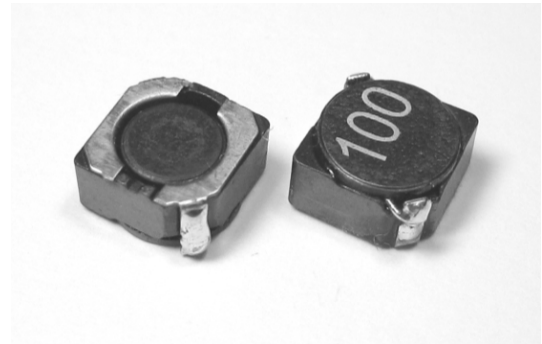


## 1. SPH Series (Shielded Type)

### 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	1.00~820 $\mu$ H	3.28~0.10A
* SPH6919	0.36~1500 $\mu$ H	8.00~0.095A
* SPH7040	0.36~1000 $\mu$ H	9.24~0.18A

(Dimension data (Refer to Fig. 3))

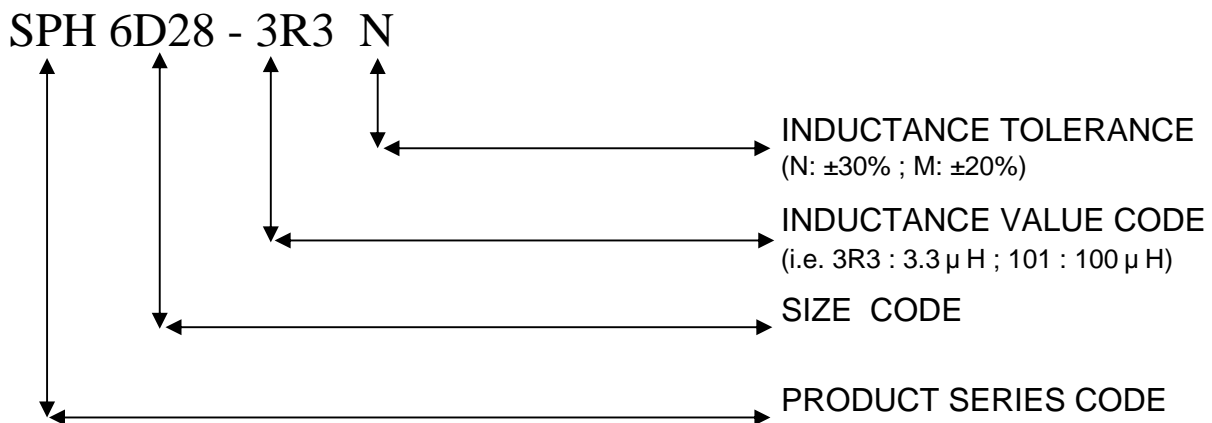
**Characteristics**

Test Frequency : 100KHz 0.1V  
SPH5D18, SPH5D28, SPH6D28, SPH6D38 : @10KHz 0.1V  
SPH6915, SPH6919, SPH7040 :  
0.36 $\mu$ H~8.2 $\mu$ H @100KHz 0.25V. 10 $\mu$ H~1500 $\mu$ H @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)**

