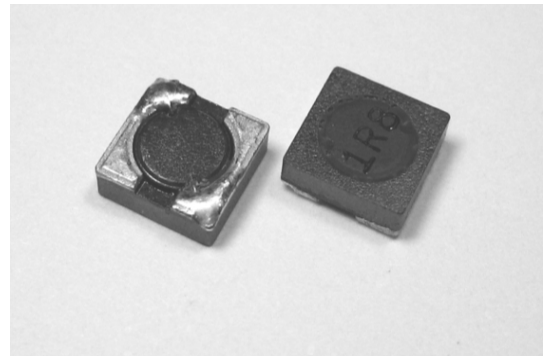


**1. SPH Series (Shielded Type)**

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

*(Dimension data (Refer to Fig. 1))*

Part Series	Inductances range	Rated Current range
* SPH3D18	1.0~220μH	2.40~0.13A
* SPH4D18	1.0~220μH	1.72~0.13A
* SPH4D22	1.5~150μH	2.00~0.21A
* SPH4D28	1.2~220μH	2.56~0.21A
* SPH5D18	2.2~470μH	2.30~0.18A
* SPH5D28	2.2~680μH	2.60~0.18A
* SPH6D28	1.0~330μH	6.15~0.35A
* SPH6D38	1.0~330μH	5.60~0.39A

*(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
* SPH4010	1.00~180μH	1.60~0.11A
* SPH4020	0.47~1800μH	1.84~0.036A
* SPH4030	1.50~560μH	1.90~0.09A
* SPH5010	1.20~1000μH	1.77~0.067A
* SPH5020	1.00~820μH	2.70~0.12A
* SPH5030	1.00~2500μH	4.00~0.045A
* SPH6915	1.00~820μH	3.28~0.10A
* SPH6919	1.00~1500μH	3.52~0.095A
* SPH7040	0.36~1000μH	9.24~0.18A

(Dimension data (Refer to Fig. 3))

Test equipment:

L: HP4284A LCR meter

DCR Resistance: Milli-ohm meter or equivalent.

Electrical Specifications at 25 .

Operating temperature range:

-40 ~+125 :

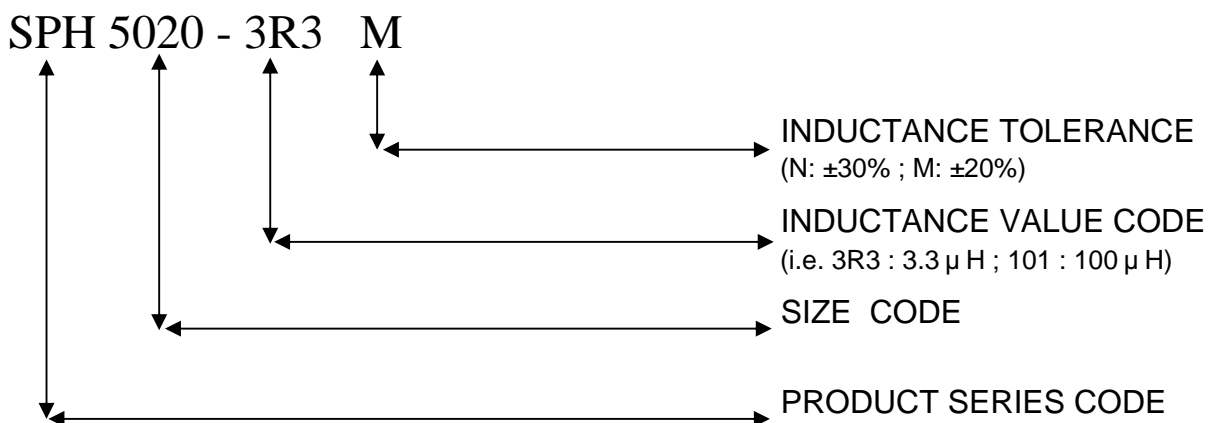
SPH3018, SPH3027, SPH3028, SPH4011, SPH4018, SPH4022, SPH4028, SPH5018, SPH5028, SPH6022, SPH6028

-40 ~+105 :

