

## Data Sheet

**Customer:**

**Product:** SMD Power Inductor – PCD Series

**Sizes.:** 0301/0302/0403/0502/0503/0504/0703/0705/1004/1005/1006

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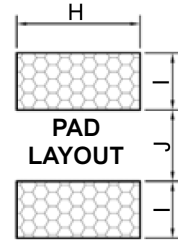
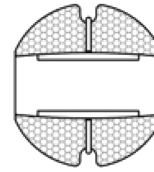
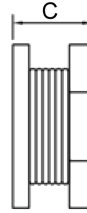
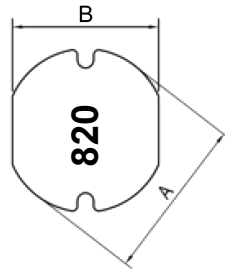
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## SMD Power Inductor



### Dimensions

Unit: mm

Type	A	B	C	H	I	J
PCD0301	3.5±0.3	3.0±0.3	1.15±0.3	3.50	1.60	0.8
PCD0302	3.5±0.3	3.0±0.3	2.1±0.3	3.50	1.60	0.8
PCD0403	4.5±0.3	4.0±0.3	3.2±0.3	4.50	1.75	1.5
PCD0502	5.8±0.3	5.2±0.3	2.5±0.3	5.50	2.15	1.7
PCD0503	5.8±0.3	5.2±0.3	3.0±0.3	5.50	2.15	1.7
PCD0504	5.8±0.3	5.2±0.3	4.5±0.3	5.50	2.15	1.7
PCD0703	7.8±0.3	7.0±0.3	3.5±0.5	7.50	3.00	2.0
PCD0705	7.8±0.3	7.0±0.3	5.0±0.5	7.50	3.00	2.0
PCD1004	10.0±0.4	9.0±0.3	4.0±0.5	9.50	3.75	2.5
PCD1005	10.0±0.4	9.0±0.3	5.4±0.5	9.50	3.75	2.5
PCD1006	10.0±0.4	9.0±0.3	7.5 max.	9.50	3.75	2.5

### Features

- High power, High saturation inductors
- Silver Plated Type, Low cost design
- Ideal inductors for DC-DC converters
- Available on tape and reel for auto surface mounting

### Applications

- Power Supply For VTRs.
- LCD Televisions
- Personal Computers
- Handheld Communication
- DC/DC Converters, etc.

### Characteristics

- Rated DC Current: The DC current when the inductance becomes 10% lower than its initial value or DC current when temperature of coil is increased to 40°C. (Ta=25°C). The smaller one is defined as Rated DC Current.
- Operating temperature range: -40~125°C

### Inductance and rated current ranges

- PCD0301 1.0~390μH 1.40~0.10A
- PCD0302 1.0~330μH 2.20~0.0.09A
- PCD0403 0.5~1000μH 3.00~0.109A
- PCD0502 1.0~470μH 4.00~0.15A
- PCD0503 1.0~1000μH 4.50~0.13A
- PCD0504 1.0~1000μH 5.00~0.26A
- PCD0703 1.0~1000μH 1.64~0.20A
- PCD0705 1.0~1500μH 3.40~0.16A
- PCD1004 1.0~560μH 8.70~0.32A
- PCD1005 1.2~1000μH 8.63~0.20A
- PCD1006 1.0~1000μH 9.50~0.46A

– Test equipment:

L: HP4284A LCR meter

DCR: Milli-ohm meter

– Electrical specifications at 25°C

SMD Power Inductor

Product Identification

PCD	1005	M	T	101
Product Type	Dimensions (AxBxC)	Inductor Tolerance	Packaging Style	Inductance
	0301: 3.5×3.0×1.15 0302: 3.5×3.0×2.1 0403: 4.5×4.0×3.2 0502: 5.8×5.2×2.5 0503: 5.8×5.2×3.0 0504: 5.8×5.2×4.5 0703: 7.8×7.0×3.5 0705: 7.8×7.0×5.0 1004: 10×9.0×4.0 1005: 10×9.0×5.4 1006: 10×9.0×7.5	K: ±10% M: ±20%	T: Tape and Reel	1R0: 1.0μH 470: 47μH 101: 100μH

