CODACA

SMD Power Inductor
SPRH127 Series

Construction Wire

Outline:

- 12.3 x 12.3mm Max.(L x W), 8.05mm Max.Height
- Carrier tape packing, suitable for SMT process
- Low DCR and excellent current handling
- Magnetically shielded construction
- In addition to the standard versions of inductors shown here custom inductors are available to meet your exact requirements

Features:

- Core material: Ferrite
- Enviromental: RoHS, Reach compliant, Halogen free
- Weight: 4.09g
- Moisture Sensitivity: Level (MSL) 1 (unlimited floor life at <30°C / 85% relative humidity).
- Operating temperature range: -40°C～+125°C (including coil's self temperature rise)
- Storage temperature range: -40°C～+125°C

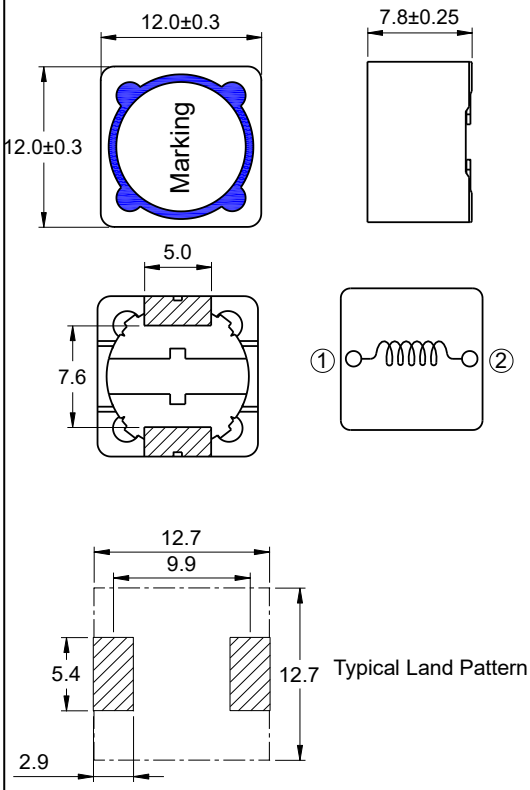
Application:

- Ideally used in Notebook PC, LCD T, Game machine STB
- buck converter, network communication equipment, and etc

1 Electrical Characteristics

Part No.	Inductance (μH)※1	D.C.R. (mΩ)		Isat (A)※2	Irms (A) ※3
		Typical	Max.	Typical	Typical
SPRH127-1R4N	1.40±30%	6.37	7.64	26.20	11.0
SPRH127-2R2N	2.20±30%	9.54	11.5	21.30	9.10
SPRH127-3R3N	3.30±30%	11.2	13.4	18.30	8.40
SPRH127-4R7N	4.70±30%	14.7	17.6	15.20	7.80
SPRH127-5R6N	5.60±30%	15.9	19.2	13.70	7.30
SPRH127-6R8N	6.80±30%	16.2	19.4	12.70	7.00
SPRH127-8R2N	8.20±30%	18.0	21.6	11.50	6.60
SPRH127-100M	10.0±20%	19.8	23.7	10.42	6.30
SPRH127-120M	12.0±20%	21.7	26.1	9.61	6.00
SPRH127-150M	15.0±20%	28.7	34.4	8.40	5.10
SPRH127-180M	18.0±20%	31.2	37.4	7.60	5.00
SPRH127-220M	22.0±20%	39.0	46.8	6.90	4.50
SPRH127-270M	27.0±20%	44.1	52.9	6.22	4.20
SPRH127-330M	33.0±20%	56.3	67.5	5.68	3.70
SPRH127-390M	39.0±20%	62.7	75.2	5.14	3.50
SPRH127-470M	47.0±20%	71.5	85.8	4.60	3.30
SPRH127-560M	56.0±20%	83.4	100	4.46	3.00
SPRH127-680M	68.0±20%	103	123	3.90	2.70
SPRH127-820M	82.0±20%	119	143	3.51	2.50
SPRH127-101M	100±20%	137	164	3.36	2.40
SPRH127-121M	120±20%	182	218	2.91	2.10
SPRH127-151M	150±20%	206	247	2.60	1.90
SPRH127-181M	180±20%	250	300	2.57	1.75
SPRH127-221M	220±20%	300	360	2.22	1.63
SPRH127-271M	270±20%	380	456	1.94	1.40
SPRH127-331M	330±20%	467	560	1.79	1.20
SPRH127-391M	390±20%	525	630	1.63	1.10
SPRH127-471M	470±20%	683	819	1.48	1.00
SPRH127-561M	560±20%	767	920	1.36	0.98
SPRH127-681M	680±20%	986	1,183	1.25	0.90
SPRH127-821M	820±20%	1,172	1,406	1.16	0.80
SPRH127-102M	1000±20%	1,322	1,586	1.01	0.70

2 Product Dimensions (mm)



All data is tested on 25℃ ambient temperature

1. Inductance measure condition at 100kHz, 0.1V
2. Isat: the actual value of DC current when the Inductance decrease 20% of its initial value
3. Irms: the actual value of DC current when the the temperature rise is ΔT40℃(Ta=25℃)

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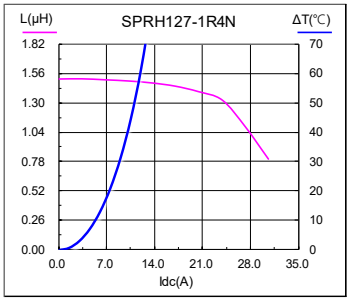
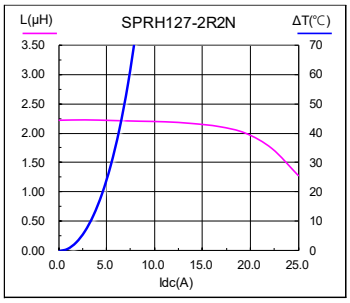
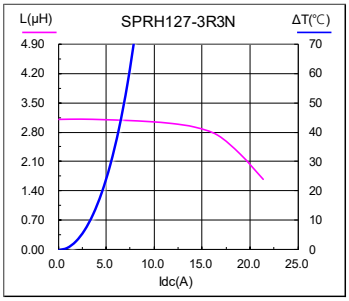
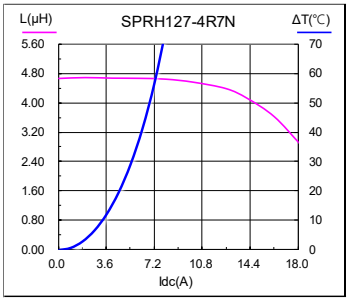
This product is not authorized for use in any application related to safety.
Specification subject to change without notice. Please check web site for latest information.

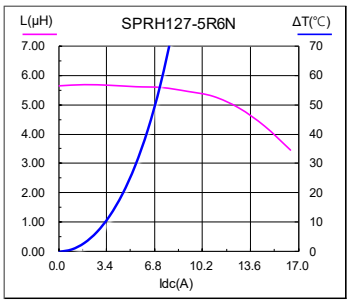
3 Saturation Current vs Temperature Rise Current Curve