SPH3D18, SPH4D18, SPH4D22, SPH4D28, SPH5D18, SPH5D28, SPH6D28, SPH6D38

SPH4010, SPH4020, SPH4030, SPH5010, SPH5020, SPH5030, SPH6915, SPH6919, SPH7040

**Part Numbering System**



1. SPH Series (Shielded Type)

**Dimensions (mm)**

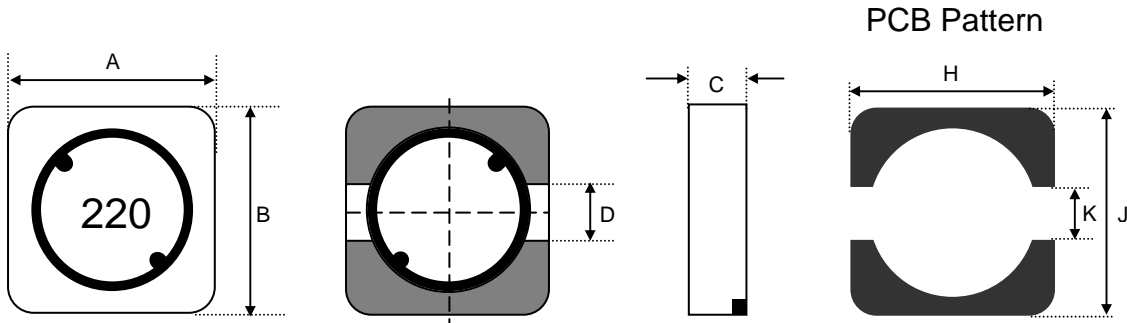


Fig. 3

Series	A	B	C (Max)	D	H	J	K
SPH4010	3.8±0.3	3.8±0.3	1.25	1.2	4.4	4.4	1.1
SPH4020	3.8±0.3	3.8±0.3	2.00	1.2	4.4	4.4	1.1
SPH4030	3.8±0.3	3.8±0.3	3.00	1.2	4.4	4.4	1.1
SPH5010	5.0±0.3	5.0±0.3	1.20	2.0	5.9	5.9	1.9
SPH5020	5.0±0.3	5.0±0.3	2.00	2.0	5.9	5.9	1.9
SPH5030	5.0±0.3	5.0±0.3	3.00	2.0	5.9	5.9	1.9
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	7.3±0.4	7.3±0.3	4.30	1.8	8.0	8.0	1.6

