

# SP03 Series Unshielded Power Inductors

## Features

- High energy storage and very low resistance
- Ideal inductors for DC-DC conversion
- Noise filtering and filter chokes
- Available on tape and reel for auto surface mounting

## Applications

- Power supplies
- Industrial electronics, etc.
- DC-DC converters, etc.
- Buck, boost, forward, and resonant converters

## Environmental Data

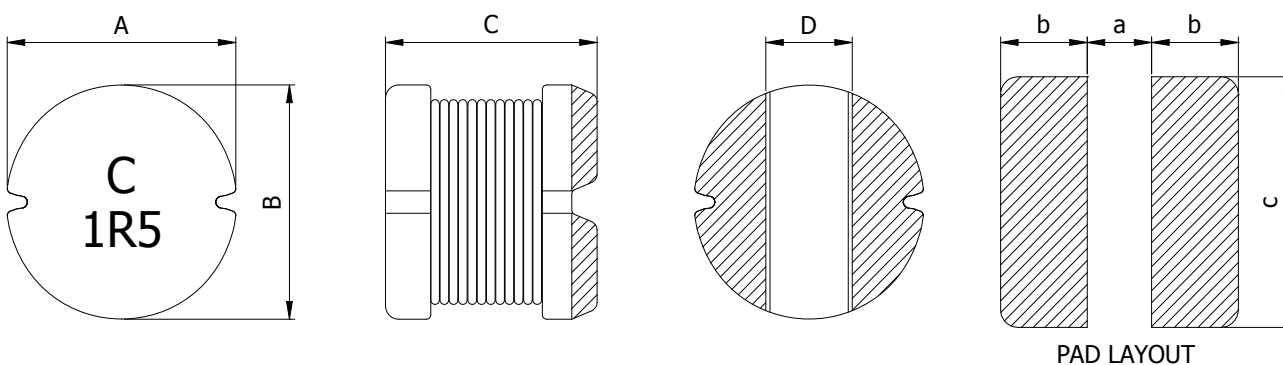
- Storage temperature range: -40°C to +125°C
- Operating temperature range: -40°C to +125°C (including coil's self-temperature rise)
- Solder reflow temperature: +260°C Max for 10 seconds Max
- Moisture sensitivity level: 1
- RoHS&HF compliance



## Packaging

- Supplied in tape and reel packaging, 800pcs(SP03-1006), 400pcs(SP03-1307), per 13-inch reel

## Mechanical Dimension (Unit: mm/inches)



Type	A Max.	B Max.	C Max.	D Nom.	a Nom.	b Nom.	c Nom.
SP03-1006	9.8	9.8	5.8	2.9	2.2	4.0	10.1
	0.386	0.386	0.228	0.114	0.087	0.158	0.40
SP03-1307	13.5	13.5	7.3	5.0	3.8	5.2	13.6
	0.531	0.531	0.288	0.197	0.15	0.205	0.536

## Electrical Schematic



## Part Number Description

SP03 - 1006 1R5 M  
 ① ② ③ ④

- ① Type
- ② Dimensions
- ③ Inductance value
- ④ Tolerance code

# SP03 Series Unshielded Power Inductors

## Electrical Characteristic

Part Number	Inductance L0(uH)	Q Typ.	Test Freq. (MHz)	SRF (MHz)Typ.	DCR ( $\Omega$ )Max.	Isat (A)Typ.	Irms (A)Typ.	Marking
SP03-10061R5M	1.5	35	7.96	105	0.018	10.0	6.40	C1R5
SP03-10062R2M	2.2	35	7.96	68	0.021	10.0	5.40	C2R2
SP03-10063R3M	3.3	34	7.96	55	0.024	10.0	5.00	C3R3
SP03-10063R9M	3.9	34	7.96	48	0.027	8.40	4.60	C3R9
SP03-10064R7M	4.7	33	7.96	40	0.036	7.30	4.00	C4R7
SP03-10065R6M	5.6	33	7.96	35	0.040	6.40	3.80	C5R6
SP03-10066R8M	6.8	33	7.96	32	0.044	5.90	3.40	C6R8
SP03-10068R2M	8.2	31	7.96	24	0.048	5.40	3.00	C8R2
SP03-1006100M	10	30	2.52	21	0.060	5.10	2.60	C100
SP03-1006120M	12	30	2.52	20	0.070	4.50	2.45	C120
SP03-1006150M	15	30	2.52	16	0.080	4.00	2.25	C150
SP03-1006180M	18	30	2.52	15	0.090	3.80	2.15	C180
SP03-1006220M	22	25	2.52	13	0.10	3.50	1.95	C220
SP03-1006270K	27	25	2.52	11	0.11	3.40	1.75	C270
SP03-1006330K	33	25	2.52	10	0.12	2.90	1.50	C330
SP03-1006390K	39	20	2.52	9.0	0.14	2.60	1.35	C390
SP03-1006470K	47	20	2.52	8.0	0.17	2.30	1.25	C470
SP03-1006560K	56	20	2.52	7.5	0.19	2.10	1.15	C560
SP03-1006680K	68	15	2.52	7.0	0.22	2.00	1.10	C680
SP03-1006820K	82	15	2.52	6.0	0.25	1.90	1.00	C820
SP03-1006101K	100	15	0.796	5.2	0.35	1.70	0.97	C101
SP03-1006121K	120	15	0.796	5.0	0.40	1.50	0.89	C121
SP03-1006151K	150	15	0.796	4.5	0.47	1.40	0.78	C151
SP03-1006181K	180	12	0.796	4.0	0.63	1.30	0.72	C181
SP03-1006221K	220	12	0.796	3.8	0.73	1.10	0.66	C221
SP03-1006271K	270	12	0.796	3.5	0.97	1.00	0.57	C271
SP03-1006331K	330	12	0.796	3.2	1.15	0.85	0.52	C331
SP03-1006391K	390	12	0.796	3.0	1.30	0.80	0.48	C391
SP03-1006471K	470	12	0.796	2.5	1.48	0.80	0.42	C471
SP03-1006561K	560	12	0.796	2.3	1.90	0.66	0.33	C561
SP03-1006681K	680	12	0.796	2.1	2.25	0.65	0.28	C681
SP03-1006821K	820	10	0.796	2.0	2.55	0.56	0.24	C821
SP03-1006102K	1000	30	0.252	1.9	3.10	0.53	0.23	C102
SP03-1006122K	1200	31	0.252	1.8	4.20	0.48	0.21	C122
SP03-1006152K	1500	31	0.252	1.7	5.00	0.45	0.19	C152
SP03-1006182K	1800	31	0.252	1.6	6.80	0.38	0.17	C182
SP03-1006222K	2200	31	0.252	1.5	7.60	0.36	0.16	C222

