

## Wire Wound SMD Power Inductor



### ◆ Features

- 1、Metallization on ferrite core results in excellent shock resistance and damage-free durability;
- 2、Closed magnetic circuit design reduces leakage flux and Electro Magnetic Interference (EMI);
- 3、Low DCR decreases power loss, small and slim take up less PCB real estate;
- 4、Automatic production ensures high quality and consistency;



### ◆ Applications

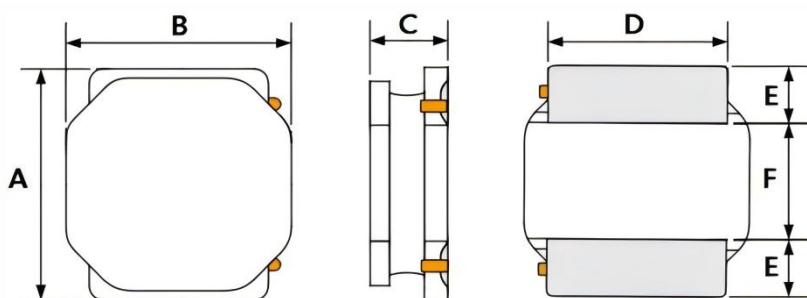
- 1、LED Lighting;
- 2、Mobile devices with multifunction such as adding color TV and camera;
- 3、Flat-screen TVs, blue-ray disc recorders, set top boxes;
- 4、Notebooks, desktop computers, servers, graphic cards;
- 5、Portable gaming devices, personal navigation systems, personal multimedia devices;
- 6、Automotive systems
- 7、Telecomm base stations

### ◆ Lead Free Part Numbering

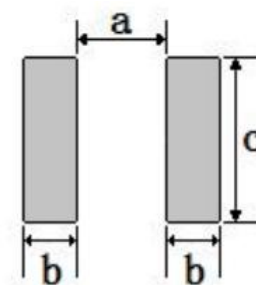
SLW 4012 S 2R2 M S T  
(1) (2) (3) (4) (5) (6) (7)

- (1) Series Type
- (2) Dimension: A×B×C
- (3) Material Code
- (4) Inductance: 2R2=2.2μH 100=10μH
- (5) Inductance Tolerance: M=±20%, N=±30%
- (6) Company Code
- (7) Packaging: Tape Carrier Package

### ◆ Dimensions



Recommended Land Pattern



Unit:mm

Series	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
SLW4012S	4.0±0.2	4.0±0.2	1.2Max.	3.3±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7

## ◆ Electrical Characteristics

- 1、Operating temperature range (individual chip without packing):  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$  (Including Self-heating) .
- 2、Storage temperature range (packaging conditions):  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$  and RH 70% (Max.).

## ◆ Construction and material

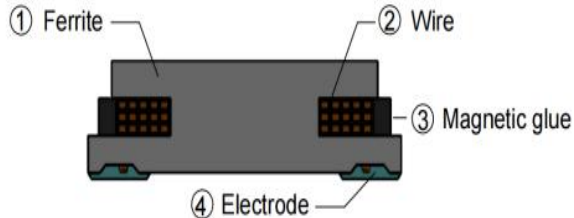


Fig.1 Body Structure

Code	Part Name	Material Name
①	Ferrite Core	Ni-Zn Ferrite
②	Wire	Polyurethane system enameled copper wire
③	Magnetic Glue	Epoxy resin and magnetic powder
④	Outer Electrodes	Top surface solder coating Sn、Ag、Cu