Electrical Characteristics

PCD0301 Type

Codes	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	IDC (A) max.
1R0	1.0	M	100KHz, 0.25V	0.060	1.40
1R5	1.5	M	100KHz, 0.25V	0.081	1.30
1R8	1.8	M	100KHz, 0.25V	0.098	1.24
2R2	2.2	M	100KHz, 0.25V	0.240	1.20
2R7	2.7	M	100KHz, 0.25V	0.135	1.04
3R3	3.3	M	100KHz, 0.25V	0.270	1.00
3R9	3.9	M	100KHz, 0.25V	0.188	0.79
4R7	4.7	M	100KHz, 0.25V	0.400	0.90
5R6	5.6	M	100KHz, 0.25V	0.450	0.65
6R8	6.8	M	100KHz, 0.25V	0.500	0.56
8R2	8.2	M	100KHz, 0.25V	0.650	0.50
100	10	M	1KHz, 0.25V	0.750	0.45
120	12	M	1KHz, 0.25V	0.850	0.43
150	15	M	1KHz, 0.25V	1.200	0.39
180	18	M	1KHz, 0.25V	1.300	0.32
220	22	M	1KHz, 0.25V	1.500	0.28
270	27	M	1KHz, 0.25V	2.200	0.26
330	33	M	1KHz, 0.25V	2.800	0.25
470	47	M	1KHz, 0.25V	4.000	0.21
560	56	M	1KHz, 0.25V	4.500	0.20
680	68	M	1KHz, 0.25V	5.000	0.18
820	82	M	1KHz, 0.25V	6.500	0.16
101	100	M	1KHz, 0.25V	7.500	0.15
221	220	M	1KHz, 0.25V	14.00	0.13
331	330	M	1KHz, 0.25V	22.00	0.11
391	390	M	1KHz, 0.25V	26.00	0.10

**SMD Power Inductor**

**■Electrical Characteristics**

PCD 0302 / 0403 / 0502 Type

Codes	L ( $\mu$ H)	Tolerance	Test Condition	DCR ( $\Omega$ ) max.			IDC (A) max.		
				0302	0403	0502	0302	0403	0502
R50	0.5	M	100KHz, 0.25V	-	0.020	-	-	3.000	-
1R0	1.0	M	100KHz, 0.25V	0.045	0.049	0.021	2.200	2.700	4.000
1R2	1.2	M	100KHz, 0.25V	0.050	0.053	0.050	2.100	2.540	4.200
1R4	1.4	M	100KHz, 0.25V	0.050	0.056	-	2.000	2.500	-
1R5	1.5	M	100KHz, 0.25V	0.055	0.061	0.060	1.700	2.240	4.000
1R8	1.8	M	100KHz, 0.25V	0.070	0.064	0.065	1.650	2.330	3.700
2R2	2.2	M	100KHz, 0.25V	0.085	0.072	0.070	1.600	2.250	3.500
2R7	2.7	M	100KHz, 0.25V	0.100	0.079	0.080	1.400	2.160	3.200
3R3	3.3	M	100KHz, 0.25V	0.120	0.086	0.100	1.040	2.000	2.700
3R9	3.9	M	100KHz, 0.25V	0.130	0.094	0.120	1.000	1.840	2.400
4R7	4.7	M	100KHz, 0.25V	0.170	0.109	0.140	1.000	1.620	2.000
5R6	5.6	M	100KHz, 0.25V	0.185	0.126	0.150	0.950	1.480	1.800
6R8	6.8	M	100KHz, 0.25V	0.200	0.131	0.160	0.950	1.430	1.500
8R2	8.2	M	100KHz, 0.25V	0.250	0.147	0.170	0.900	1.370	1.400
100	10	K, M	1KHz, 0.25V	0.320	0.182	0.200	0.760	1.040	1.300
120	12	K, M	1KHz, 0.25V	0.350	0.210	0.230	0.685	0.970	1.100
150	15	K, M	1KHz, 0.25V	0.460	0.235	0.250	0.635	0.850	1.050
180	18	K, M	1KHz, 0.25V	0.520	0.338	0.300	0.525	0.740	1.000
220	22	K, M	1KHz, 0.25V	0.660	0.378	0.350	0.500	0.680	0.900
270	27	K, M	1KHz, 0.25V	0.760	0.522	0.400	0.405	0.620	0.850
330	33	K, M	1KHz, 0.25V	0.920	0.540	0.500	0.380	0.560	0.750
390	39	K, M	1KHz, 0.25V	1.120	0.587	0.550	0.355	0.520	0.700
470	47	K, M	1KHz, 0.25V	1.270	0.844	0.650	0.330	0.440	0.600
560	56	K, M	1KHz, 0.25V	1.500	0.937	0.760	0.290	0.420	0.550
680	68	K, M	1KHz, 0.25V	2.000	1.117	0.950	0.260	0.370	0.500
820	82	K, M	1KHz, 0.25V	2.440	1.140	1.200	0.230	0.340	0.450
101	100	K, M	1KHz, 0.25V	2.850	1.190	1.400	0.200	0.300	0.400
121	120	K, M	1KHz, 0.25V	3.400	1.400	1.750	0.180	0.256	0.350
151	150	K, M	1KHz, 0.25V	4.470	1.800	2.000	0.160	0.212	0.250
181	180	K, M	1KHz, 0.25V	5.110	1.920	2.600	0.150	0.200	0.250
221	220	K, M	1KHz, 0.25V	7.310	2.030	3.000	0.140	0.180	0.200
271	270	K, M	1KHz, 0.25V	8.500	2.890	3.700	0.100	0.174	0.180
331	330	K, M	1KHz, 0.25V	10.19	3.760	4.300	0.090	0.168	0.170
391	390	K, M	1KHz, 0.25V	-	4.260	6.000	-	0.160	0.160
471	470	K, M	1KHz, 0.25V	-	5.140	6.700	-	0.158	0.150
561	560	K, M	1KHz, 0.25V	-	6.370	-	-	0.148	-
681	680	K, M	1KHz, 0.25V	-	9.240	-	-	0.128	-
821	820	K, M	1KHz, 0.25V	-	13.40	-	-	0.110	-
102	1000	K, M	1KHz, 0.25V	-	15.60	15.00	-	0.109	0.140

