

# Specification For Approval



<b>Item P/N</b>	SF2012LC-SERIES	<b>Test Instrument</b>	E4991 / 4339
<b>Product</b>	SMD Inductor for Power Line	<b>Test Frequency</b>	1.0 ~ 7.9 MHz / 0.5V

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

Customer P/N : \_\_\_\_\_

Description :                     SMD Inductor for Power Line                    

HT P/N :                                     SF2012LC-SERIES                                    

Revision No. :                                     Version: 1.0                                    

Date : \_\_\_\_\_

Notes :           Automobile Conform to AEC-Q200          



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IATF 16949:2016 / ISO 9001:2015 / ISO 14001:2015

Ht Documented		Customer Approval
Approved	Jack	
Checked	George	
Prepared	Cherrie	

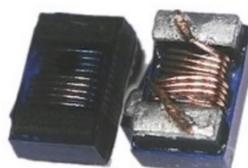
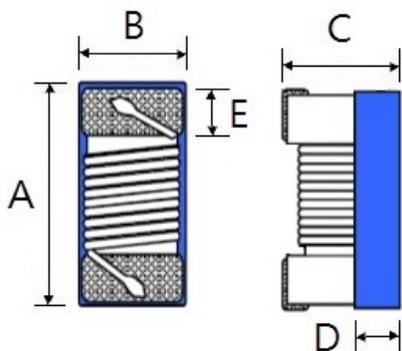


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## ■ Style and Dimensions (mm)



SF2012	Dimensions
A	2.40 Max.
B	1.65 Max.
C	1.20 ± 0.1
D	0.65 Ref.
E	0.44 ± 0.1

## ■ Explanation Of Part Numbers

①      ②      ③      ④      ⑤

SF   2012   LC   -   6R8   M

- ① Product name
- ② Shapes and dimensions
- ③ Shielding Type for automotive Electronics based on AEC-Q200 except for Power train and Safety
- ④ Inductance 【at 7.9MHz】 6R8:6.8μH
- ⑤ Tolerance : J=±5% ; K=±10% ; M=±20%

## ■ Electrical Characteristics

P/N	Inductance	Q/MHz	SRF (MHz)	DCR (Ω)	I <sub>dc</sub> (mA)	I <sub>rms</sub> (mA)	Color
	L(μH) at 7.9MHz	Typ.	Typ.	± 30%	Typ.	Typ.	Coding
SF2012LC-R47□	0.47/7.9	14/7.9	850	0.12	1400	1500	Blue
SF2012LC-R68□	0.68/7.9	14/7.9	765	0.15	1200	1300	Gray
SF2012LC-1R0□	1.0/7.9	14/7.9	208	0.13	1100	1300	Black
SF2012LC-1R2□	1.2/7.9	14/7.9	159	0.16	960	1270	Red
SF2012LC-1R5□	1.5/7.9	14/7.9	159	0.17	920	1260	Brown
SF2012LC-1R8□	1.8/7.9	14/7.9	112	0.20	860	1080	Orange
SF2012LC-2R2□	2.2/7.9	13/7.9	87	0.22	740	1040	Red
SF2012LC-2R7□	2.7/7.9	13/7.9	72	0.25	680	1040	Yellow
SF2012LC-3R3□	3.3/7.9	12/7.9	70	0.28	620	1020	Orange
SF2012LC-3R9□	3.9/7.9	14/7.9	61	0.38	580	960	Green
SF2012LC-4R7□	4.7/7.9	14/7.9	51	0.43	520	840	Yellow

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## ■ Electrical Characteristics

P/N	Inductance (μH)	Q/MHz	SRF (MHz)	DCR (Ω)	I dc (mA)	I rms (mA)	Color
	L(uH)at 7.9MHz	Min.	Typ.	± 30%	Typ.	Typ.	Coding
SF2012LC-5R6□	5.6/7.9	12/7.9	47	0.50	480	800	Blue
SF2012LC-6R8□	6.8/7.9	14/7.9	46	0.68	420	700	Green
SF2012LC-8R2□	8.2/7.9	13/7.9	33	0.73	400	680	Violet
SF2012LC-100□	10/2.5	14/2.5	31	0.85	360	560	Blue
SF2012LC-120□	12/2.5	14/2.5	30	0.90	340	460	Gray
SF2012LC-150□	15/2.5	15/2.5	28	1.40	300	380	Violet
SF2012LC-180□	18/2.5	15/2.5	27	1.55	280	360	White
SF2012LC-220□	22/2.5	15/2.5	20	1.76	240	340	Gray
SF2012LC-270□	27/2.5	15/2.5	17	2.00	220	300	Black
SF2012LC-330□	33/2.5	15/2.5	17	2.35	200	300	White
SF2012LC-470□	47/2.5	14/2.5	15	3.40	160	280	Black
SF2012LC-560□	56/2.5	14/2.5	10	4.42	150	240	Yellow
SF2012LC-680□	68/2.5	14/2.5	10	4.45	140	240	Brown
SF2012LC-820□	82/2.5	14/2.5	10	7.50	100	180	Orange
SF2012LC-101□	100/1.0	10/1.0	9	7.50	100	180	Red

※Operating temperature : -40 to +125°C

Storage temp. and humidity: Less than 40°C and 60% RH.

