

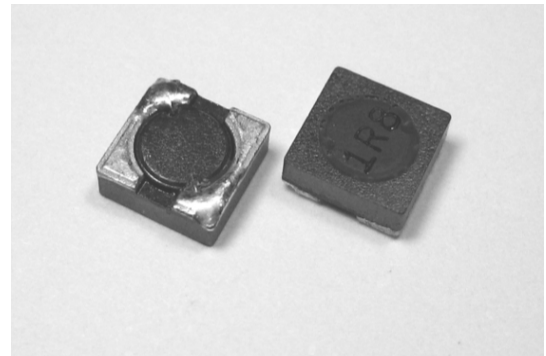
1. SPH Series (Shielded Type)

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

(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))

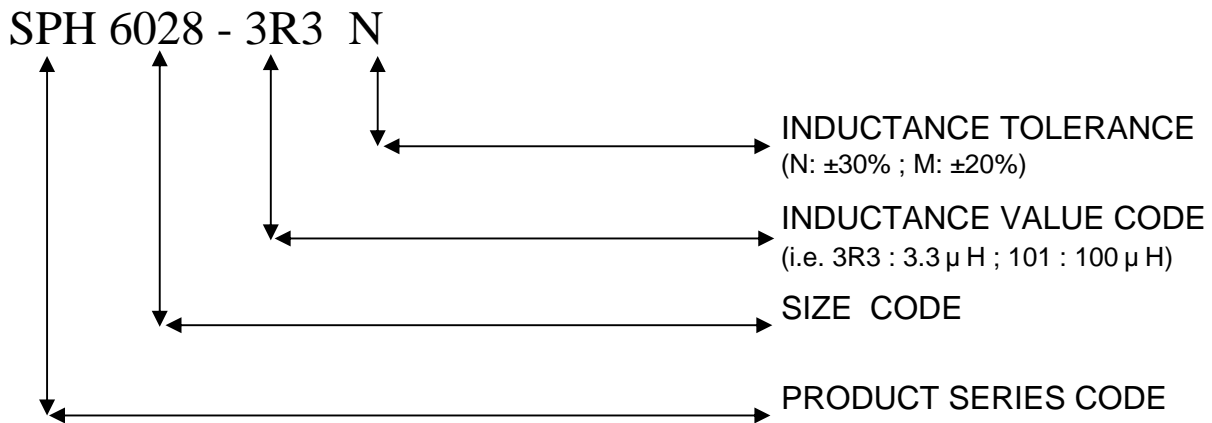
Characteristics

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)