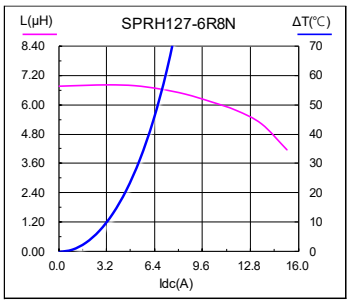


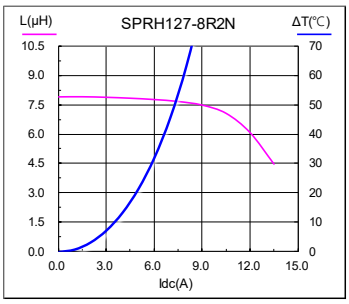


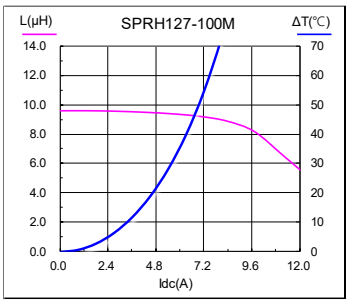


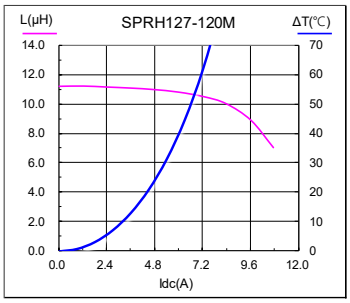


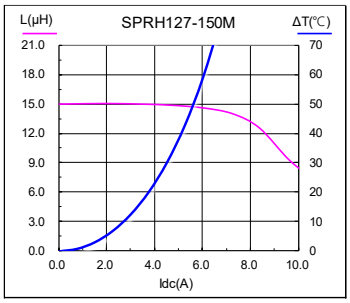


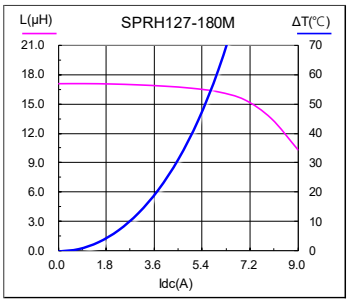


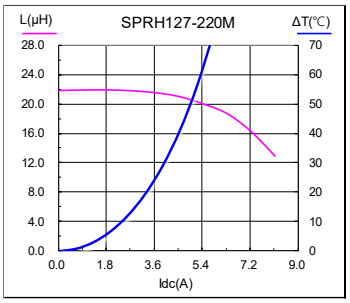


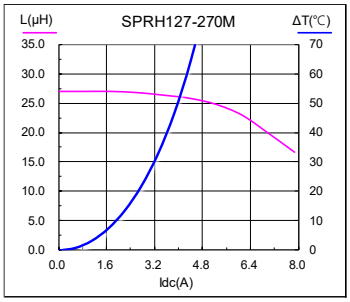


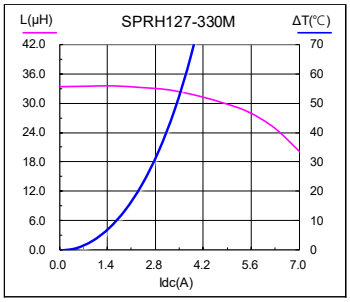


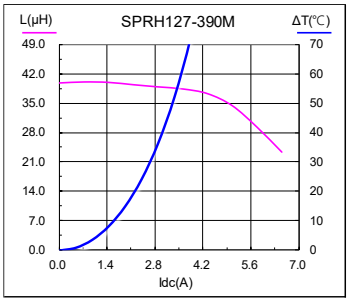


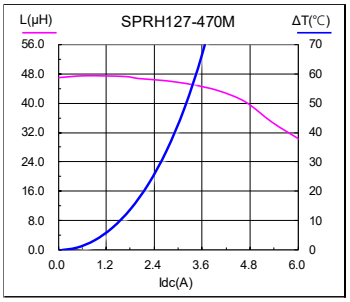


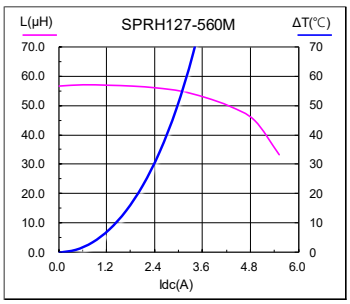


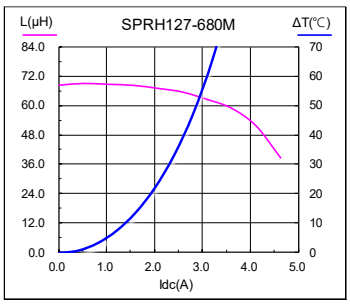


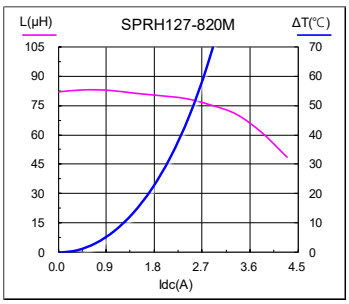


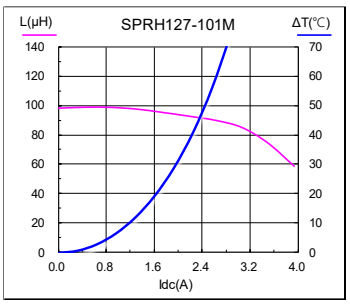


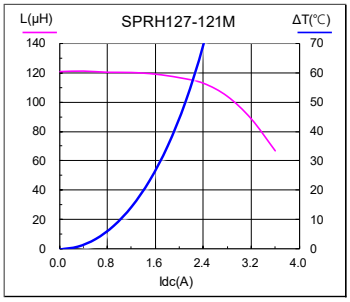


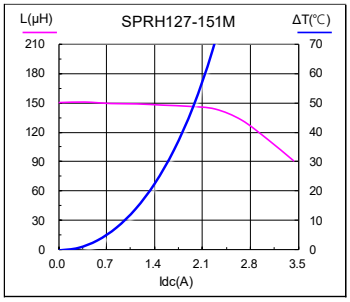


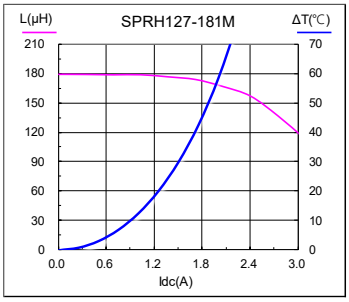


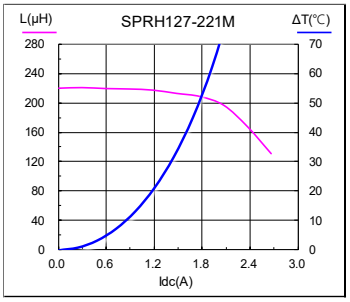


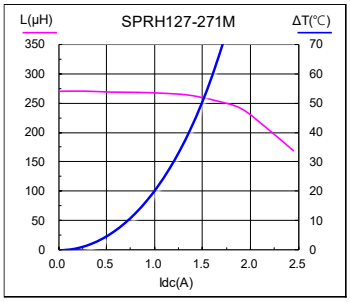


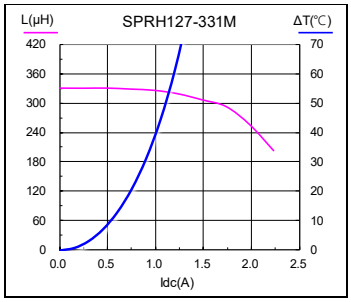

L(μH)
SPRH127-121M
ΔT(℃)
140 120 100 80 60 40 20 0
70 60 50 40 30 20 10 0
0.0 0.8 1.6 2.4 3.2 4.0
Idc(A)

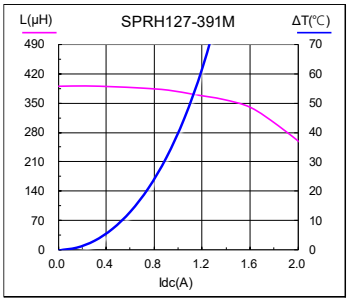

L(μH)
SPRH127-151M
ΔT(℃)
210 180 150 120 90 60 30 0
70 60 50 40 30 20 10 0
0.0 0.7 1.4 2.1 2.8 3.5
Idc(A)

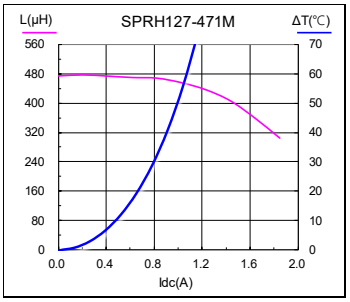

L(μH)
SPRH127-181M
ΔT(℃)
210 180 150 120 90 60 30 0
70 60 50 40 30 20 10 0
0.0 0.6 1.2 1.8 2.4 3.0
Idc(A)


