TDK

Axial Lead Inductors(Coils) For Signal Line

Conformity to RoHS Directive

SP Series SP0203

FEATURES

- The SP series inductors are available in ranging from 0203 to 0406 types.
- These are coaxial horizontal types, highly miniaturized and lightweight.
- Epoxy resin construction assures high reliability.
- Available in ammo-pack style tape packaging to support automated mounting machines.
- Terminal platings and internal connecting solder use lead-free materials.
- It is a product conforming to RoHS directive.

APPLICATIONS

Televisions, VCRs, personal computers, and other electronic equipment.

SPECIFICATIONS

Operating temperature range	–20 to +80°C [Including self-temperature rise]
Storage temperature range	–40 to +80°C [Unit of products]
Terminal tensile strength	9.8N min.

PRODUCT IDENTIFICATION

SP / PL						
SPT	0203	SA-	1R0	J	-	PF
(1)	(2)	(3)	(4)	(5)		(6)

(1)Series name

SP	Bulk
PL	Formed lead products
SPT	Taping (ammo-pack)

(2)Dimensions

0203	ø2.4×3.4mm

(3)Packaging style

None	Bulk
S	Formed
SA	26mm Taping
A	52mm Taping
RA(Only PL series)	Taping (ammo-pack)

(4)Inductance value

R10	0.1µH
1R0	1µH
100	10µH
101	100µH

(5)Inductance tolerance

J	±5%
K	±10%

(6)Lead-free compatible product

PF	Lead-free compatible product

PACKAGING STYLE AND QUANTITIES

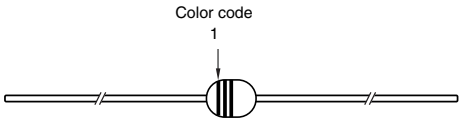
Packaging style	Quantity
Taping(Ammo-pack)	2000 pieces/box
Bulk	200 pieces/pack

COLOR CODE MARKINGS (from left)

1: The first effective number

2: The second effective number

3: Multiplier



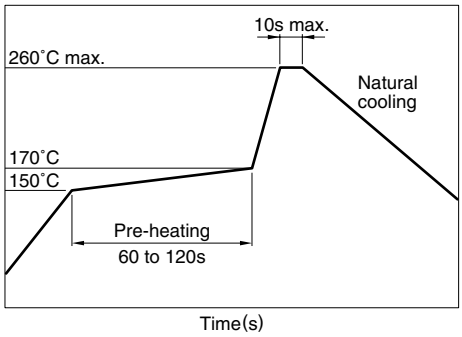
Color code table

Color	Effective number	Multiplier	Inductance tolerance
Black	0	1	—
Brown	1	10	—
Red	2	100	—
Orange	3	1000	—
Yellow	4	—	—
Green	5	—	—
Blue	5	—	—
Purple	7	—	—
Gray	8	—	—
White	9	—	—
Silver	—	0.01	±10%
Gold	—	0.1	±5%

- According to JIS-C-0801

RECOMMENDED SOLDERING CONDITIONS

FLOW SOLDERING



IRON SOLDERING

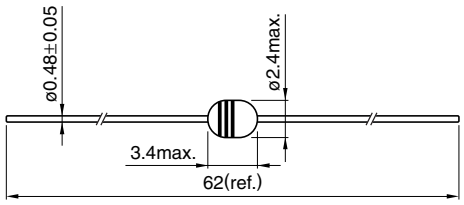
Tip temperature	350°C max.
Heating time	5 seconds/soldering

- The use of reflow soldering is not guaranteed.

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

• All specifications are subject to change without notice.

SHAPES AND DIMENSIONS



Dimensions in mm

CHARACTERISTICS

Operating temperature range	–20 to +80°C [Including self-temperature rise, 20°C max.]
Rated current	Based on temperature rise
Terminal tensile strength	9.8N min.
Terminal bending strength	2.94N min.