**■Electrical Characteristics**

PCD0503 / 0504 / 0703 Type

Codes	L ( $\mu$ H)	Tolerance	Test Condition	DCR ( $\Omega$ ) max.			IDC (A) max.		
				0503	0504	0703	0503	0504	0703
1R0	1.0	M	100KHz, 0.25V	0.03	0.010	0.018	4.50	5.00	1.64
1R2	1.2	M	100KHz, 0.25V	0.03	0.012	-	4.20	4.77	-
1R5	1.5	M	100KHz, 0.25V	0.03	0.013	0.020	4.10	4.50	1.60
1R8	1.8	M	100KHz, 0.25V	0.03	0.016	-	3.70	4.25	-
2R2	2.2	M	100KHz, 0.25V	0.03	0.017	0.023	3.50	4.20	1.60
2R7	2.7	M	100KHz, 0.25V	0.04	0.025	-	3.20	4.00	-
3R3	3.3	M	100KHz, 0.25V	0.05	0.034	0.025	2.80	2.50	1.59
3R9	3.9	M	100KHz, 0.25V	0.06	0.035	-	2.60	2.20	-
4R7	4.7	M	100KHz, 0.25V	0.07	0.035	0.039	2.50	2.00	1.54
5R6	5.6	M	100KHz, 0.25V	0.08	0.042	-	2.40	1.82	-
6R8	6.8	M	100KHz, 0.25V	0.09	0.060	0.040	2.20	1.69	1.49
8R2	8.2	M	100KHz, 0.25V	0.10	0.060	0.080	2.00	1.56	1.46
100	10	K, M	1KHz, 0.25V	0.13	0.100	0.080	1.80	1.44	1.44
120	12	K, M	1KHz, 0.25V	0.16	0.120	0.090	1.75	1.40	1.39
150	15	K, M	1KHz, 0.25V	0.19	0.140	0.104	1.70	1.30	1.24
180	18	K, M	1KHz, 0.25V	0.21	0.150	0.111	1.60	1.23	1.12
220	22	K, M	1KHz, 0.25V	0.28	0.180	0.129	1.50	1.11	1.07
270	27	K, M	1KHz, 0.25V	0.32	0.200	0.153	1.40	0.97	0.94
330	33	K, M	1KHz, 0.25V	0.38	0.230	0.170	1.10	0.88	0.85
390	39	K, M	1KHz, 0.25V	0.42	0.320	0.217	1.00	0.80	0.74
470	47	K, M	1KHz, 0.25V	0.43	0.370	0.252	0.90	0.72	0.68
560	56	K, M	1KHz, 0.25V	0.50	0.420	0.282	0.85	0.68	0.64
680	68	K, M	1KHz, 0.25V	0.68	0.460	0.332	0.80	0.61	0.59
820	82	K, M	1KHz, 0.25V	0.82	0.600	0.406	0.65	0.58	0.54
101	100	K, M	1KHz, 0.25V	1.10	0.700	0.481	0.60	0.52	0.51
121	120	K, M	1KHz, 0.25V	1.20	0.930	0.536	0.58	0.48	0.49
151	150	K, M	1KHz, 0.25V	1.50	1.100	0.755	0.43	0.40	0.40
181	180	K, M	1KHz, 0.25V	1.80	1.380	1.022	0.41	0.38	0.36
221	220	K, M	1KHz, 0.25V	2.00	1.570	1.200	0.38	0.35	0.31
271	270	K, M	1KHz, 0.25V	2.90	1.600	1.306	0.35	0.34	0.29
331	330	K, M	1KHz, 0.25V	3.30	1.820	1.495	0.28	0.32	0.28
391	390	K, M	1KHz, 0.25V	3.70	-	1.700	0.26	-	0.27
471	470	K, M	1KHz, 0.25V	4.90	2.760	2.100	0.20	0.30	0.26
561	560	K, M	1KHz, 0.25V	5.00	3.100	2.660	0.19	0.29	0.25
681	680	K, M	1KHz, 0.25V	6.00	4.050	3.000	0.18	0.28	0.23
821	820	K, M	1KHz, 0.25V	6.60	5.560	3.630	0.15	0.27	0.21
102	1000	K, M	1KHz, 0.25V	8.00	5.740	4.760	0.13	0.26	0.20