L(μH)
SPRH127-221M
ΔT(℃)
280 240 200 160 120 80 40 0
70 60 50 40 30 20 10 0
0.0 0.6 1.2 1.8 2.4 3.0
Idc(A)


L(μH)
SPRH127-271M
ΔT(℃)
350 300 250 200 150 100 50 0
70 60 50 40 30 20 10 0
0.0 0.5 1.0 1.5 2.0 2.5
Idc(A)


L(μH)
SPRH127-331M
ΔT(℃)
420 360 300 240 180 120 60 0
70 60 50 40 30 20 10 0
0.0 0.5 1.0 1.5 2.0 2.5
Idc(A)


L(μH)
SPRH127-391M
ΔT(℃)
490 420 350 280 210 140 70 0
70 60 50 40 30 20 10 0
0.0 0.4 0.8 1.2 1.6 2.0
Idc(A)


L(μH)
SPRH127-471M
ΔT(℃)
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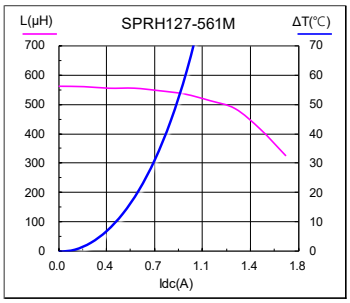
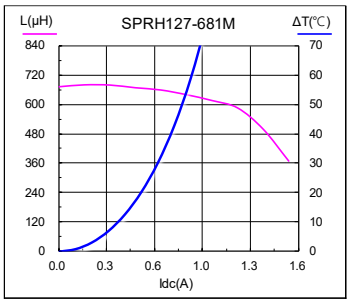
70 60 50 40 30 20 10 0
0.0 0.4 0.8 1.2 1.6 2.0
Idc(A)


L(μH)
SPRH127-561M
ΔT(℃)
700 600 500 400 300 200 100 0
70 60 50 40 30 20 10 0
0.0 0.4 0.7 1.1 1.4 1.8
Idc(A)


L(μH)
SPRH127-681M
ΔT(℃)
840 720 600 480 360 240 120 0
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0.0 0.3 0.6 1.0 1.3 1.6
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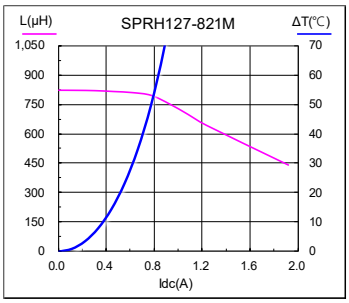
L(μH)
SPRH127-821M
ΔT(℃)
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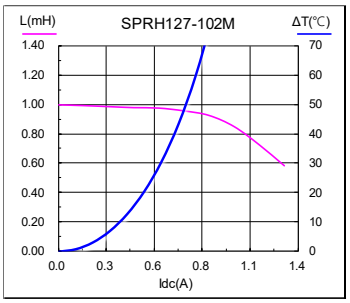
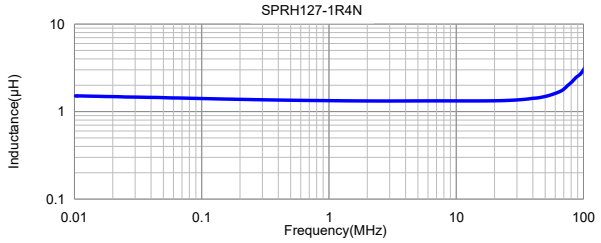
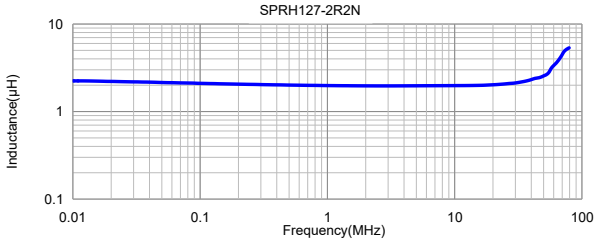
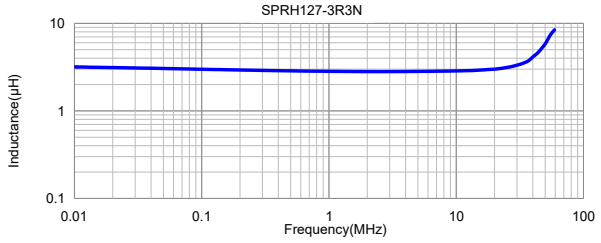
70 60 50 40 30 20 10 0
0.0 0.4 0.8 1.2 1.6 2.0
Idc(A)

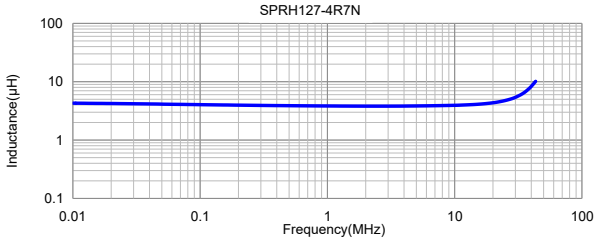

L(mH)
SPRH127-102M
ΔT(℃)
1.40 1.20 1.00 0.80 0.60 0.40 0.20 0.00
70 60 50 40 30 20 10 0
0.0 0.3 0.6 0.8 1.1 1.4
Idc(A)

