

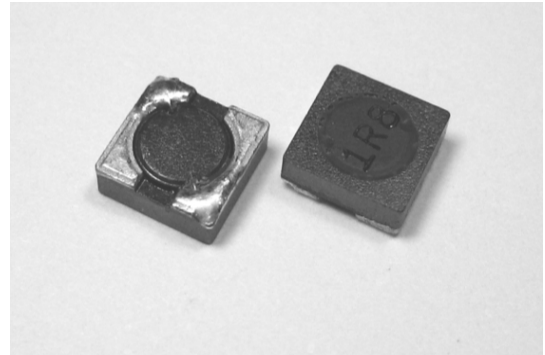
1. SPH Series (Shielded Type)

Applications

- Portable telephones.
- Personal computers.
- DC/DC converters, etc.
- Other various electronic appliances.

Features

- Small size with the electrode attached to the ferrite core directly.
- Available in magnetically shielded.
- Low DC resistance.
- Ideal inductor for DC-DC conversion in notebook computer, Step-up or Step-down converters, etc.



Inductance and Rated Current ranges

Part Series	Inductances range	Rated Current range
* SPH3018	1.5~100 μ H	1.75~0.25A (I _{rms}) ; 1.55~0.18A (I _{sat})
* SPH3027	4.7~220 μ H	2.00~0.38A (I _{rms}) ; 0.75~0.10A (I _{sat})
* SPH3028	3.3~100 μ H	1.95~0.48A (I _{rms}) ; 1.70~0.30A (I _{sat})
* SPH4011	0.47~150 μ H	3.20~0.25A (I _{rms}) ; 3.80~0.22A (I _{sat})
* SPH4018	1.0~100 μ H	2.70~0.40A (I _{rms}) ; 2.60~0.30A (I _{sat})
* SPH4022	1.5~150 μ H	3.50~0.45A (I _{rms}) ; 1.80~0.18A (I _{sat})
* SPH4028	1.2~560 μ H	3.10~0.22A (I _{rms}) ; 2.56~0.15A (I _{sat})
* SPH5018	1.2~220 μ H	3.00~0.23A (I _{rms}) ; 3.50~0.30A (I _{sat})
* SPH5028	2.6~680 μ H	3.00~0.13A (I _{rms}) ; 2.70~0.14A (I _{sat})
* SPH6022	0.9~1000 μ H	4.80~0.16A (I _{rms}) ; 4.40~0.13A (I _{sat})
* SPH6028	2.5~1000 μ H	2.80~0.15A (I _{rms}) ; 3.00~0.17A (I _{sat})

(Dimension data (Refer to Fig. 1))

Part Series	Inductances range	Rated Current range
* SPH3D18	1.0~220 μ H	2.40~0.13A
* SPH4D18	1.0~220 μ H	1.72~0.13A
* SPH4D22	1.5~150 μ H	2.00~0.21A
* SPH4D28	1.0~220 μ H	2.65~0.21A
* SPH5D18	2.2~470 μ H	2.30~0.18A
* SPH5D28	2.2~680 μ H	2.60~0.18A
* SPH6D28	1.0~330 μ H	6.15~0.35A
* SPH6D38	1.0~560 μ H	5.60~0.29A

(Dimension data (Refer to Fig. 2))

1. SPH Series (Shielded Type)

Inductance and Rated Current ranges (Cont'd)

Part Series	Inductances range	Rated Current range
* SPH6915	1.00~820μH	3.28~0.10A
* SPH6919	0.36~1500μH	8.00~0.095A
* SPH7040	0.36~1000μH	9.24~0.18A

(Dimension data (Refer to Fig. 3))