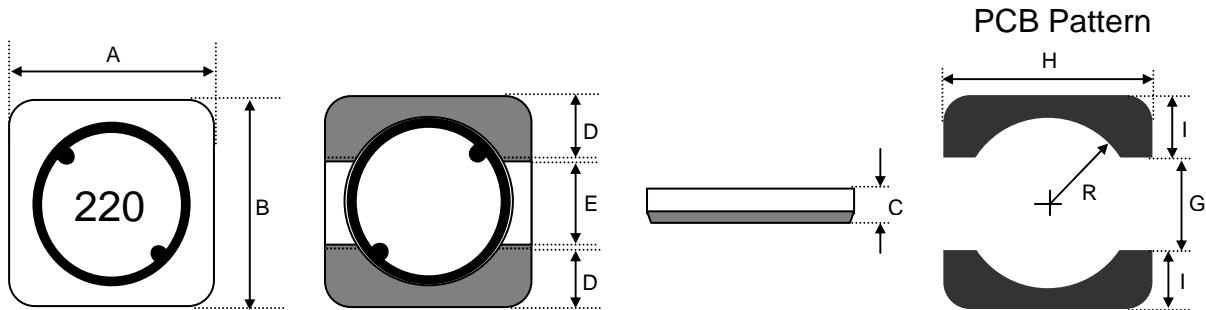


Fig. 1

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

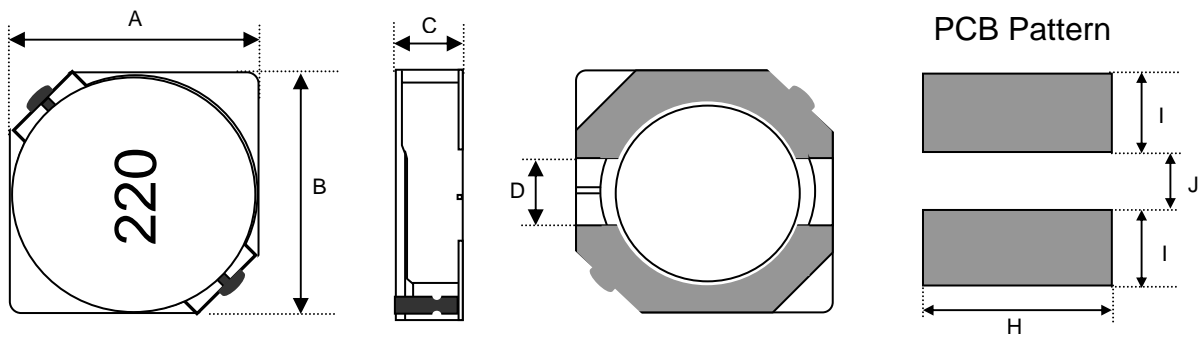


Fig. 2

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)

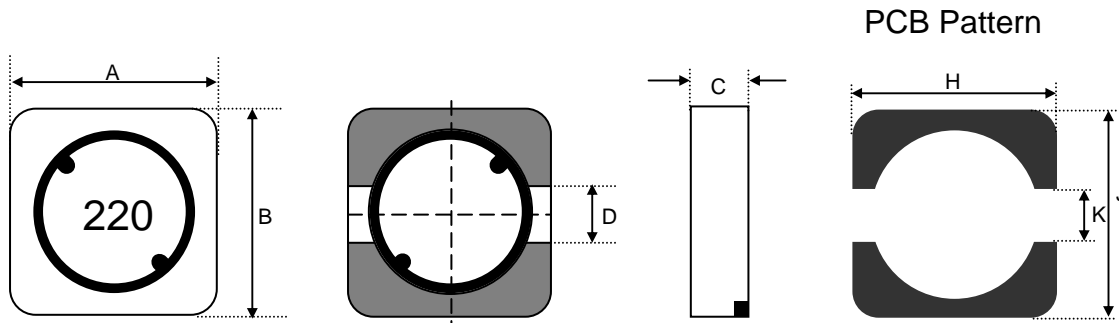


Fig. 3

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 5018 / 5028 / 6022 / 6028 TYPE