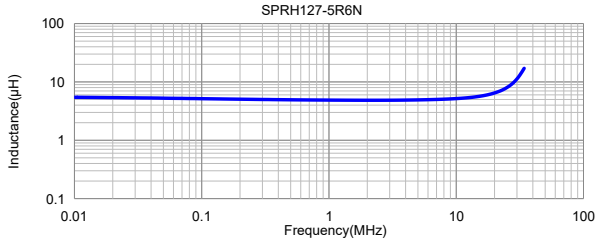
4 L vs Frequency

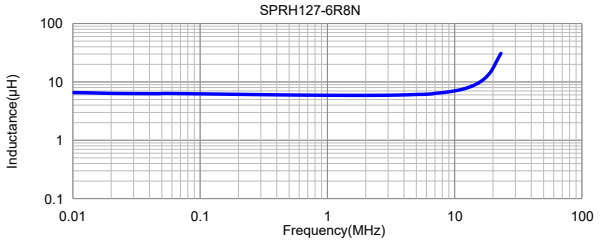


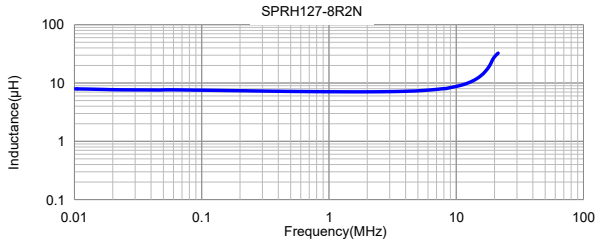


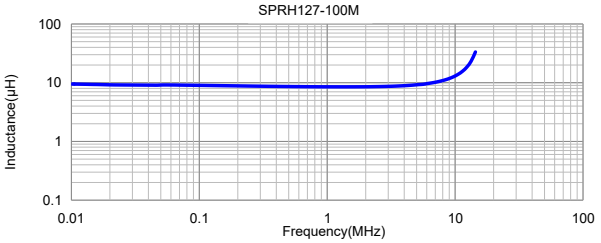


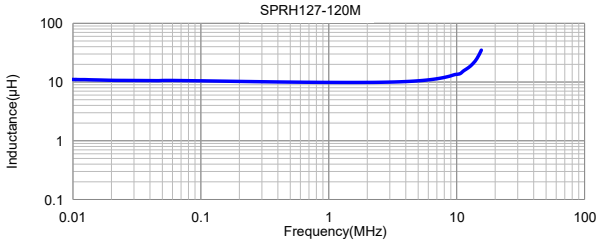


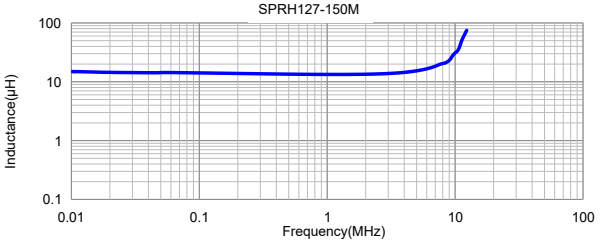


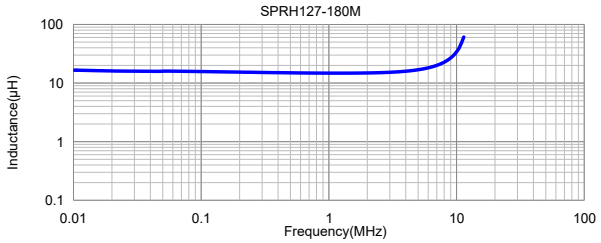


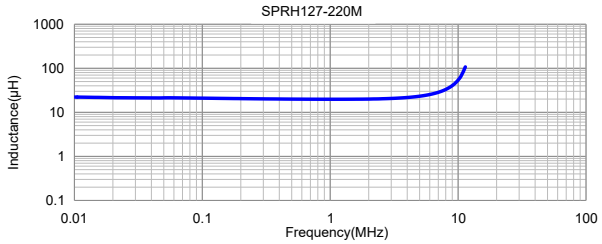


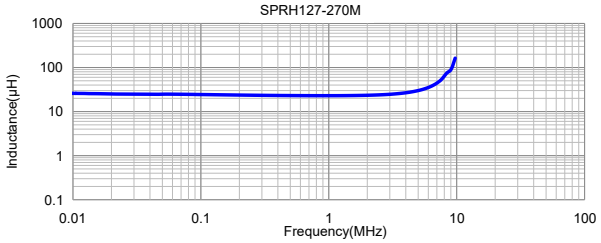


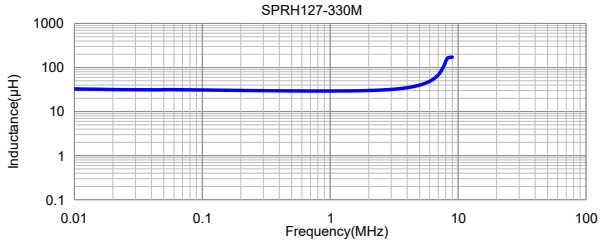


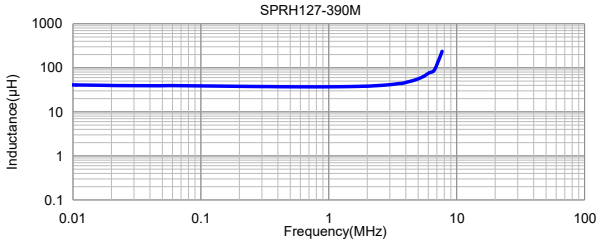


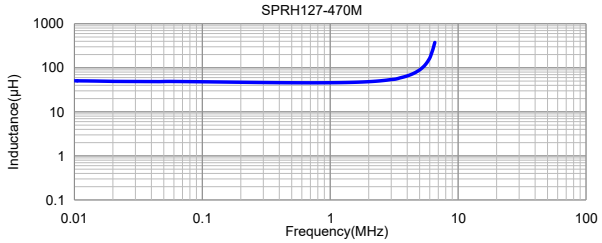

SPRH127-180M
Inductance(μH)
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

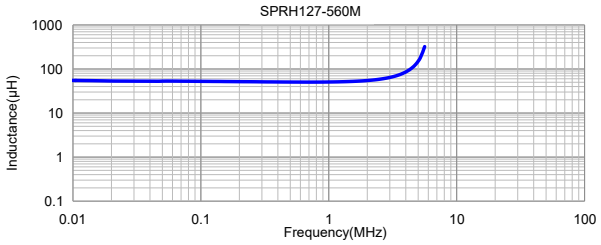

SPRH127-220M
Inductance(μH)
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

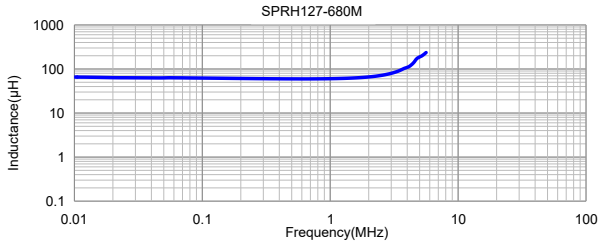

SPRH127-270M
Inductance(μH)
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

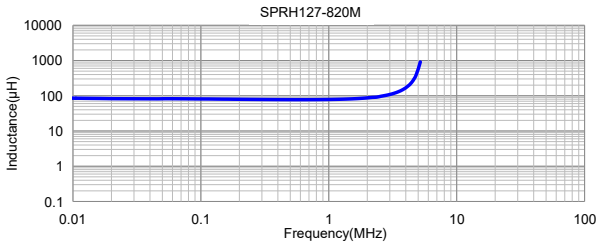

SPRH127-330M
Inductance(μH)
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

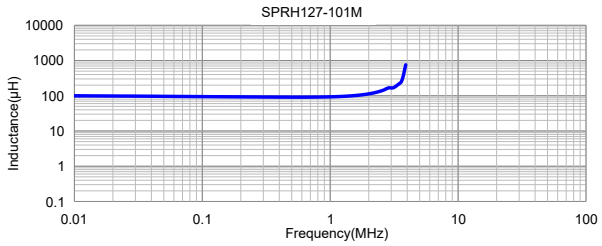

SPRH127-390M
Inductance(μH)
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

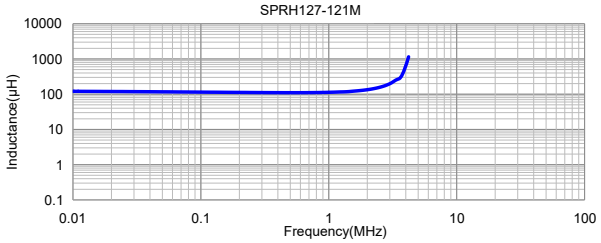

SPRH127-470M
Inductance(μH)
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

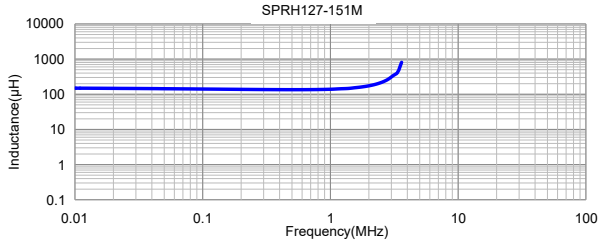

SPRH127-560M
Inductance(μH)
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

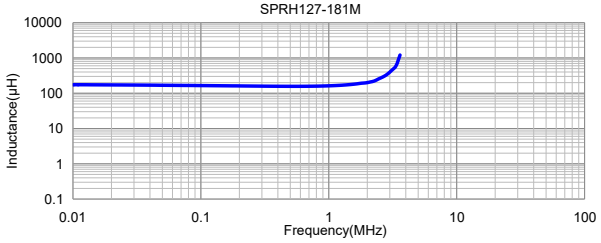

SPRH127-680M
Inductance(μH)
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

