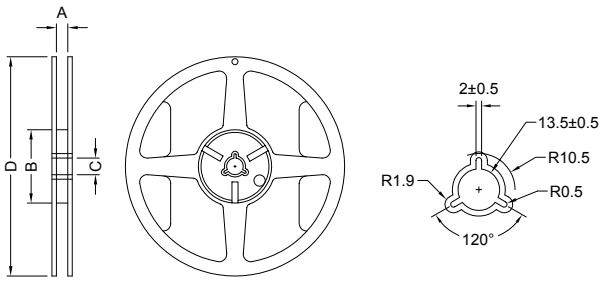


Figure 4

9. PACKAGING INFORMATION :

9-1. Reel Dimension

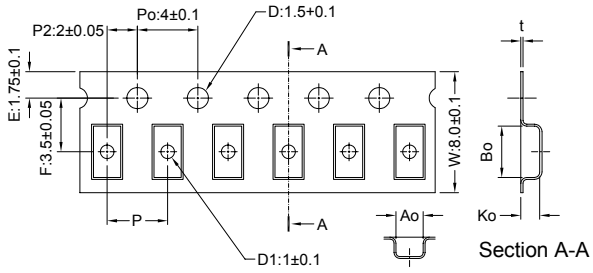


7" x 8mm

Type	A(mm)	B(mm)	C(mm)	D(mm)
7" x 8mm	9±0.5	60.0±2.0	13.5±0.5	178.0±2.0

9-2 Tape Dimension / 8mm

Material : Plastic



Section A-A

Size	P(mm)	Bo(mm)	Ao(mm)	Ko(mm)	t(mm)
L252010	4.0±0.1	2.74±0.10	2.29±0.10	1.45 max	0.3 max

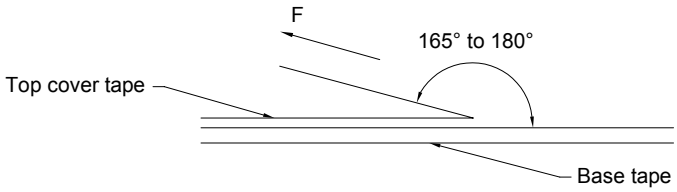
9-3. Packaging Quantity

Chip Size	L252010
Reel	3000

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9-4. Tearing Off Force



The force for tearing off cover tape is 15 to 60 grams in the arrow direction under the following conditions.

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300

Application Notice

1. Storage Conditions :
   To maintain the solderabililty of terminal electrodes :
   a) Temperature and humidity conditions : 40°C and 70% RH.
   b) Recommended products should be used within 6 months from the time of delivery.
   c) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation :
   a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
   b) The use of tweezers or vacuum pick up is strongly recommended for individual components.
   c) Bulk handling should ensure that abrasion and mechanical shock are minimized.

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