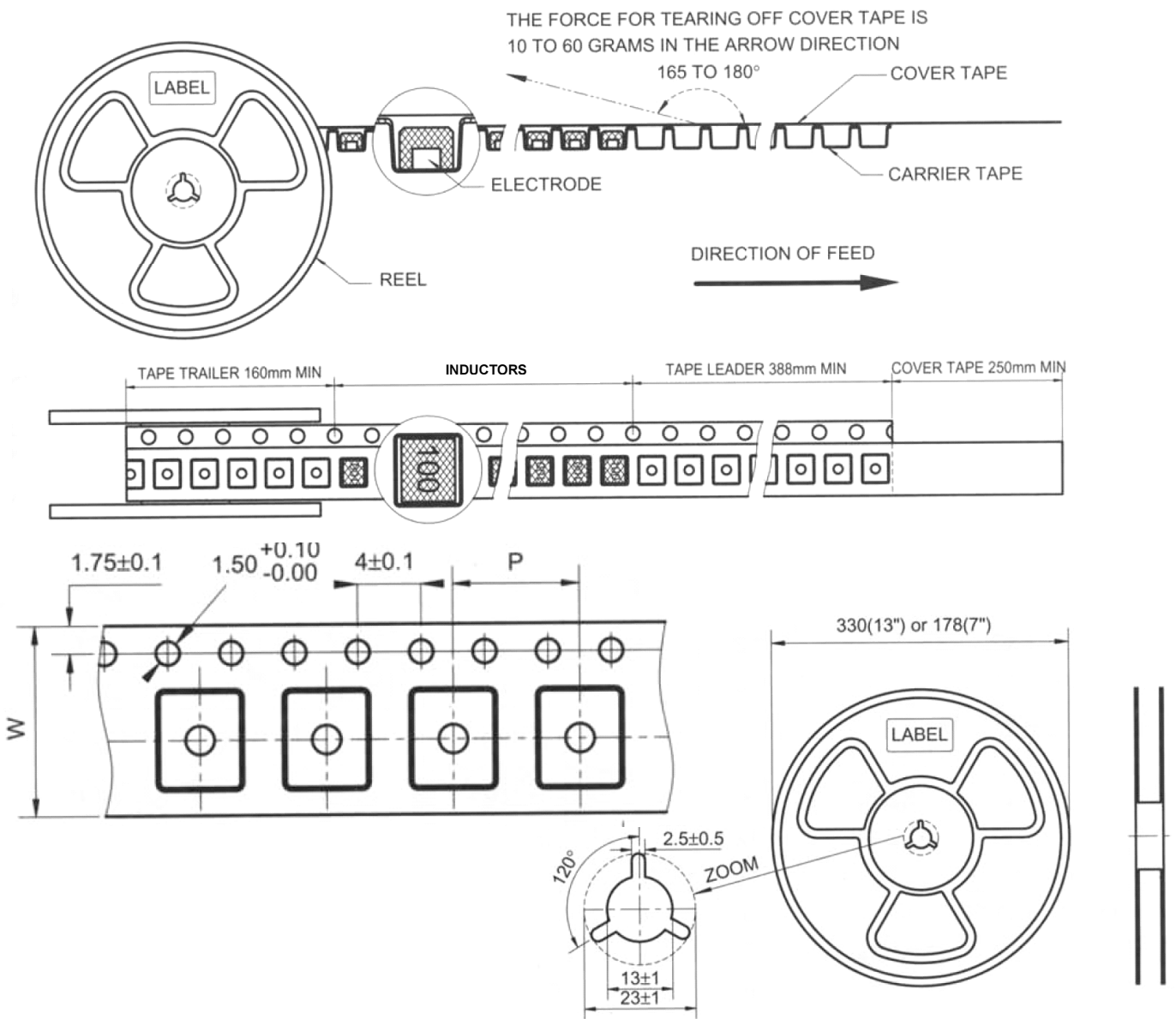
**Electrical Characteristics**

PCD0705 / 1004 / 1005 / 1006 Type

Codes	L ( $\mu$ H)	Tolerance	Test Condition	DCR ( $\Omega$ ) max.				IDC (A) max.			
				0705	1004	1005	1006	0705	1004	1005	1006
1R0	1.0	M	100KHz, 0.25V	0.013	0.012	-	0.008	3.40	8.70	-	9.50
1R2	1.2	M	100KHz, 0.25V	-	0.014	0.009	-	-	8.00	8.63	-
1R5	1.5	M	100KHz, 0.25V	0.016	0.016	0.010	-	3.30	7.48	8.00	-
1R8	1.8	M	100KHz, 0.25V	0.020	0.018	-	0.011	3.20	6.80	-	8.60
2R2	2.2	M	100KHz, 0.25V	0.023	0.020	0.014	0.012	3.00	5.40	6.80	7.20
2R5	2.5	M	100KHz, 0.25V	0.026	-	-	-	2.90	-	-	-
2R7	2.7	M	100KHz, 0.25V	0.027	0.024	-	-	2.85	3.20	-	-
3R3	3.3	M	100KHz, 0.25V	0.028	0.028	0.018	0.016	2.80	2.85	3.05	6.80
3R9	3.9	M	100KHz, 0.25V	-	0.030	-	0.017	-	2.80	-	6.35
4R7	4.7	M	100KHz, 0.25V	0.045	0.038	0.020	0.019	2.70	2.75	2.90	5.45
5R6	5.6	M	100KHz, 0.25V	0.048	0.040	-	0.024	2.65	2.70	-	4.30
6R8	6.8	M	100KHz, 0.25V	0.058	0.042	0.040	0.035	2.50	2.65	2.75	3.52
8R2	8.2	M	100KHz, 0.25V	0.070	0.048	0.050	0.045	2.40	2.60	2.70	3.51
100	10	K, M	1KHz, 0.25V	0.070	0.053	0.060	0.060	2.30	2.38	2.60	3.50
120	12	K, M	1KHz, 0.25V	0.080	0.061	0.070	0.070	2.00	2.13	2.45	3.40
150	15	K, M	1KHz, 0.25V	0.090	0.070	0.080	0.080	1.80	1.87	2.27	3.10
180	18	K, M	1KHz, 0.25V	0.100	0.081	0.090	0.090	1.60	1.73	2.15	3.00
220	22	K, M	1KHz, 0.25V	0.110	0.090	0.100	0.100	1.50	1.60	1.95	2.60
270	27	K, M	1KHz, 0.25V	0.120	0.100	0.110	0.110	1.30	1.44	1.76	2.40