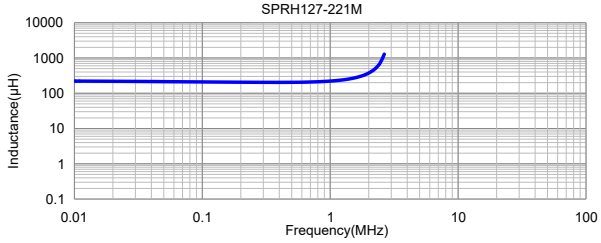

SPRH127-820M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

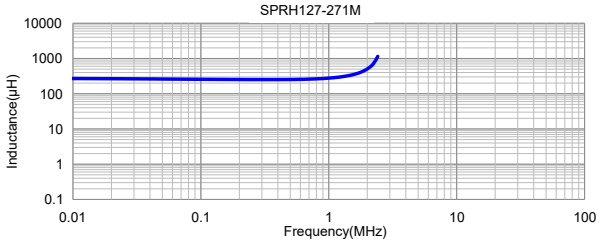

SPRH127-101M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

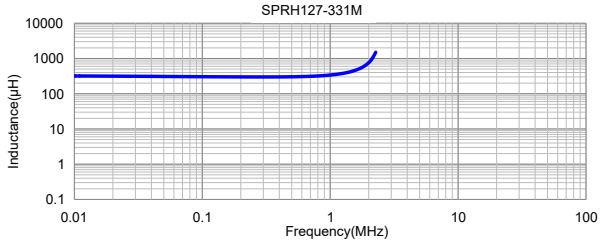

SPRH127-121M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

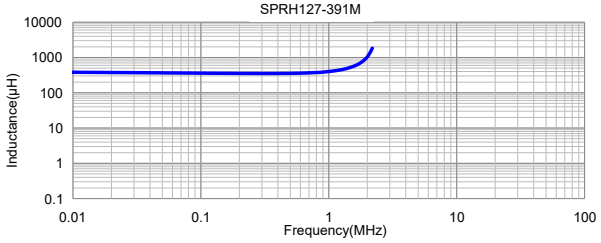

SPRH127-151M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

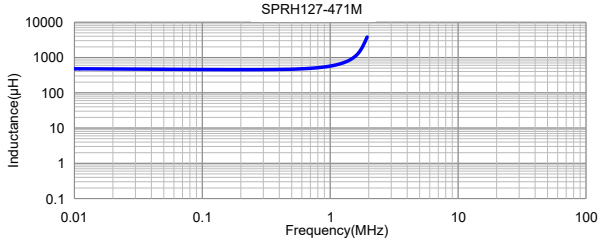

SPRH127-181M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

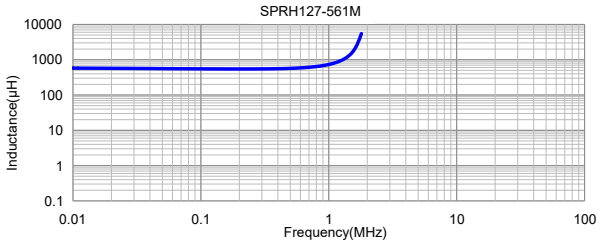

SPRH127-221M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

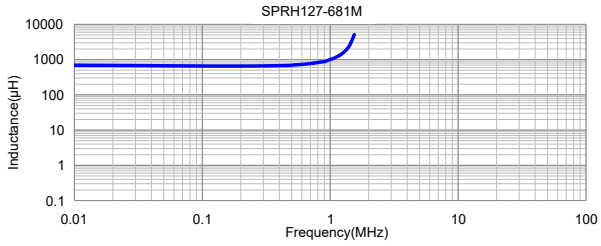

SPRH127-271M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

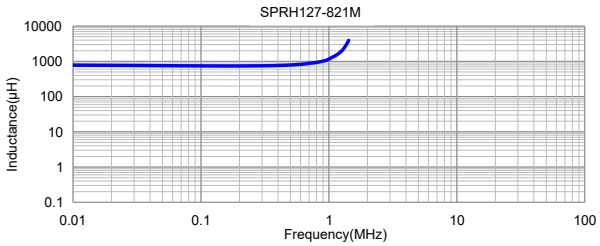

SPRH127-331M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

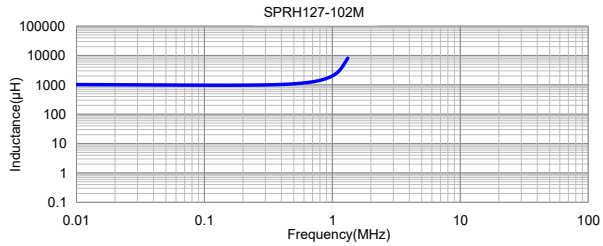

SPRH127-391M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)


SPRH127-471M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

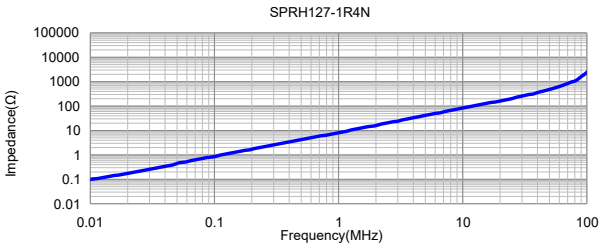

SPRH127-561M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

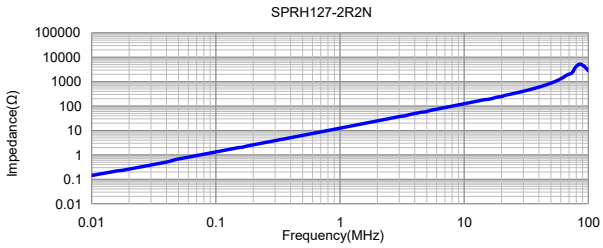

SPRH127-681M
Inductance(μH)
10000
1000
100
10
1
0.1
0.01
0.1
1
10
100
Frequency(MHz)