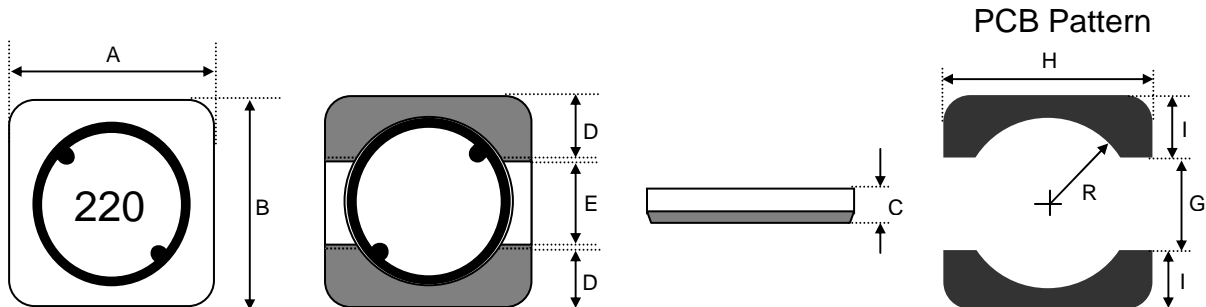


Fig. 1

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

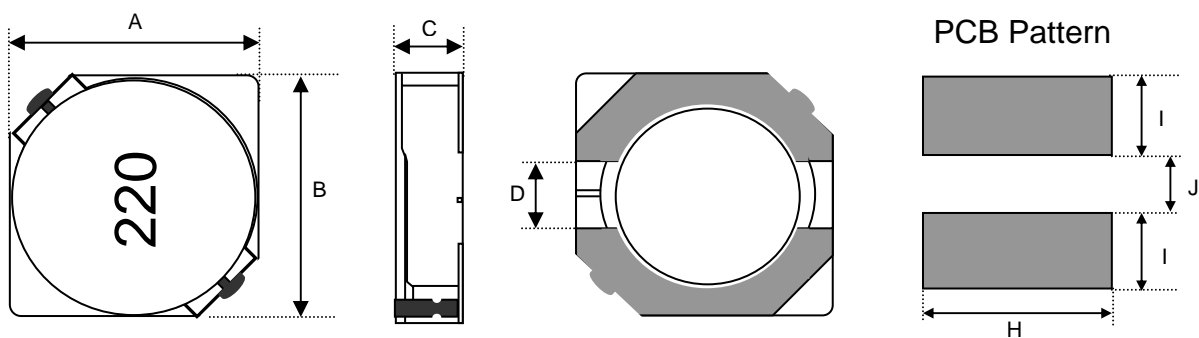


Fig. 2

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)**

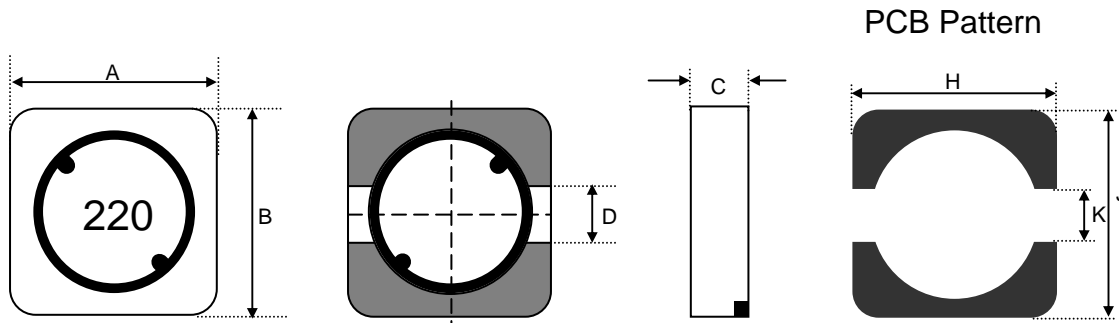


Fig. 3

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 5D18 / 5D28 / 6D28 / 6D38 TYPE

Inductance value code	L (μH)	Tol. (%)	DC Resistance (mΩ) Max.				Rated DC Current (A) Max.			
			5D18	5D28	6D28	6D38	5D18	5D28	6D28	6D38
1R0	1.0	N	-	-	12	16	-	-	6.15	5.60
2R2	2.2	N	39	18	18	19	2.30	2.60	4.00	4.40
2R6	2.6	N	46	18	-	-	2.20	2.60	-	-
3R0	3.0	N	-	24	24	-	-	2.40	3.00	-
3R3	3.3	N*	48	35	26	20	2.00	2.40	2.80	3.50
3R9	3.9	N	-	-	27	-	-	-	2.60	-
4R1	4.1	N	57	-	-	-	1.80	-	-	-
4R2	4.2	N	-	31	-	-	-	2.20	-	-
4R7	4.7	N	72	37	29	-	1.77	2.00	2.50	-
5R0	5.0	N*	-	-	31	24	-	-	2.40	2.75
5R3	5.3	N	-	38	33	-	-	1.90	2.30	-
5R4	5.4	N	76	-	-	-	1.60	-	-	-
5R6	5.6	N	-	40	-	-	-	1.85	-	-
6R0	6.0	N	-	-	35	-	-	-	2.25	-
6R2	6.2	N*	96	45	-	27	1.40	1.80	-	2.50
6R8	6.8	N	110	50	52	-	1.30	1.82	2.20	-
7R3	7.3	N	-	-	54	-	-	-	2.10	-
7R4	7.4	N*	-	-	-	31	-	-	-	2.30
8R2	8.2	N	-	53	-	-	-	1.60	-	-
8R6	8.6	N	-	-	58	-	-	-	1.85	-
8R7	8.7	N*	-	-	-	34	-	-	-	2.20
8R9	8.9	N	116	-	-	-	1.25	-	-	-
100	10	M,N	124	65	65	38	1.20	1.30	1.70	2.00
120	12	M,N	153	76	70	53	1.10	1.20	1.55	1.70
150	15	M,N	196	103	84	57	0.97	1.10	1.40	1.60
180	18	M,N	210	110	95	92	0.85	1.00	1.32	1.50
220	22	M,N	290	122	128	96	0.80	0.90	1.20	1.30
270	27	M,N	330	175	142	109	0.75	0.85	1.05	1.20
330	33	M,N	386	189	165	124	0.65	0.75	0.97	1.10
390	39	M,N	520	212	210	138	0.57	0.70	0.86	1.00
470	47	M,N	595	260	238	155	0.54	0.62	0.80	0.95
560	56	M,N	665	305	277	202	0.50	0.58	0.73	0.85
680	68	M,N	840	355	304	234	0.43	0.52	0.65	0.75
820	82	M,N	978	463	390	324	0.41	0.46	0.60	0.70
101	100	M,N	1200	520	535	368	0.35	0.42	0.54	0.65
151	150	M,N	2000	810	640	483	0.25	0.40	0.40	0.60
221	220	M,N	3280	1250	1350	-	0.20	0.32	0.35	-
331	330	M,N	-	1650	2000	1250	-	0.28	0.35	0.39
471	470	M,N	6560	3560	-	-	0.18	0.22	-	-
561	560	M,N	-	4230	-	2850	-	0.20	-	0.29
681	680	M,N	-	4500	-	-	-	0.18	-	-

#### Notes:

1. Test Frequency: 10KHz 0.1V
2. Tolerance of Inductance : \*3.3μH~8.7μH @±20%(M) for SPH6D38 series
3. Rated DC Current: The current when the inductance decrease to 65% of its initial value or the current when the temperature of coil increases to 40℃.
4. Operating temperature range: -40~+125