330	33	K, M	1KHz, 0.25V	0.130	0.120	0.120	0.120	1.20	1.26	1.50	2.30
390	39	K, M	1KHz, 0.25V	0.160	0.151	0.140	0.140	1.10	1.20	1.37	2.10
470	47	K, M	1KHz, 0.25V	0.180	0.170	0.170	0.170	1.40	1.10	1.28	1.95
560	56	K, M	1KHz, 0.25V	0.240	0.199	0.190	0.190	0.94	1.01	1.17	1.85
680	68	K, M	1KHz, 0.25V	0.280	0.223	0.220	0.220	0.85	0.91	1.11	1.65
820	82	K, M	1KHz, 0.25V	0.370	0.252	0.250	0.250	0.78	0.85	1.00	1.50
101	100	K, M	1KHz, 0.25V	0.430	0.344	0.350	0.350	0.72	0.74	0.97	1.40
121	120	K, M	1KHz, 0.25V	0.470	0.396	0.400	0.400	0.66	0.69	0.89	1.30
151	150	K, M	1KHz, 0.25V	0.640	0.544	0.470	0.470	0.58	0.61	0.78	1.20
181	180	K, M	1KHz, 0.25V	0.710	0.621	0.630	0.630	0.51	0.56	0.72	1.00
221	220	K, M	1KHz, 0.25V	0.960	0.721	0.730	0.730	0.49	0.53	0.66	0.95
271	270	K, M	1KHz, 0.25V	1.110	0.949	0.970	0.970	0.42	0.45	0.57	0.90
331	330	K, M	1KHz, 0.25V	1.260	1.100	1.150	1.150	0.40	0.42	0.52	0.80
391	390	K, M	1KHz, 0.25V	1.770	1.245	1.300	1.300	0.36	0.38	0.48	0.75
471	470	K, M	1KHz, 0.25V	1.960	1.526	1.480	1.480	0.34	0.35	0.42	0.65
561	560	K, M	1KHz, 0.25V	2.280	1.904	1.900	1.900	0.32	0.32	0.33	0.60
681	680	K, M	1KHz, 0.25V	2.480	-	2.250	2.250	0.30	-	0.28	0.50
821	820	K, M	1KHz, 0.25V	3.400	-	2.550	2.550	0.30	-	0.24	0.48
102	1000	K, M	1KHz, 0.25V	4.200	-	3.490	3.000	0.30	-	0.20	0.46
122	1200	K, M	1KHz, 0.25V	5.000	-	-	-	0.17	-	-	-
152	1500	K, M	1KHz, 0.25V	5.520	-	-	-	0.16	-	-	-