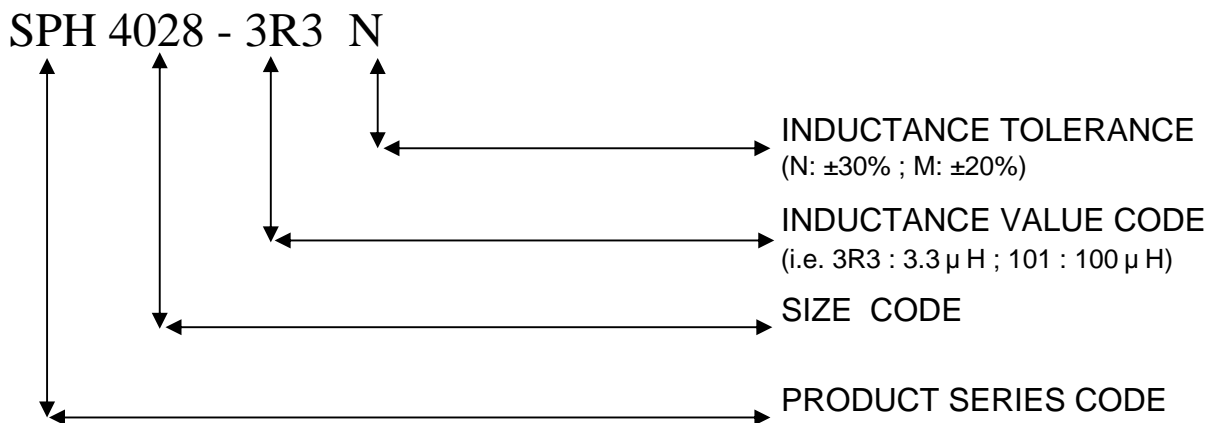
Characteristics

Test Frequency : 100KHz 0.1V
 SPH5D18, SPH5D28, SPH6D28, SPH6D38 : @10KHz 0.1V
 SPH6915, SPH6919, SPH7040 :
 0.36μH~8.2μH @100KHz 0.25V. 10μH~1500μH @1KHz 0.25V.

Test equipment:
 L: HP4284A LCR meter
 DCR Resistance: Milli-ohm meter or equivalent.
 Electrical Specifications at 25 .

Operating temperature range:
 -40 ~+125 :

Part Numbering System



1. SPH Series (Shielded Type)

Dimensions (mm)

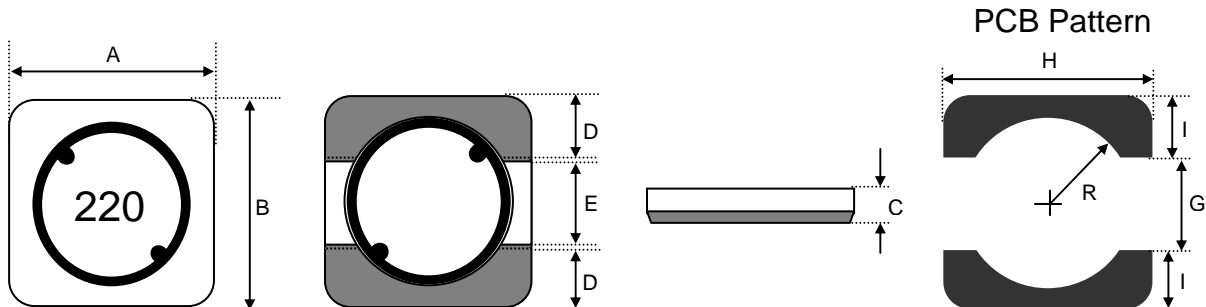


Fig. 1

Series	A	B	C	D (typ.)	E (typ.)	G (ref.)	H (ref.)	I (ref.)	R (ref.)
SPH3018	3.80±0.30	3.80±0.30	1.65±0.15	1.30	1.20	1.10	4.30	1.60	1.30
SPH3027	3.80±0.30	3.80±0.30	2.80±0.20	1.30	1.20	1.10	4.30	1.60	1.40
SPH3028	3.80±0.30	3.80±0.30	2.80±0.20	1.30	1.20	1.10	4.30	1.60	1.40
SPH4011	4.80±0.30	4.80±0.30	1.15±0.15	1.60	1.60	1.50	5.30	2.00	1.80
SPH4018	4.80±0.20	4.80±0.20	1.80±0.20	1.60	1.60	1.50	5.30	2.00	1.80
SPH4022	4.80±0.30	4.80±0.30	2.20±0.20	1.60	1.60	1.50	5.30	2.00	1.80
SPH4028	4.80±0.20	4.80±0.20	2.80±0.20	1.60	1.60	1.50	5.30	2.00	1.80
SPH5018	5.80±0.30	5.80±0.30	1.80±0.20	1.90	2.00	1.90	6.30	2.20	2.20
SPH5028	5.80±0.30	5.80±0.30	2.80±0.20	1.90	2.00	1.90	6.30	2.20	2.20
SPH6022	6.80±0.20	6.80±0.20	2.30±0.20	2.30	2.20	2.10	7.30	2.60	2.70
SPH6028	6.80±0.20	6.80±0.20	2.80±0.20	2.30	2.20	2.10	7.30	2.60	2.70