If Use Wave soldering is there will be some risk.

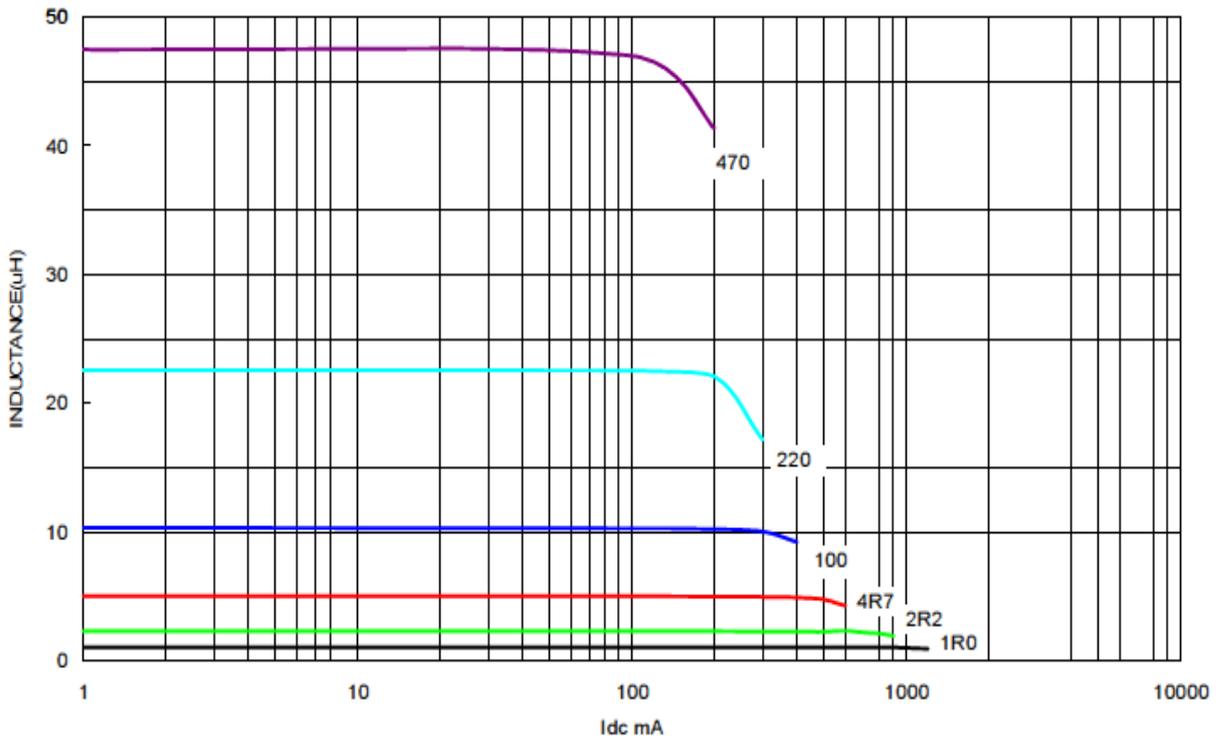
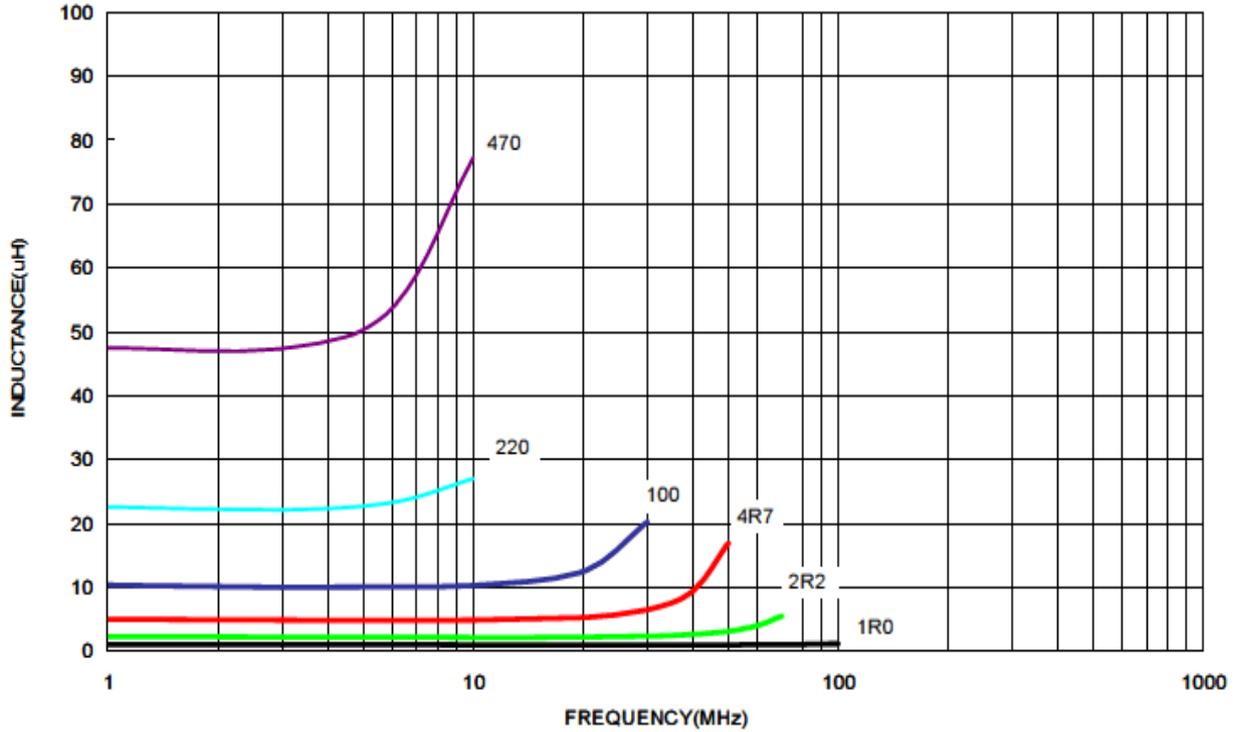
Re-flow soldering temperatures below 240 degrees, there will be unwitting risk.