- Tolerance of Inductance:K=  $\pm 10\%$ ,M=  $\pm 20\%$ ,N=  $\pm 30\%$ .
- Test frequency and voltage:1KHz,1Vrms.
- All test data referenced to 25°C ambient.
- Saturation current(Isat) will cause L0 to drop approximately 10%.
- Heat rated current(Irms) will cause the coil temperature rise approximate  $\Delta t$  of 40°C.

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## Electrical Characteristic

Part Number	Inductance L0(uH)	Q Typ.	Test Freq. (MHz)	SRF (MHz)Typ.	DCR (mΩ)Max.	Isat (A)Typ.	Irms (A)Typ.	Marking
SP03-13071R5M	1.5	20	7.96	65	5.0	20.0	9.50	C1R5
SP03-13072R2M	2.2	22	7.96	50	6.0	18.0	9.00	C2R2
SP03-13072R7M	2.7	24	7.96	40	8.0	16.0	8.20	C2R7
SP03-13073R3M	3.3	26	7.96	38	8.7	15.0	7.50	C3R3
SP03-13074R7M	4.7	25	7.96	36	10	13.0	7.00	C4R7
SP03-13075R6M	5.6	24	7.96	28	15	11.0	6.50	C5R6
SP03-13076R8M	6.8	24	7.96	26	17	10.5	6.00	C6R8
SP03-13078R2M	8.2	24	7.96	24	19	9.8	5.80	C8R2
SP03-1307100M	10	22	2.52	22	21	9.2	5.60	C100
SP03-1307120M	12	25	2.52	20	30	8.0	4.80	C120
SP03-1307150M	15	28	2.52	17	34	7.5	4.50	C150
SP03-1307180M	18	28	2.52	16	36	7.0	4.20	C180
SP03-1307220M	22	40	2.52	15	47	6.5	3.60	C220
SP03-1307270M	27	35	2.52	11	60	5.5	3.30	C270
SP03-1307330K	33	35	2.52	10	65	5.0	3.10	C330
SP03-1307390K	39	28	2.52	9.0	75	4.6	2.90	C390
SP03-1307470K	47	24	2.52	7.5	82	4.2	2.70	C470
SP03-1307560K	56	22	2.52	7.2	95	3.8	2.50	C560
SP03-1307680K	68	24	2.52	7.0	120	3.5	2.30	C680
SP03-1307820K	82	18	2.52	6.0	140	3.2	2.10	C820
SP03-1307101K	100	25	0.796	5.8	180	3.0	1.90	C101
SP03-1307121K	120	20	0.796	5.5	210	2.8	1.80	C121
SP03-1307151K	150	20	0.796	4.5	250	2.6	1.60	C151
SP03-1307181K	180	18	0.796	4.0	280	2.3	1.50	C181
SP03-1307221K	220	15	0.796	3.8	360	2.1	1.30	C221
SP03-1307271K	270	15	0.796	3.5	410	1.8	1.20	C271
SP03-1307331K	330	15	0.796	3.2	520	1.6	1.10	C331
SP03-1307391K	390	12	0.796	2.5	600	1.5	1.00	C391
SP03-1307471K	470	12	0.796	2.2	720	1.4	0.90	C471
SP03-1307561K	560	10	0.796	2.0	880	1.3	0.85	C561
SP03-1307681K	680	10	0.796	1.6	1000	1.2	0.80	C681
SP03-1307821K	820	10	0.796	1.5	1300	1.1	0.75	C821
SP03-1307102K	1000	10	0.252	1.4	1600	1.0	0.65	C102

- Tolerance of Inductance:K= ±10%,M= ±20%,N= ±30%.
- Test frequency and voltage:100KHz,0.1Vrms.
- All test data referenced to 25°C ambient.
- Saturation current(Isat) will cause L0 to drop approximately 10%.
- Heat rated current(Irms) will cause the coil temperature rise approximate Δt of 40°C.