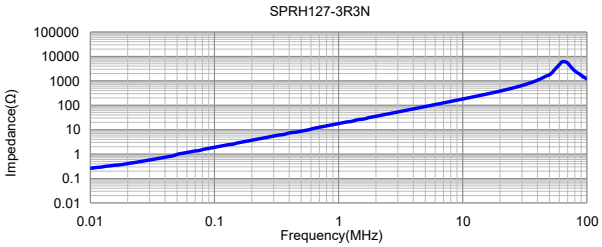


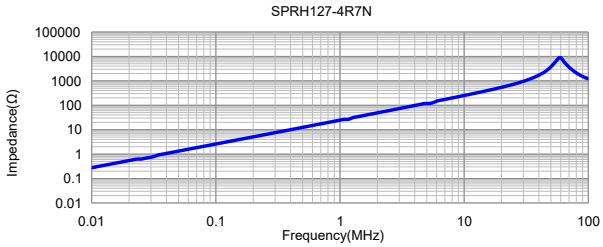


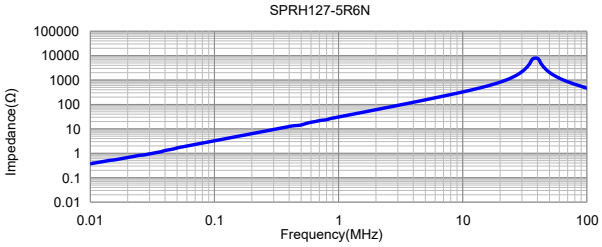
5 Impedance vs Frequency

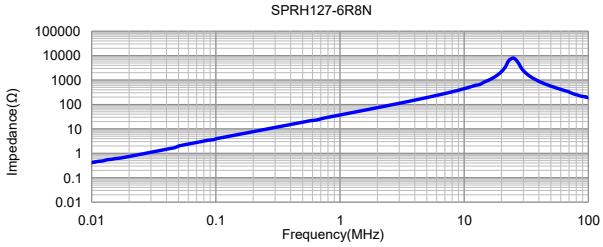


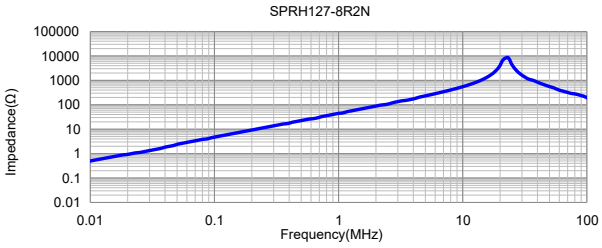


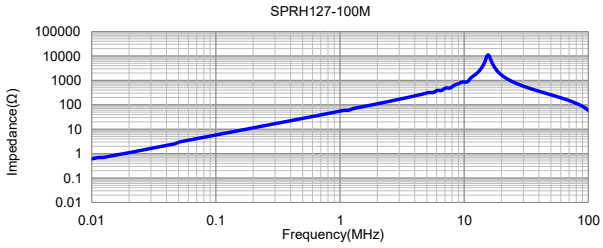


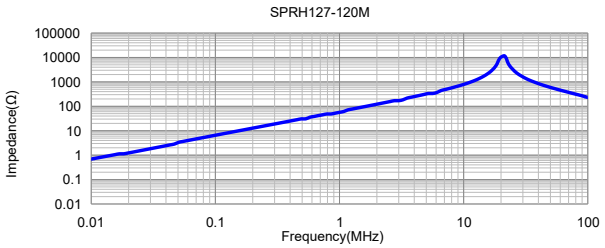


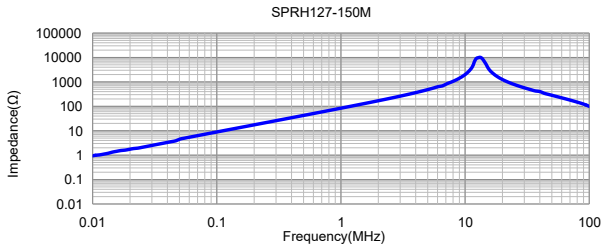


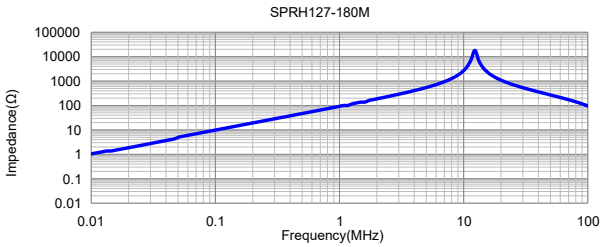


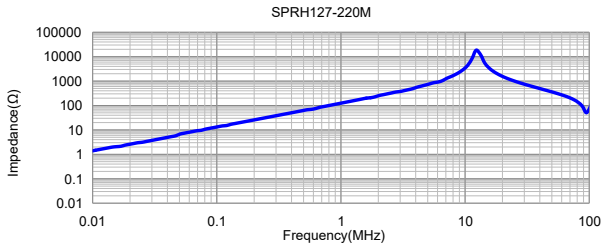


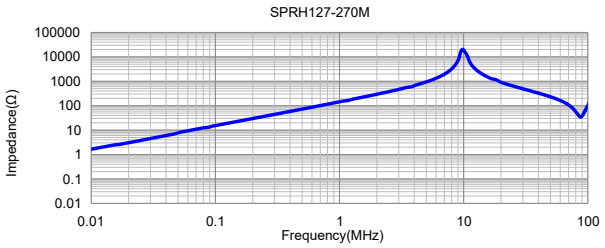


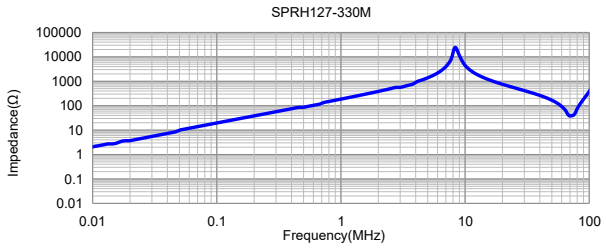

SPRH127-120M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

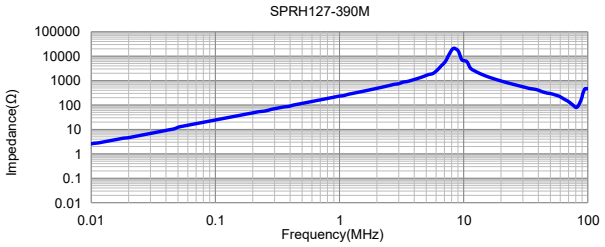

SPRH127-150M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

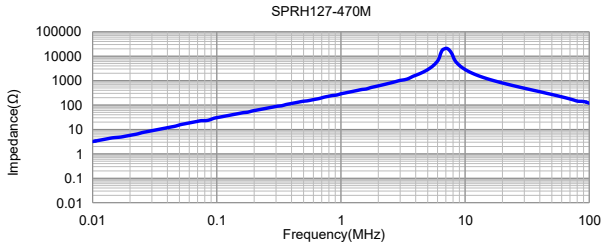

SPRH127-180M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

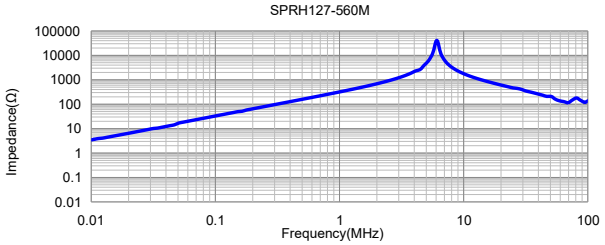

SPRH127-220M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

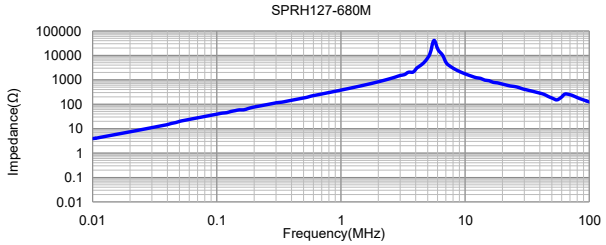

SPRH127-270M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

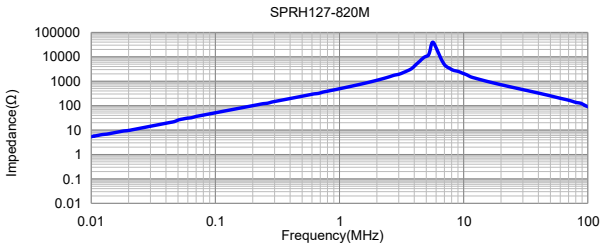

SPRH127-330M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

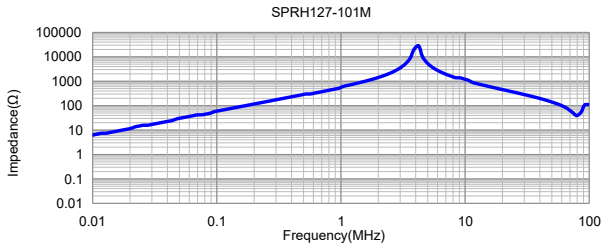

SPRH127-390M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

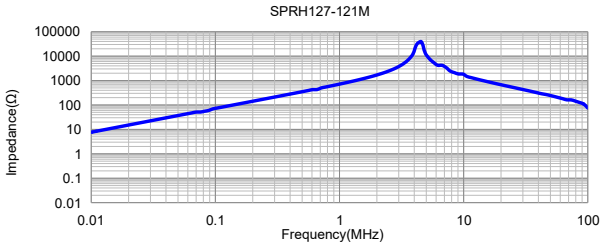

SPRH127-470M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

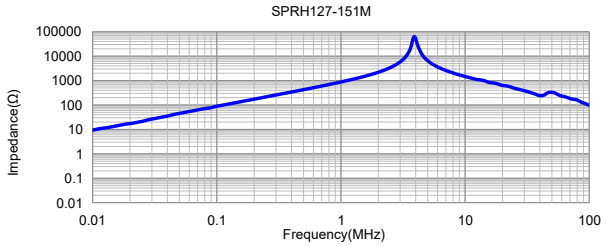

SPRH127-560M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

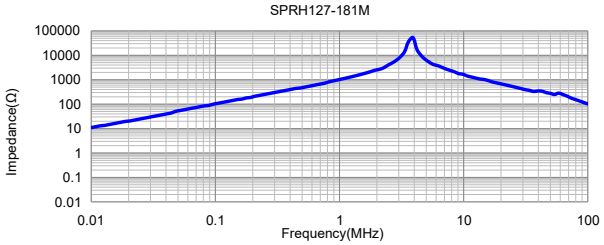

SPRH127-680M
Impedance(Ω)
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

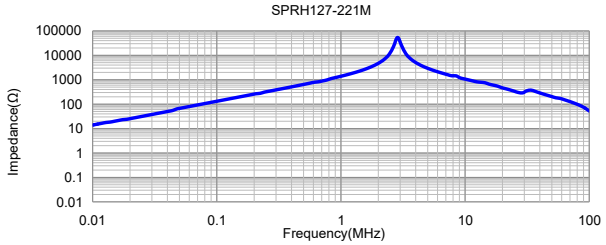

SPRH127-820M
Impedance(Ω)
Frequency(MHz)

