

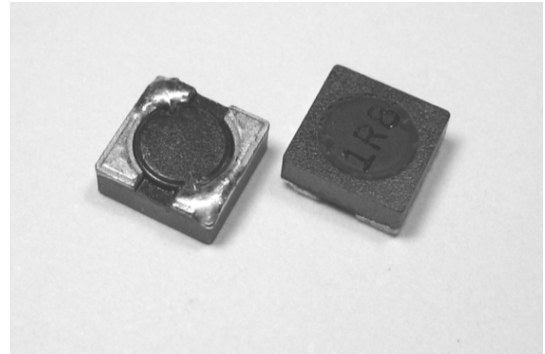
## 1. SPH Series (Shielded Type)

### 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 $\mu$ H	1.75~0.25A (I <sub>rms</sub> ) ; 1.55~0.18A (I <sub>sat</sub> )
* SPH3027	4.7~220 $\mu$ H	2.00~0.38A (I <sub>rms</sub> ) ; 0.75~0.10A (I <sub>sat</sub> )
* SPH3028	3.3~100 $\mu$ H	1.95~0.48A (I <sub>rms</sub> ) ; 1.70~0.30A (I <sub>sat</sub> )
* SPH4011	0.47~150 $\mu$ H	3.20~0.25A (I <sub>rms</sub> ) ; 3.80~0.22A (I <sub>sat</sub> )
* SPH4018	1.0~100 $\mu$ H	2.70~0.40A (I <sub>rms</sub> ) ; 2.60~0.30A (I <sub>sat</sub> )
* SPH4022	1.5~150 $\mu$ H	3.50~0.45A (I <sub>rms</sub> ) ; 1.80~0.18A (I <sub>sat</sub> )
* SPH4028	1.2~560 $\mu$ H	3.10~0.22A (I <sub>rms</sub> ) ; 2.56~0.15A (I <sub>sat</sub> )
* SPH5018	1.2~220 $\mu$ H	3.00~0.23A (I <sub>rms</sub> ) ; 3.50~0.30A (I <sub>sat</sub> )
* SPH5028	2.6~680 $\mu$ H	3.00~0.13A (I <sub>rms</sub> ) ; 2.70~0.14A (I <sub>sat</sub> )
* SPH6022	0.9~1000 $\mu$ H	4.80~0.16A (I <sub>rms</sub> ) ; 4.40~0.13A (I <sub>sat</sub> )
* SPH6028	2.5~1000 $\mu$ H	2.80~0.15A (I <sub>rms</sub> ) ; 3.00~0.17A (I <sub>sat</sub> )

(Dimension data (Refer to Fig. 1))