# Characteristics



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## ■ Performance Curves



# Characteristics



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## ■ Reliability and Test Condition

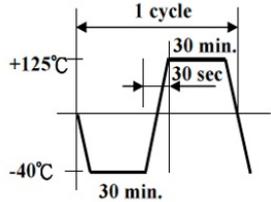
Item	Specifications	Test Conditions
Solderability	The metalized area must have 90% minimum solder coverage.	Dip pads in flux and dip in solder pot(96.5 Sn/3.5 Ag solder) at $255 \pm 5^{\circ}\text{C}$
Resistance to soldering heat	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be reflowed onto a PC board using 96.5 Sn/3.5 Ag solder paste. Solder process shall be at a maximum temperature of $260^{\circ}\text{C}$ . For 96.5 Sn/3.5 Ag solder paste: $>217^{\circ}\text{C}$ for 90 seconds.
Vibration	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Solder specimen inductor on the test printed circuit board. Apply vibrations each of the x, y and z directions for 2 houses for a total of 6 hours. Frequency: 10~50Hz Amplitude: 1.5mm
High temperature resistance	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature $85 \pm 2^{\circ}\text{C}$ for $50 \pm 12$ hours. 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 $125 \pm 2^{\circ}\text{C}$ and 90 to 95%RH. For ten 24 hours. 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 0.9Kg	Inductors shall be reflowed soldered( $255^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 10 seconds) to a tinned copper substrate. A force gauge shall be applied to the side of the component. The device must withstand the stated force without a failure of the termination.

# Characteristics

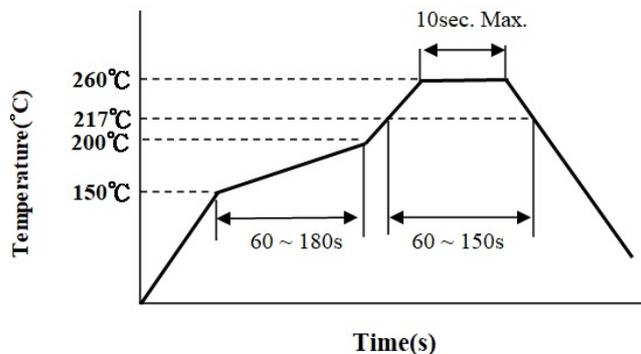


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## Reliability and Test Condition

Item	Specifications	Test Conditions
Low temperature storage	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature $-40\pm 2^{\circ}\text{C}$ for $48\pm 12$ hours. 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 or 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. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to 10 cycles to the following temperature cycle:  Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.