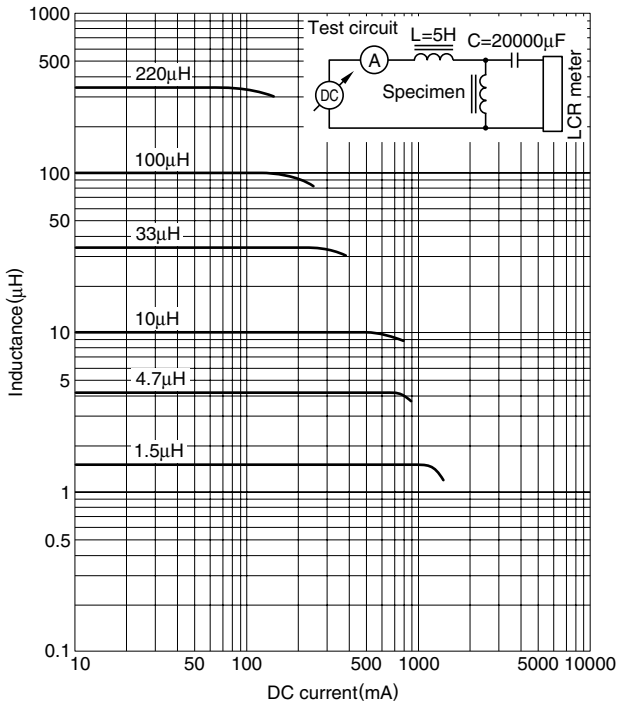
ELECTRICAL CHARACTERISTICS

Inductance (µH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz)min.	DC resistance (Ω)max.	Rated current (mA)max.	Part No.
0.10	±10%	40	25.2	600	0.16	800	SP0203-R10K-PF
0.12	±10%	40	25.2	520	0.16	790	SP0203-R12K-PF
0.15	±10%	40	25.2	500	0.16	790	SP0203-R15K-PF
0.18	±10%	40	25.2	480	0.18	745	SP0203-R18K-PF
0.22	±10%	40	25.2	420	0.20	705	SP0203-R22K-PF
0.27	±10%	40	25.2	390	0.22	670	SP0203-R27K-PF
0.33	±10%	40	25.2	350	0.24	645	SP0203-R33K-PF
0.39	±10%	50	25.2	320	0.27	605	SP0203-R39K-PF
0.47	±10%	50	25.2	300	0.30	575	SP0203-R47K-PF
0.56	±10%	50	25.2	280	0.34	540	SP0203-R56K-PF
0.68	±10%	50	25.2	240	0.38	510	SP0203-R68K-PF
0.82	±10%	50	25.2	210	0.43	480	SP0203-R82K-PF
1.0	±10%	50	25.2	190	0.46	465	SP0203-1R0K-PF
1.2	±5%	50	7.96	110	0.52	435	SP0203-1R2J-PF
1.5	±5%	50	7.96	80	0.57	415	SP0203-1R5J-PF
1.8	±5%	50	7.96	66	0.60	405	SP0203-1R8J-PF
2.2	±5%	50	7.96	60	0.65	390	SP0203-2R2J-PF
2.7	±5%	50	7.96	54	0.73	370	SP0203-2R7J-PF
3.3	±5%	50	7.96	48	0.82	345	SP0203-3R3J-PF
3.9	±5%	50	7.96	44	0.90	330	SP0203-3R9J-PF
4.7	±5%	50	7.96	38	1.00	315	SP0203-4R7J-PF
5.6	±5%	50	7.96	34	1.10	300	SP0203-5R6J-PF
6.8	±5%	50	7.96	30	1.20	285	SP0203-6R8J-PF
8.2	±5%	50	7.96	26	1.30	275	SP0203-8R2J-PF
10	±5%	50	7.96	24	1.40	265	SP0203-100J-PF
12	±5%	50	2.52	22	1.50	255	SP0203-120J-PF
15	±5%	50	2.52	20	1.65	245	SP0203-150J-PF
18	±5%	50	2.52	18	1.90	225	SP0203-180J-PF
22	±5%	50	2.52	17	2.20	210	SP0203-220J-PF
27	±5%	50	2.52	16	2.50	200	SP0203-270J-PF
33	±5%	50	2.52	14	3.80	160	SP0203-330J-PF
39	±5%	50	2.52	13	4.20	150	SP0203-390J-PF
47	±5%	50	2.52	12	4.60	145	SP0203-470J-PF
56	±5%	40	2.52	11	5.10	140	SP0203-560J-PF
68	±5%	40	2.52	10	5.60	130	SP0203-680J-PF
82	±5%	40	2.52	9.5	9.60	100	SP0203-820J-PF
100	±5%	40	2.52	8.0	10.80	95	SP0203-101J-PF
120	±5%	40	0.796	6.5	12.50	85	SP0203-121J-PF

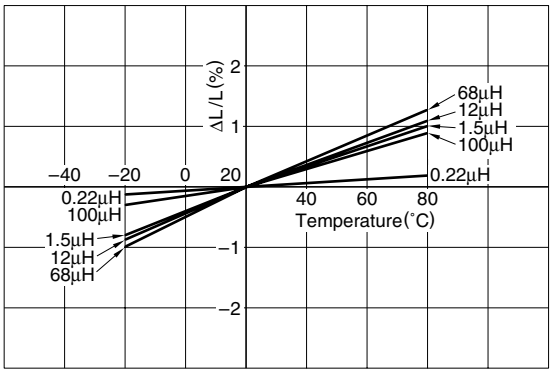
- Different product names are used depending on the type of packaging used at the time of delivery. Please see "PRODUCT IDENTIFICATION" for details.
- Test equipment L, Q: HP4194A IMPEDANCE ANALYZER, or equivalent
  SRF: HP8753C NETWORK ANALYZER, or equivalent
  Rdc: NATIONAL VP-2941A MILLIOHM METER, or equivalent

TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



Q vs. FREQUENCY CHARACTERISTICS