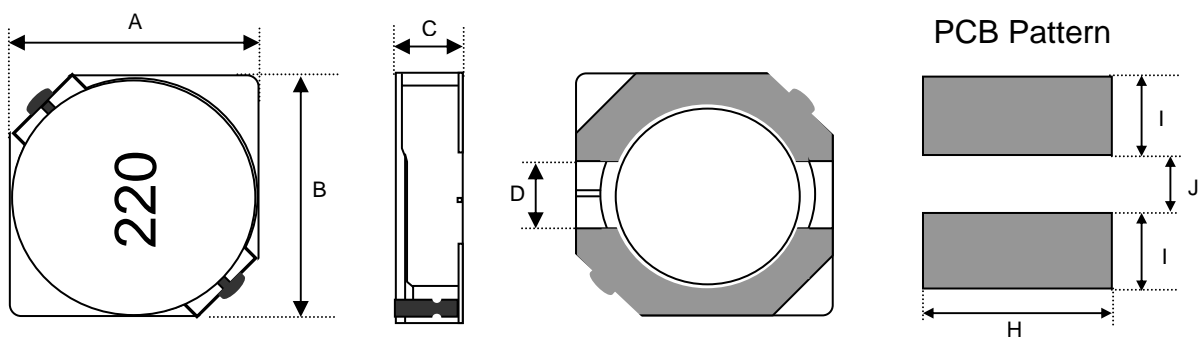


Fig. 2

Series	A	B	C	D	H	I	J
SPH3D18	3.8±0.3	3.8±0.3	2.0Max	1.10	4.6	1.65	1.0
SPH4D18	4.7±0.3	4.7±0.3	2.0Max	1.50	5.3	1.90	1.5
SPH4D22	4.7±0.3	4.7±0.3	2.4Max	1.50	5.3	1.90	1.5
SPH4D28	4.7±0.3	4.7±0.3	3.0Max	1.50	5.3	1.90	1.5
SPH5D18	5.7±0.3	5.7±0.3	2.0Max	2.00	6.3	2.15	2.0
SPH5D28	5.7±0.3	5.7±0.3	3.0Max	2.00	6.3	2.15	2.0
SPH6D28	6.7±0.3	6.7±0.3	3.0Max	2.00	7.3	2.65	2.0
SPH6D38	6.7±0.3	6.7±0.3	4.0Max	2.00	7.3	2.65	2.0

1. SPH Series (Shielded Type)

Dimensions (mm) (Cont'd)

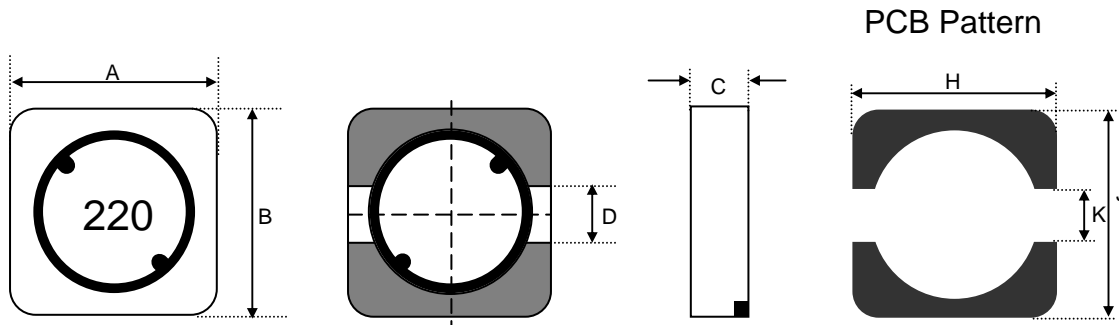


Fig. 3

Series	A	B	C (Max)	D	H	J	K
SPH6915	6.9±0.3	6.9±0.3	1.50	2.5	7.3	7.3	2.0
SPH6919	6.9±0.3	6.9±0.3	1.90	2.5	7.3	7.3	2.0
SPH7040	7.0±0.4	7.0±0.3	4.30	1.8	8.0	8.0	1.6