**SMD Power Inductor**

**■Tape and Reel specifications**



Unit: mm

Type	Tape size		Parts Per Reel
	W	P	13"
PCD0301	12	8	3000
PCD0302	12	8	2000
PCD0403	12	8	1500
PCD0502	12	8	2000
PCD0503	12	8	1500
PCD0504	12	8	1500
PCD0703	16	12	1000
PCD0705	16	12	1000
PCD1004	24	16	1000
PCD1005	24	16	500
PCD1006	24	16	500

**SMD Power Inductor**

**■ SMT Power Inductor Environmental Specifications**

General

Items	Specifications
Shelf Storage conditions	Temperature range: 25±3°C; Humidity: <80% relative humidity. Recommended product should be used within six months from the time of delivery.

Environmental test

Test Items	Specifications	Test Conditions / Test Methods
High temperature Storage test	No case deformation or change in appearance. $\Delta L/L \leq 10\%$	Temperature 85±2°C, Time: 48±2 hours, Tested after 1hour at room temperature.
Low temperature Storage test		Temperature -25±2°C, Time: 48±2 hours, Tested after 1hour at room temperature.
Humidity test		Temperature 40±2°C, 90~95% relative humidity Time: 96±2 hours Tested after 1hour at room temperature.
Thermal shock test		First -25°C 30minutes then 25°C 10 minutes last 85°C 30 minutes, as 1 cycle. Go through 5 cycles. Tested after 1 hour at room temperature.

Mechanical test

Test Items	Specifications	Test Conditions / Test Methods
Solder ability test	Terminal area must have 90% minimum solder coverage.	Dip pads in flux then dip in solder pot (SnCuNi) at 245±5°C for 3 seconds.
Resistance to Soldering Heat	No case deformation or change in appearance.	Flux should cover the whole of the sample before heating, then be preheated for about 2 minutes over temperature of 130~150°C. Immersing to 260±5°C for 10 seconds.
Vibration test	No case deformation or change in appearance. $\Delta L/L \leq 10\%$	Apply frequency 10~55Hz. 1.5mm amplitude in each of perpendicular direction for 2 hours.
Shock resistance		Drop down with 981m/s <sup>2</sup> (100G) shock attitude upon a rubber block method shock testing machine, for 1 time. In each of three orientations.

The condition of reflow (recommendation)