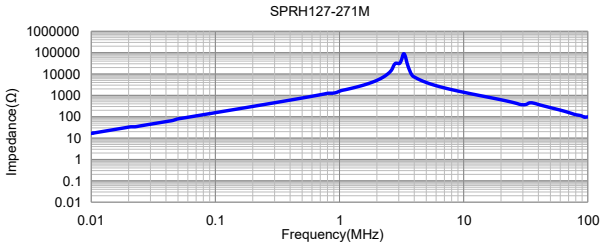

SPRH127-101M
Impedance(Ω)
Frequency(MHz)

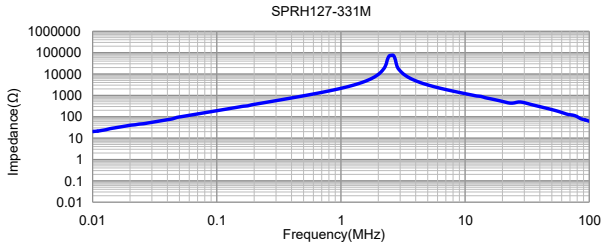

SPRH127-121M
Impedance(Ω)
Frequency(MHz)

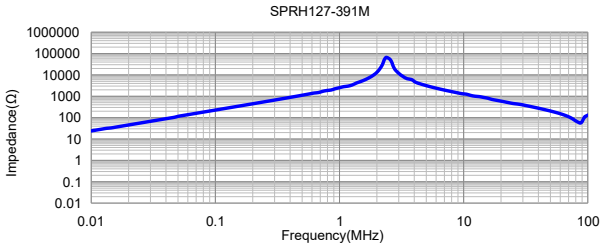

SPRH127-151M
Impedance(Ω)
Frequency(MHz)

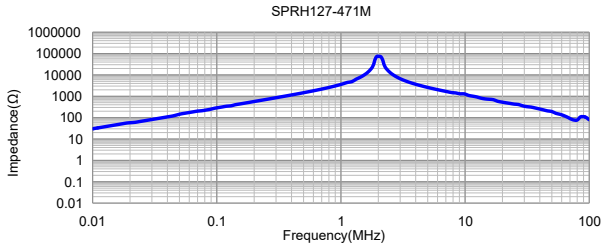

SPRH127-181M
Impedance(Ω)
Frequency(MHz)

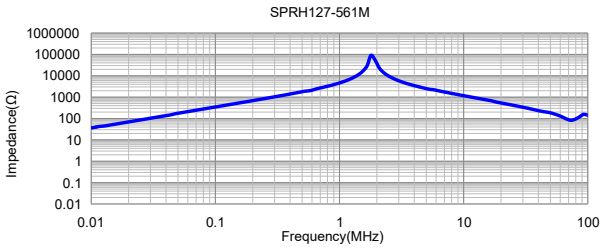

SPRH127-221M
Impedance(Ω)
Frequency(MHz)

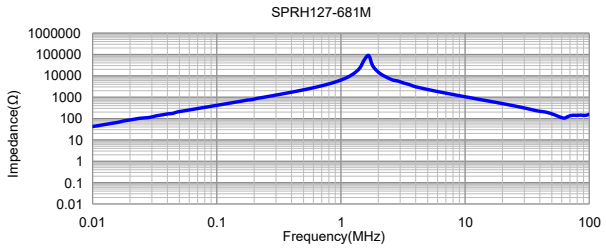

SPRH127-271M
Impedance(Ω)
Frequency(MHz)

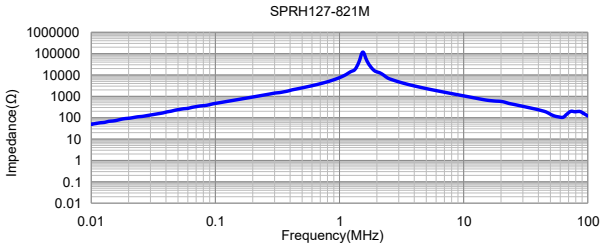

SPRH127-331M
Impedance(Ω)
Frequency(MHz)

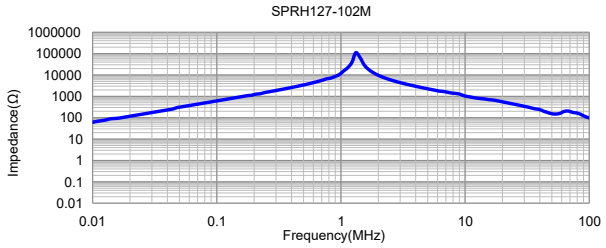

SPRH127-391M
Impedance(Ω)
Frequency(MHz)


SPRH127-471M
Impedance(Ω)
Frequency(MHz)


SPRH127-561M
Impedance(Ω)
1000000
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

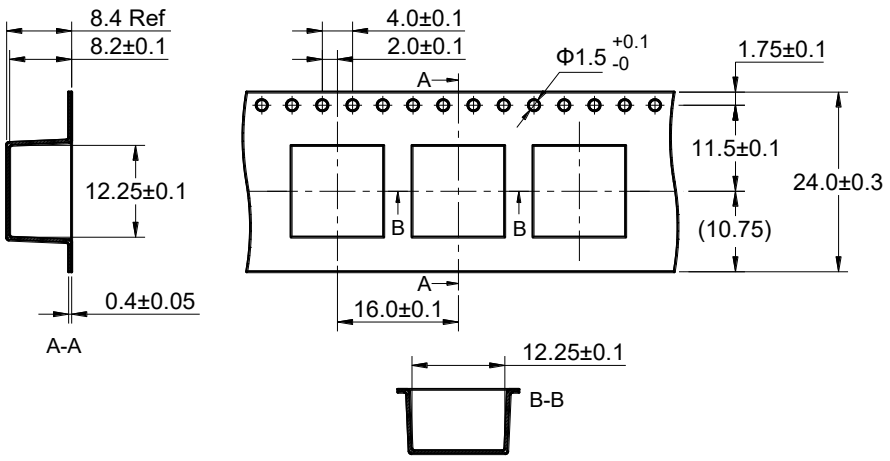

SPRH127-681M
Impedance(Ω)
1000000
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)


SPRH127-821M
Impedance(Ω)
1000000
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)


SPRH127-102M
Impedance(Ω)
1000000
100000
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
Frequency(MHz)