1. SPH Series (Shielded Type)

Electrical Characteristics

SPH 4011 / 4018 / 4022 / 4028 TYPE

Inductance value code	L (μH)	Tol. (%)	DC Resistance (mΩ) Max.				Rated DC current (mA) Max.							
							I rms				I sat			
			4011	4018	4022	4028	4011	4018	4022	4028	4011	4018	4022	4028
R47	0.47	N	30	-	-	-	3200	-	-	-	3800	-	-	-
1R0	1.00	N	-	35	-	-	-	2700	-	-	-	2600	-	-
1R2	1.20	N	48	-	-	20	2700	-	-	3100	2500	-	-	2560
1R5	1.50	N	56	-	20	-	2300	-	3500	-	2100	-	1800	-
1R8	1.80	N	-	58	-	25	-	2350	-	2700	-	2200	-	2200
2R2	2.20	N	75	-	25	28	2000	-	3300	2500	1800	-	1600	2050
2R7	2.70	N	-	60	-	30	-	2030	-	2350	-	1950	-	1800
3R3	3.30	N	110	65	36	35	1600	1950	3000	2150	1400	1800	1400	1650
3R9	3.90	N	-	75	-	60	-	1820	-	1720	-	1650	-	1500
4R7	4.70	N	165	82	55	70	1350	1720	2200	1550	1200	1500	1100	1300
5R6	5.60	N	-	90	-	85	-	1640	-	1380	-	1250	-	1200
6R2	6.20	N	195	-	-	-	1200	-	-	-	1000	-	-	-
6R8	6.80	N	-	100	70	90	-	1500	2000	1300	-	1150	950	1150
8R2	8.20	N	215	135	-	100	1100	1400	-	1250	920	1100	-	1050
100	10.0	N	240	150	85	110	1000	1300	1700	1190	830	1000	800	1000
120	12.0	N	-	170	-	125	-	1150	-	1120	-	900	-	850
150	15.0	N	400	220	130	150	900	1030	1300	1030	700	820	680	780
180	18.0	N	-	280	-	160	-	920	-	980	-	750	-	750
220	22.0	N	580	300	180	185	600	880	1100	925	570	650	530	720
270	27.0	N	-	370	-	200	-	770	-	890	-	600	-	600
330	33.0	N	860	420	280	230	550	730	800	820	470	500	420	580
390	39.0	N	-	540	-	250	-	640	-	795	-	480	-	500
470	47.0	N	1250	600	350	280	480	620	700	750	400	450	350	480
560	56.0	N	-	820	-	320	-	520	-	700	-	400	-	410
680	68.0	N	1800	860	520	400	350	500	600	630	320	380	300	360
820	82.0	N	2200	1200	-	520	330	430	-	560	300	320	-	320
101	100.0	N	2400	1350	650	600	310	400	550	510	270	300	240	300
121	120.0	N	-	-	730	700	-	-	520	470	-	-	210	280
151	150.0	N	3800	-	930	860	250	-	450	420	220	-	180	260
181	180.0	N	-	-	-	1000	-	-	-	390	-	-	-	230
221	220.0	N	-	-	-	1250	-	-	-	340	-	-	-	200
271	270.0	N	-	-	-	1500	-	-	-	320	-	-	-	180
331	330.0	N	-	-	-	1700	-	-	-	300	-	-	-	170
391	390.0	N	-	-	-	2200	-	-	-	260	-	-	-	160
471	470.0	N	-	-	-	2600	-	-	-	240	-	-	-	155
561	560.0	N	-	-	-	3000	-	-	-	220	-	-	-	150

Notes:

- Test Frequency: 100KHz 0.1V
- 2a). Irms: base on temp. rise (SPH4011: 40 <Typ.>, SPH4018: 30 <Max.>, SPH4022: 20 <Typ.>, SPH4028: 30 <Max.>)
- 2b). Isat: base on L/LOA = 35% <Typ.> (SPH4011: 30%)
3. Operating temperature range: -40~+125