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

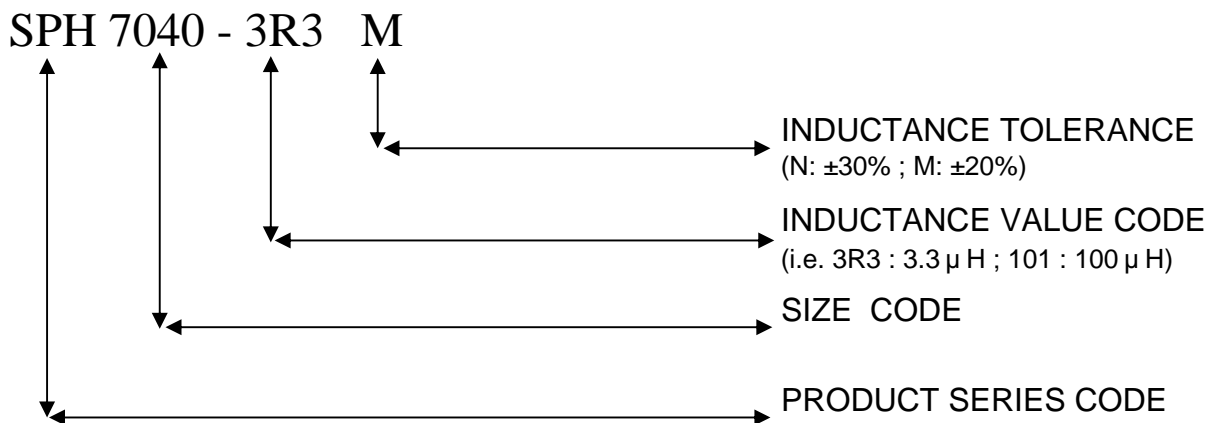
**Characteristics**

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)**

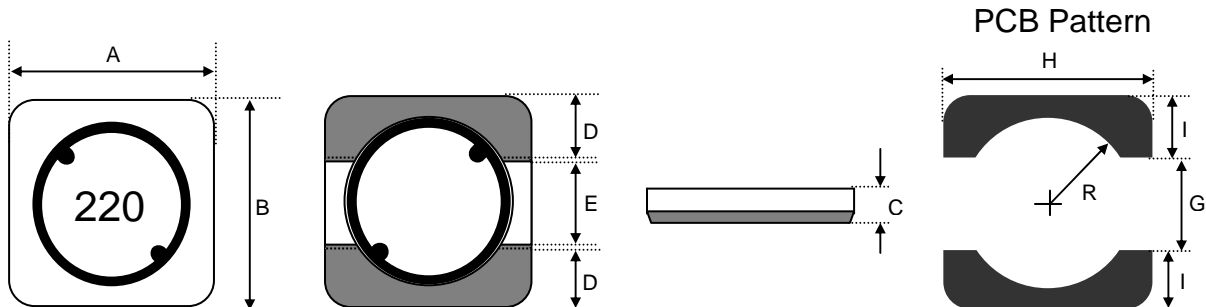


Fig. 1

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

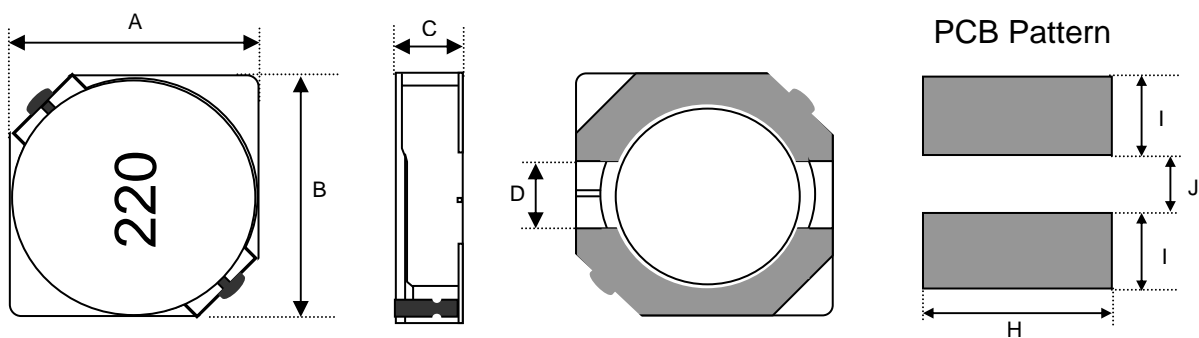


Fig. 2

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)**

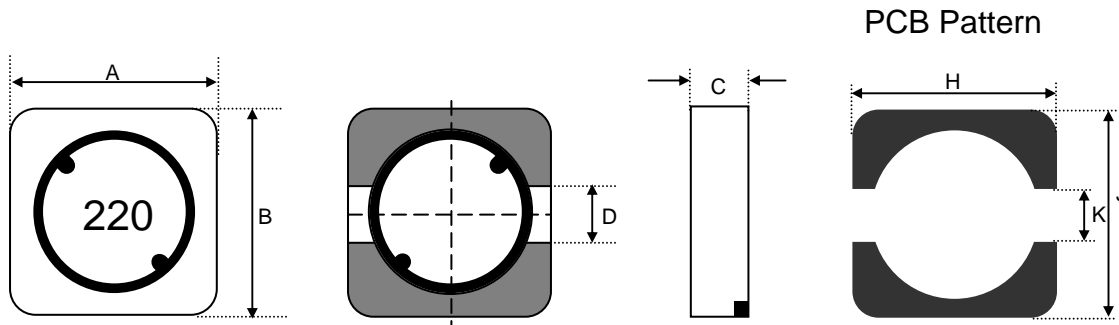


Fig. 3

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 6915 / 6919 / 7040 TYPE

Inductance value code	L (μH)	Tol.	DC Resistance ( ) Max.			Rated DC current (A) Max.		
			6915	6919	7040	6915	6919	7040
R36	0.36	N	-	0.015	0.005	-	8.000	9.240
R56	0.56	N	-	-	0.006	-	-	8.500
R80	0.80	N	-	-	0.009	-	-	5.800
1R0	1.0	M,N	0.050	0.035	0.040	3.280	3.520	2.100
1R2	1.2	M,N	-	-	0.040	-	-	2.100
1R5	1.5	M,N	0.067	-	0.040	2.530	-	2.100
1R8	1.8	M,N	-	0.052	0.040	-	3.050	2.090
2R0	2.0	M,N	0.085	-	-	2.060	-	-
2R2	2.2	M,N	-	0.071	0.041	-	2.500	2.080
2R5	2.5	M,N	-	-	0.041	-	-	2.080
2R7	2.7	M,N	0.110	-	-	1.870	-	-
3R0	3.0	M,N	-	0.086	-	-	2.150	-
3R3	3.3	M,N	0.130	-	0.041	1.580	-	2.070
3R9	3.9	M,N	0.160	0.110	-	1.460	2.010	-
4R3	4.3	M,N	-	-	0.041	-	-	2.060
4R7	4.7	M,N	0.200	0.130	0.042	1.300	1.950	2.050
5R6	5.6	M,N	0.230	0.150	0.043	1.220	1.820	2.040
6R8	6.8	M,N	0.280	0.170	0.044	1.160	1.670	2.040
8R2	8.2	M,N	0.310	0.190	0.047	1.130	1.520	2.020
100	10	M	0.330	0.240	0.049	1.030	1.390	2.000