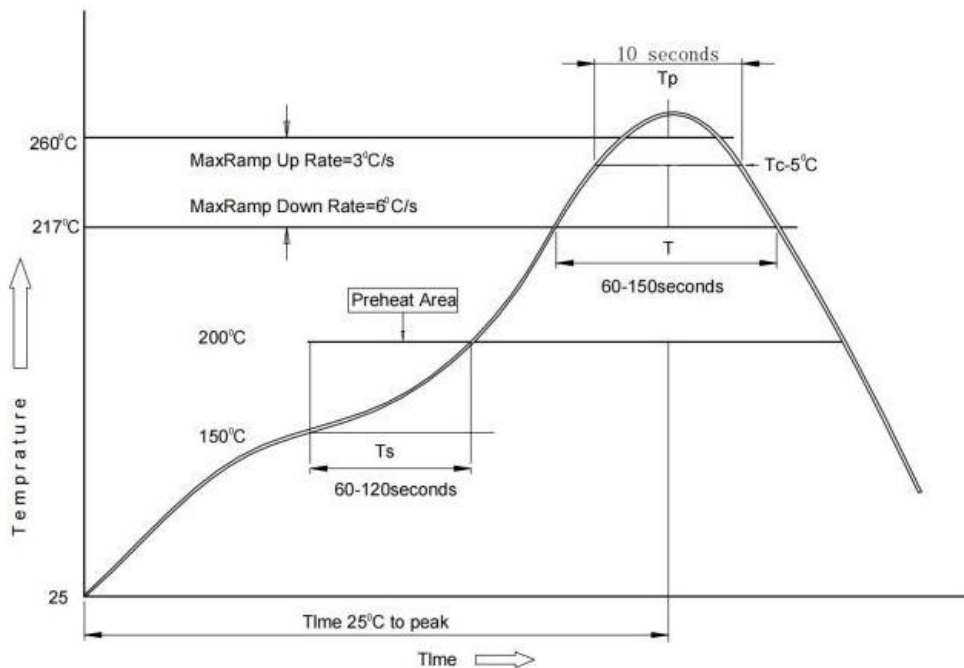
## ◆ SOLDERING CONDITIONS

Applicable soldering process to the products is reflow

### 1、Soldering Materials

- (1)Solder:Sn-3.0Ag-0.5Cu
- (2)Flux:Use rosin-based flux,but not strongly acidic flux (with xhlorine exceeding 0.2wt%).Do not use water soluble flux.

### 2、Reflow Soldering Profile



### 3、Soldering Iron

Reworking with electric soldering iron must preheating at  $150^{\circ}\text{C}$  for 1 minute is required,and do not directly touch the core with the tip of the soldering iron.The reworking soldering conditions are as follows.

- ①Temperature of soldering iron tip: $350^{\circ}\text{C}$ ;
- ② Soldering iron power output: $\leq 30\text{W}$ ;
- ③ Diameter of soldering iron end: $\leq 1.0\text{mm}$ ;
- ④Soldering time: $< 3\text{s}$



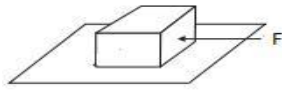
## ◆ Specification

Part Number	Inductance @100KHz,1V (uH)	DC Resistance(Ω)		Saturation Current(A)		Heat Rating Current(A)	
		Max.	Typ.	Max.	Typ.	Max.	Typ.
		DCR		Isat		Irms	
SLW4012S Series							
SLW4012S1R0MST	1.0±20%	0.065	0.057	2.61	3.20	1.65	2.50
SLW4012S1R5MST	1.5±20%	0.085	0.073	2.10	2.70	1.46	2.20
SLW4012S1R8MST	1.8±20%	0.104	0.073	2.12	2.50	1.32	1.90
SLW4012S2R2MST	2.2±20%	0.104	0.088	1.76	2.30	1.32	1.90
SLW4012S3R3MST	3.3±20%	0.143	0.110	1.72	2.10	1.12	1.60
SLW4012S4R7MST	4.7±20%	0.163	0.137	1.15	1.80	1.05	1.50
SLW4012S5R6MST	5.6±20%	0.182	0.159	1.00	1.60	1.00	1.20
SLW4012S6R8MST	6.8±20%	0.257	0.227	0.85	1.40	0.84	1.10
SLW4012S100MST	10±20%	0.345	0.308	0.80	1.10	0.77	1.00
SLW4012S150MST	15±20%	0.442	0.412	0.56	0.80	0.64	0.85
SLW4012S220MST	22±20%	0.763	0.713	0.46	0.70	0.49	0.70
SLW4012S330MST	33±20%	1.053	0.915	0.42	0.60	0.42	0.58
SLW4012S470MST	47±20%	1.430	1.340	0.35	0.50	0.37	0.50

### Notes

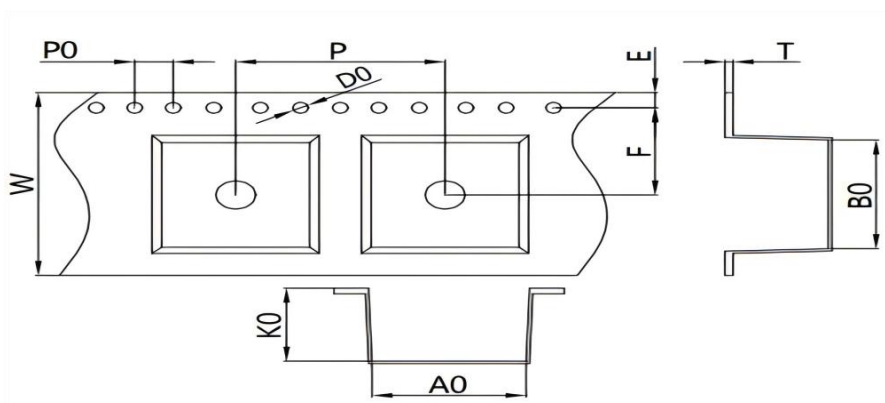
1. All test data is referenced to 25 °C ambient.
2. Isat: DC current at which the inductance drops approximate 30% from its value without current.
3. Irms :DC current that will cause an approximate  $\Delta T$  of 40 °C(reference ambient temperature is 25 °C).