Inductance value code	L (μH)	Tol. (%)	DC Resistance () Max.				Rated DC current (A) Max.							
							I rms				I sat			
			5018	5028	6022	6028	5018	5028	6022	6028	5018	5028	6022	6028
R90	0.9	N	-	-	0.014	-	-	-	4.800	-	-	-	4.400	-
1R2	1.2	N	0.030	-	-	-	3.000	-	-	-	3.500	-	-	-
1R5	1.5	N	-	-	0.018	-	-	-	4.300	-	-	-	3.500	-
1R8	1.8	N	0.035	-	-	-	2.600	-	-	-	3.000	-	-	-
2R2	2.2	N	-	-	0.024	-	-	-	3.400	-	-	-	2.600	-
2R5	2.5	N	0.040	-	-	0.025	2.400	-	-	2.800	2.700	-	-	3.000
2R6	2.6	N	-	0.030	-	-	-	3.000	-	-	-	2.700	-	-
3R0	3.0	N	0.045	0.030	-	-	2.200	2.800	-	-	2.400	2.500	-	-
3R3	3.3	N	-	-	0.032	0.028	-	-	2.800	2.500	-	-	2.200	2.600
3R9	3.9	N	0.055	-	-	0.032	2.000	-	-	2.450	2.100	-	-	2.300
4R2	4.2	N	-	0.035	-	-	-	2.500	-	-	-	2.200	-	-
5R0	5.0	N	0.060	-	0.046	0.036	1.650	-	2.150	2.400	1.800	-	2.000	2.100
5R3	5.3	N	-	0.040	-	-	-	2.300	-	-	-	1.900	-	-
6R0	6.0	N	-	-	-	0.040	-	-	-	2.300	-	-	-	2.000
6R2	6.2	N	0.080	0.045	0.054	-	1.450	2.200	1.900	-	1.600	1.800	1.700	-
7R3	7.3	N	-	-	-	0.052	-	-	-	2.200	-	-	-	1.850
7R5	7.5	N	0.090	-	0.060	-	1.350	-	1.700	-	1.500	-	1.500	-
8R2	8.2	N	-	0.055	-	-	-	2.100	-	-	-	1.600	-	-
8R6	8.6	N	-	-	-	0.056	-	-	-	2.100	-	-	-	1.820
9R0	9.0	N	0.110	-	-	-	1.250	-	-	-	1.350	-	-	-
100	10	N	0.130	0.070	0.070	0.065	1.100	1.500	1.600	2.000	1.250	1.400	1.300	1.700
120	12	N	0.160	0.080	0.080	-	1.000	1.460	1.430	-	1.150	1.250	1.150	-
150	15	N	0.190	0.100	0.095	0.078	0.950	1.380	1.310	1.700	1.100	1.150	1.050	1.300
180	18	N	0.210	0.110	0.100	-	0.900	1.250	1.280	-	1.000	1.100	1.000	-
220	22	N	0.280	0.120	0.120	0.115	0.800	1.150	1.220	1.400	0.900	1.000	0.950	1.080
270	27	N	0.320	0.160	0.150	-	0.750	1.050	1.040	-	0.800	0.900	0.850	-
330	33	N	0.350	0.190	0.200	0.155	0.650	0.900	0.930	1.150	0.700	0.780	0.780	0.920
390	39	N	0.500	0.210	0.250	-	0.550	0.860	0.760	-	0.650	0.720	0.700	-
470	47	N	0.550	0.250	0.280	0.235	0.520	0.820	0.730	0.920	0.600	0.650	0.620	0.720
560	56	N	0.600	0.300	0.320	-	0.480	0.720	0.680	-	0.550	0.600	0.560	-
680	68	N	0.850	0.350	0.360	0.300	0.400	0.620	0.640	0.800	0.500	0.560	0.500	0.600
820	82	N	0.950	0.430	0.420	-	0.380	0.520	0.600	-	0.450	0.500	0.450	-
101	100	N	1.100	0.480	0.480	0.500	0.350	0.450	0.550	0.580	0.420	0.450	0.400	0.550
121	120	N	1.420	-	0.600	-	0.300	-	0.480	-	0.400	-	0.360	-
151	150	N	1.650	0.900	0.720	0.680	0.280	0.330	0.430	0.500	0.350	0.350	0.320	0.420
181	180	N	2.300	1.000	0.860	-	0.250	0.320	0.400	-	0.320	0.310	0.280	-
221	220	N	2.500	1.250	1.100	0.820	0.230	0.300	0.360	0.450	0.300	0.300	0.250	0.360
271	270	N	-	-	1.300	-	-	-	0.340	-	-	-	0.220	-
331	330	N	-	2.000	1.500	1.400	-	0.200	0.290	0.370	-	0.200	0.200	0.270
391	390	N	-	-	1.800	-	-	-	0.275	-	-	-	0.180	-
471	470	N	-	-	2.200	2.100	-	-	0.240	0.270	-	-	0.170	0.220
561	560	N	-	-	2.700	-	-	-	0.225	-	-	-	0.160	-
681	680	N	-	4.300	3.500	3.100	-	0.130	0.190	0.220	-	0.140	0.150	0.200
821	820	N	-	-	4.000	-	-	-	0.172	-	-	-	0.140	-
102	1000	N	-	-	5.000	4.500	-	-	0.160	0.150	-	-	0.130	0.170

Notes:

1. Test Frequency: 100KHz 0.1V
- 2a). Irms: base on temp. rise 30 <Max.> (SPH5018: 40 <Typ.>)
- 2b). Isat: base on L/L0A = 35% <Typ.>
3. Operating temperature range: -40~+125