120	12	M	0.460	0.290	0.058	0.870	1.220	1.900
150	15	M	0.530	0.380	0.081	0.800	1.090	1.600
180	18	M	0.620	0.440	0.091	0.730	1.030	1.480
220	22	M	0.700	0.490	0.110	0.710	0.950	1.320
270	27	M	0.910	0.640	0.150	0.650	0.840	1.260
330	33	M	1.150	0.740	0.170	0.570	0.800	1.100
390	39	M	1.380	0.910	0.230	0.500	0.750	1.050
470	47	M	1.540	1.020	0.260	0.480	0.690	1.000
560	56	M	1.860	1.260	0.350	0.450	0.630	0.850
680	68	M	2.320	1.570	0.380	0.410	0.560	0.780
820	82	M	2.540	1.890	0.430	0.370	0.510	0.740
101	100	M	3.200	2.120	0.610	0.320	0.470	0.700
121	120	M	4.240	2.550	0.660	0.290	0.420	0.600
151	150	M	4.770	3.370	0.880	0.270	0.370	0.520
181	180	M	6.040	3.730	0.980	0.240	0.320	0.460
221	220	M	7.950	4.540	1.170	0.220	0.290	0.400
271	270	M	10.510	5.970	1.640	0.190	0.250	0.360
331	330	M	11.630	7.740	1.860	0.180	0.230	0.320
391	390	M	12.970	9.920	2.850	0.160	0.210	0.280
471	470	M	16.870	12.950	3.010	0.150	0.180	0.260
561	560	M	22.300	14.360	3.620	0.130	0.160	0.240
681	680	M	25.110	18.520	4.630	0.120	0.140	0.220
821	820	M	28.410	20.230	5.200	0.100	0.130	0.200
102	1000	M	-	28.250	6.000	-	0.110	0.180
122	1200	M	-	31.850	-	-	0.100	-
152	1500	M	-	36.720	-	-	0.095	-

#### Notes:

1. Test Frequency: 0.36 μH~8.2 μH @100KHz 0.25V. 10 μH~1500 μH @1KHz 0.25V.
2. Rated Current: The DC current when the inductance become 30% lower than its initial value.
3. Operating temperature range: -40~+125