1. SPH Series (Shielded Type)

Electrical Characteristics

SPH 4010 / 4020 / 4030 / 5010 / 5020 / 5030 TYPE

Inductance value code	L (μH)	Tol.	DC Resistance ( ) Max.						Rated DC current (A) Max.					
			4010	4020	4030	5010	5020	5030	4010	4020	4030	5010	5020	5030
R47	0.47	N	-	0.017	-	-	-	-	-	1.840	-	-	-	-
1R0	1.0	M,N	0.060	0.030	-	-	0.030	0.015	1.600	1.800	-	-	2.700	4.000
1R1	1.1	M,N	-	-	-	-	-	0.020	-	-	-	-	-	3.870
1R2	1.2	M,N	0.065	0.043	-	0.050	0.044	0.022	1.400	1.700	-	1.770	2.150	3.800
1R5	1.5	M,N	0.077	0.052	0.015	0.069	-	-	1.240	1.600	1.900	1.710	-	-
1R8	1.8	M,N	0.093	-	0.018	-	-	-	1.220	-	1.760	-	-	-
2R0	2.0	M,N	-	-	-	0.100	0.046	0.027	-	-	-	1.440	1.900	2.920
2R2	2.2	M,N	0.125	0.058	0.020	0.110	0.059	0.029	1.200	1.500	1.670	1.400	1.630	2.410
2R4	2.4	M,N	0.139	-	0.022	-	-	-	0.980	-	1.650	-	-	-
2R5	2.5	M,N	-	0.059	-	-	-	-	-	1.400	-	-	-	-
2R7	2.7	M,N	-	-	0.028	-	-	-	-	-	1.450	-	-	-
3R3	3.3	M,N	0.187	0.064	0.032	0.140	0.062	0.034	0.890	1.300	1.440	1.140	1.500	2.360
3R5	3.5	M,N	0.210	0.127	-	0.150	0.073	-	0.850	1.300	-	1.100	1.340	-
3R6	3.6	M,N	-	-	0.035	-	-	-	-	-	1.430	-	-	-
3R9	3.9	M,N	0.220	0.135	0.037	-	-	-	0.780	1.120	1.320	-	-	-
4R1	4.1	M,N	-	-	-	-	0.081	-	-	-	-	-	1.200	-
4R3	4.3	M,N	-	-	0.043	-	-	-	-	-	1.000	-	-	-
4R7	4.7	M,N	0.240	0.146	0.045	0.190	0.087	0.045	0.710	1.100	0.970	0.950	1.140	1.870
5R1	5.1	M,N	-	-	0.046	-	-	-	-	-	0.940	-	-	-
5R6	5.6	M,N	0.320	0.176	-	0.193	0.093	0.052	0.620	0.950	-	0.900	1.000	1.600
6R2	6.2	M,N	-	0.220	-	0.200	-	-	-	0.910	-	0.840	-	-
6R8	6.8	M,N	0.350	0.238	0.065	0.200	0.105	0.068	0.570	0.900	0.870	0.800	0.950	1.510
7R5	7.5	M,N	-	-	0.079	-	-	-	-	-	0.820	-	-	-
8R2	8.2	M,N	0.470	0.272	0.071	0.300	0.139	0.084	0.520	0.800	0.770	0.750	0.900	1.380
100	10	M	0.570	0.299	0.105	0.350	0.150	0.090	0.470	0.700	0.700	0.660	0.760	1.330
120	12	M	0.750	-	0.119	0.430	0.170	-	0.430	-	0.670	0.620	0.660	-
150	15	M	0.810	0.472	0.140	0.440	0.210	0.142	0.380	0.610	0.540	0.590	0.630	1.050
180	18	M	1.060	-	0.175	0.750	-	-	0.350	-	0.500	0.570	-	-
220	22	M	1.150	0.592	0.201	0.820	0.275	0.208	0.320	0.520	0.480	0.560	0.560	0.860
270	27	M	1.670	0.630	0.227	-	-	0.222	0.290	0.440	0.400	-	-	0.750
330	33	M	1.840	1.075	0.287	1.160	0.455	0.257	0.280	0.430	0.350	0.430	0.440	0.720
390	39	M	2.310	-	0.341	-	0.540	-	0.250	-	0.330	-	0.380	-
470	47	M	2.630	1.309	0.430	1.590	0.730	0.352	0.220	0.340	0.320	0.340	0.350	0.620
560	56	M	2.860	-	0.471	-	0.800	-	0.200	-	0.300	-	0.320	-
680	68	M	3.940	2.613	0.532	2.140	0.935	0.525	0.180	0.250	0.270	0.290	0.300	0.510
820	82	M	4.900	2.950	0.675	2.720	-	-	0.160	0.200	0.230	0.250	-	-
101	100	M	5.740	3.255	0.850	3.550	1.500	0.801	0.140	0.190	0.210	0.220	0.230	0.430
121	120	M	7.310	-	1.110	4.890	1.910	0.850	0.130	-	0.200	0.200	0.220	0.340
151	150	M	9.080	3.550	1.230	5.200	2.680	1.100	0.120	0.120	0.170	0.190	0.210	0.260
181	180	M	9.500	-	1.560	7.550	3.045	1.190	0.110	-	0.150	0.170	0.200	0.240
221	220	M	-	4.900	1.800	7.760	3.520	1.530	-	0.090	0.140	0.150	0.195	0.200
271	270	M	-	-	2.200	10.130	4.380	-	-	-	0.130	0.145	0.193	-
331	330	M	-	7.280	2.640	11.230	5.560	2.030	-	0.080	0.120	0.140	0.190	0.190
391	390	M	-	-	3.200	-	-	3.000	-	-	0.100	-	-	0.160
471	470	M	-	-	3.820	16.860	7.820	3.500	-	-	0.100	0.098	0.180	0.150
561	560	M	-	-	4.620	22.780	9.790	4.450	-	-	0.090	0.097	0.170	0.140
681	680	M	-	13.370	-	24.870	-	-	-	0.070	-	0.085	-	-
821	820	M	-	-	-	28.090	15.000	-	-	-	-	0.077	0.120	-
102	1000	M	-	19.550	-	45.070	-	-	-	0.065	-	0.067	-	-
122	1200	M	-	-	-	-	-	8.500	-	-	-	-	-	0.070
152	1500	M	-	36.150	-	-	-	10.000	-	0.038	-	-	-	0.065
182	1800	M	-	57.620	-	-	-	13.150	-	0.036	-	-	-	0.062
222	2200	M	-	-	-	-	-	19.000	-	-	-	-	-	0.050
252	2500	M	-	-	-	-	-	20.000	-	-	-	-	-	0.045

Notes:

1. Test Frequency: 0.47 μH-8.2 μH @100KHz 0.25V. 10 μH-2500 μH @1KHz 0.25V.
2. Rated Current: 4010/4020/5010/5020/5030, The DC current when the inductance become 30% lower than its initial value. 4030, The DC current when the inductance becomes 35% lower than its initial value. (Ta=25 )
3. Operating temperature range: -40~+105