## Recommended Soldering Temp. Graph



# Characteristics



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## ■ Iron Soldering

Use a solder iron of less than 30W when soldering, do not allow the soldering iron to directly touch the Ceramic body outside of terminal electrode, 4 seconds max. at 260°C.

## ■ Attention in Case of Using

In case of using product, avoid following matters:

Splashing water or salt water

Dew condenses

Toxic gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammon)

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.

## ■ Others

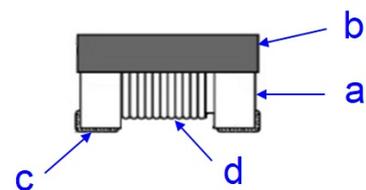
1 Operating temperature range: Ceramic Series: -40~+125°C

2 Storage condition: Temperature 20~25°C, Relative Humidity 40~60%

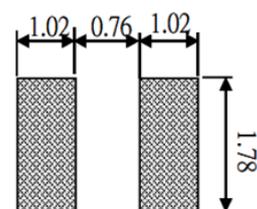
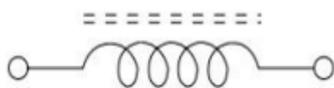
3 Recommended wire wound inductors should be used within 6 months from the time of delivery.

## ■ Product Composition Diagram

No.	Description	Specification
a.	Core	Ferrite Core
b.	Back Film	UV Resin
c.	Termination	Tin Pb Free
d.	Wire	Enameled Copper Wire



## ■ Recommended Footprint

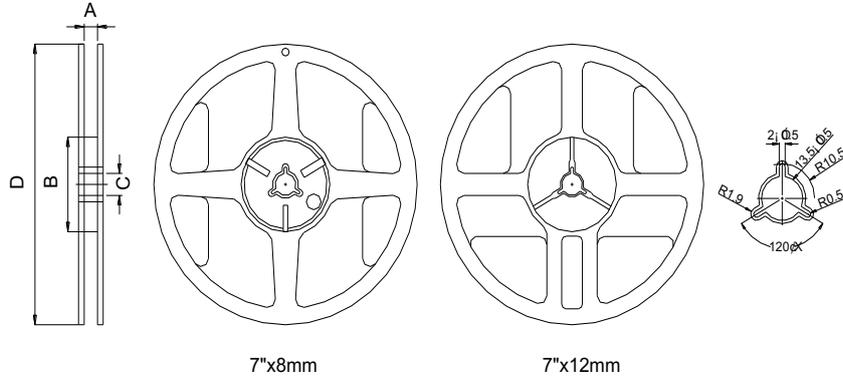


# Packing For SMD

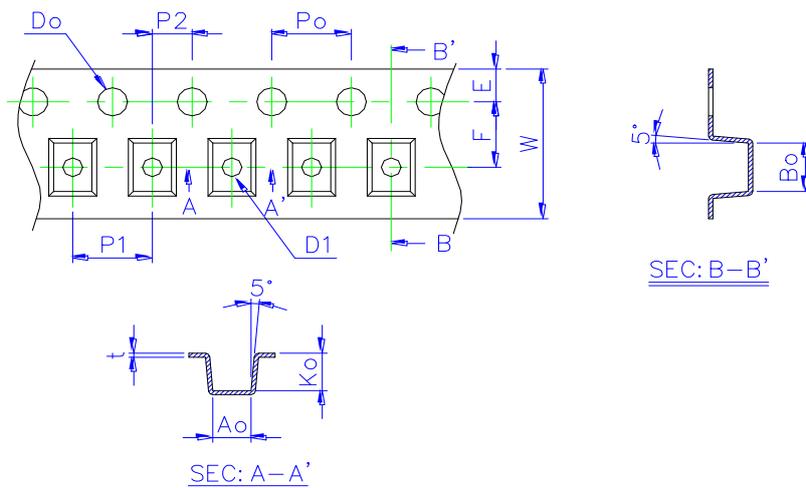


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## ■ Reel Dimension & Tape Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.5±0.5	60±0.5	13.5±0.5	178±1
7"x12mm	13.7±0.5	60±0.5	13.5±0.5	178±1



Size	t(mm)	Ao(mm)	Bo(mm)	Ko(mm)	W(mm)	E(mm)	F(mm)	Po(mm)	P1(mm)	P2(mm)	Do(mm)
SF2012	0.22±0.05	1.75±0.10	2.55±0.10	1.30±0.10	8.00±0.20	1.75±0.10	3.50±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.1,-0

## ■ Packaging Quantity

Chip Size	1210	1608	2012	3216	3225	4532
7"/ Reel	3000	4000	2000	2000	1000	500