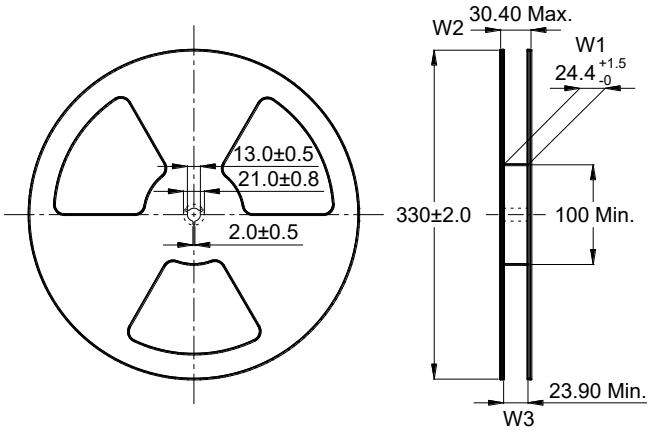
6 Packing Specification

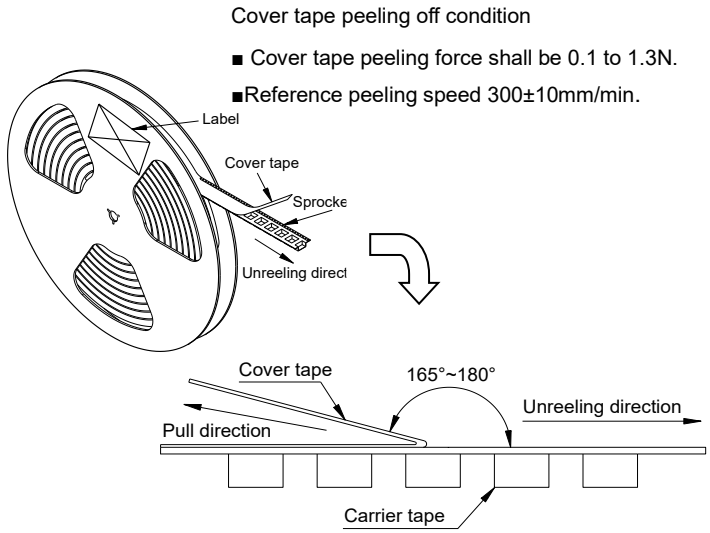
6.1 Carrier Tape Dimensions (mm)



※ Packing is referred to the international standard IEC 60286-3.

6.2 Reel Dimensions (mm)





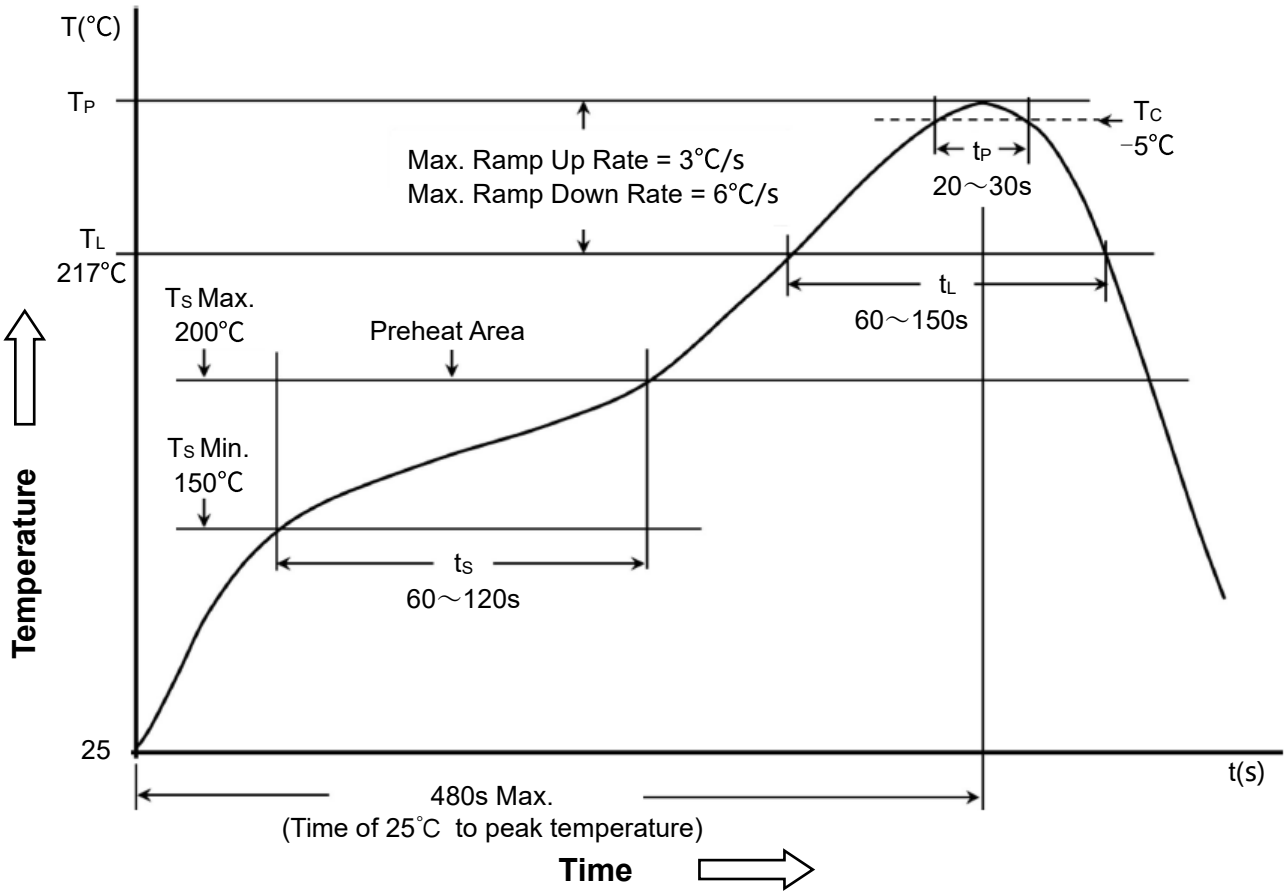
6.3 Carton Dimensions and Packing Quantity

■ Inner Carton：340×340×95mm ■ Out Carton ：355×355×385mm

Product Series	Quantity / Reel	Inner Carton Quantity	Out Carton Quantity
SPRH127	500pcs	(500×3) = 1500pcs	(1500×2) = 3000pcs

7 Soldering Specification

7.1 Reflow Profile for SMT Components



7.2 Classification of Peak Package Body Temperature (T_P)

	Package Thickness	Package Volume		
		<350 mm³	350～2000 mm³	>2000 mm³
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6～2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

※ Reflow is referred to standard IPC/JEDEC J-STD-020E.

8 Notice of Use

8.1 Special remind:Circuit design, component placement, PCB size and thickness, cooling system and etc. all will affect the product temperature. Please verify the product temperature in the final application.

8.2 Product in packing storage condition:temperature 5～40℃, RH≤70%.
If taking out for use, the remaining products should be sealed in plastic bags and preserved in accordance with the above conditions, to avoid oxidation of terminals (electrodes), affecting soldering status.

8.3 A storage of Codaca Electronic products for longer than 12 months is not recommended, Within other effects, the terminals may suffer degradation, resulting in bad solderability. Therefore, all products shall be used within the period of 12 months based on the day of shipment.

8.4 Do not keep products in unsuitable storage conditions, such as areas susceptible to high temperatures, high humidity, dust or corrosion.

8.5 Always handle products with care.

8.6 Don't touch electrodes directly with bare hands as oil secretions may inhibit soldering. Always ensure optimum conditions for soldering.

8.7 When this product will be used on a similar or new project to the original one, sometimes it might be unable to satisfy the specifications due to different condition of usage.

8.8 This inductor itself does not have any protective function in abnormal condition, such as overload, short-circuit, open-circuit conditions, etc. Therefore, it shall be confirmed that there is no risk of smoke, fire, dielectric withstand voltage, insulation resistance, etc., or use in abnormal conditions protective devicesor protection circuit in the end product.

8.9 Hi-Pot test with higher voltage than spec value will damage insulating material and shorten its life.

8.10 If using in potting compound, the magnet wire coating might be damaged, please consult with us.

8.11 Refrain from rinsing coils. If necessary, please consult with us.

*8.12Codaca Electronic products without "V" prefix are qualified for industrial product requirement , and with "V" prefix are qualified for AEC-Q200, but it doesn't mean that Codaca Electronic products can absolutely meet specific industry norms and quality test standards in automotive electronics or more strict application fields . Codaca Electronic will be exempted from being responsible for the consequences of using Codaca products in automotive electronic or higher application field related to safety when without being aware of it.