## ◆ Reliability Test

TEST ITEM	SPECIFICATION	TEST CONDITION
High temperature Storage test	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	Temperature: $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (N: Follow the product specification for the setting.) Time : $96 \pm 2$ hours Place the samples for one hour at room temperature and test them within two hours
Low temperature Storage test	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	Temperature: $-40^{\circ}\text{C} \pm 5^{\circ}\text{C}$ (M: Follow the product specification for the setting) Time : $96 \pm 2$ hours Place the samples for one hour at room temperature and test them within two hours.
Humidity test	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	Temperature: $40 \pm 2^{\circ}\text{C}$ , Humidity: $93 \pm 3\% \text{RH}$ Time : $96 \pm 2$ hours Place the samples for one hour at room temperature and test them within two hours
Solderability test	Terminals must have 95% minimum solder coverage	1. Dip pads in flux then dip in solder pot at $245 \pm 5^{\circ}\text{C}$ for 5 second. 2. Solder: lead free 3. Flux: rosin flux
Heat endurance of flow soldering	1. No significant defects in appearance. 2. $\Delta L/L \leq 10\%$ 3. $\Delta DCR/DCR \leq 10\%$	1. Refer to the above reflow curve and go through the reflow for twice. 2. The peak temperature : $260 + 0/-5^{\circ}\text{C}$
Vibration test	1. No significant defects in appearance. 2. No short and no open.	Apply frequency 10~55~10Hz and amplitude 1.5mm, 1 min/cycle in X Y and Z direction for 2 hours each. (total 6 hours)
Terminal strength push test	1. Applied force: 10N Duration: 10sec 2. Solder paste thickness: 0.12mm 3. Meet the above requirements without any loose terminals	solder the test samples to the PCB through $245^{\circ}\text{C}$ reflow, apply a standard force on the side of the test samples for 10 seconds. 

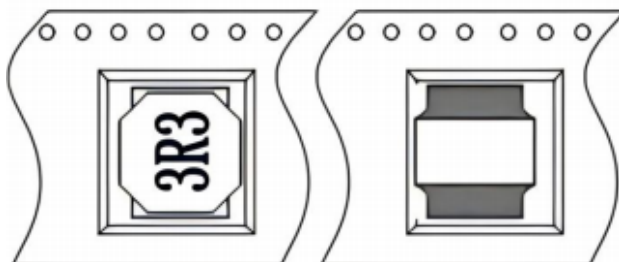
## ◆ Packaging and Marking:

### 1. Tape Packaging Dimensions

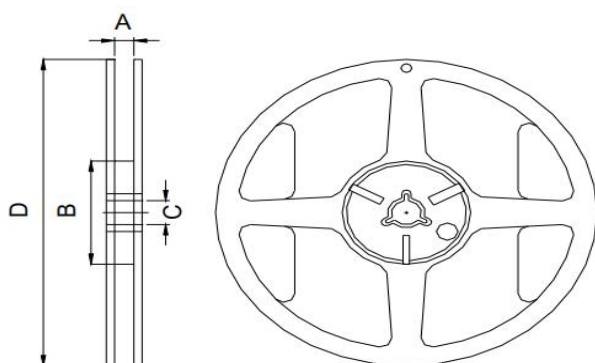


Type	W	P	A0	B0	K0	T	E	F	P0	D0
SLW4012S	12.0 ±0.30	8.00 ±0.30	4.40 ±0.15	4.40 ±0.15	2.00 ±0.20	0.30 ±0.10	1.75 ±0.10	5.50 ±0.10	4.00 ±0.20	1.50 ±0.10

### 2. Leader and blank portion



### 3. Reel Dimensions (Unit: mm)



A(mm)	12.5
B(mm)	100
C(mm)	13.0
D(mm)	330±2.0

### 4. Packaging Quantity

Type	Standard Quantity		
	Reel	Inner box	Carton box
SLW4012S	4500 pcs / reel	4Reel / box (18000 pcs)	3 Inner boxes, (54000 pcs)