

Data Sheet

Customer:

Product: Shielded SMD Power Inductor – PDRH Series

Sizes.: 0302/0303/0502/0503/0603

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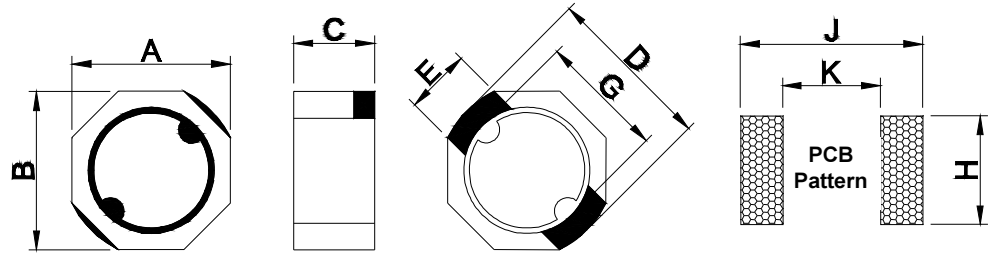
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Shielded SMD Power Inductor



Dimensions

Unit: mm

Type	A	B	C max.	D	E	G	H	K	J
PDRH0302	3.85±0.3	3.85±0.3	2.00	3.9±0.2	1.6	3.2	1.9	3.0	4.55
PDRH0303	3.85±0.3	3.85±0.3	3.00	3.9±0.2	1.6	3.2	1.9	3.0	4.55
PDRH0502	5.30max.	5.30max.	2.00	5.7±0.4	1.6	4.2	1.9	3.9	5.7
PDRH0503	5.30max.	5.30max.	3.00	5.7±0.4	1.6	4.2	1.9	3.9	5.7
PDRH0603	5.90±0.2	5.90±0.2	3.00	6.4±0.3	2.4	4.7	2.7	4.4	6.5

Features

- Directly connected electrode on ferrite core
- Excellent property with high saturation for surface mounting

Applications

- OA Equipment
- Notebook PCs
- LCD Monitor
- Portable Terminal Equipment
- DC/DC Converters, etc.
- Power Supply for VTR

Characteristics

- Rated DC Current: The current when the inductance becomes 30% lower than its initial value.
- Operating temperature: -40~125°C

Inductance and rated current ranges

- PDRH0302 0.47~1800µH 1.84~0.036A
- PDRH0303 1.0~3300µH 1.90~0.026A
- PDRH0502 0.47~820µH 2.33~0.120A
- PDRH0503 0.47~2500µH 4.82~0.045A
- PDRH0603 1.0~3300µH 4.70~0.078A
- Test equipment:
L: HP4284A LCR meter
DCR: Milli-ohm meter
- Electrical specifications at 25°C

Product Identification

PDRH	0303	M	T	101
Product Type	Dimensions (AxBxC)	Inductor Tolerance	Packaging Style	Inductance
	0302: 3.85x3.85x2.0 0303: 3.85x3.85x3.0 0502: 5.3x5.3x2.0 0503: 5.3x5.3x3.0 0603: 5.9x5.9x3.0	M: ±20% N: ±30%	T: Tape and Reel	1R0: 1.0µH 470: 47µH 101: 100µH

Electrical Characteristics

PDRH 0302 / 0303 Type

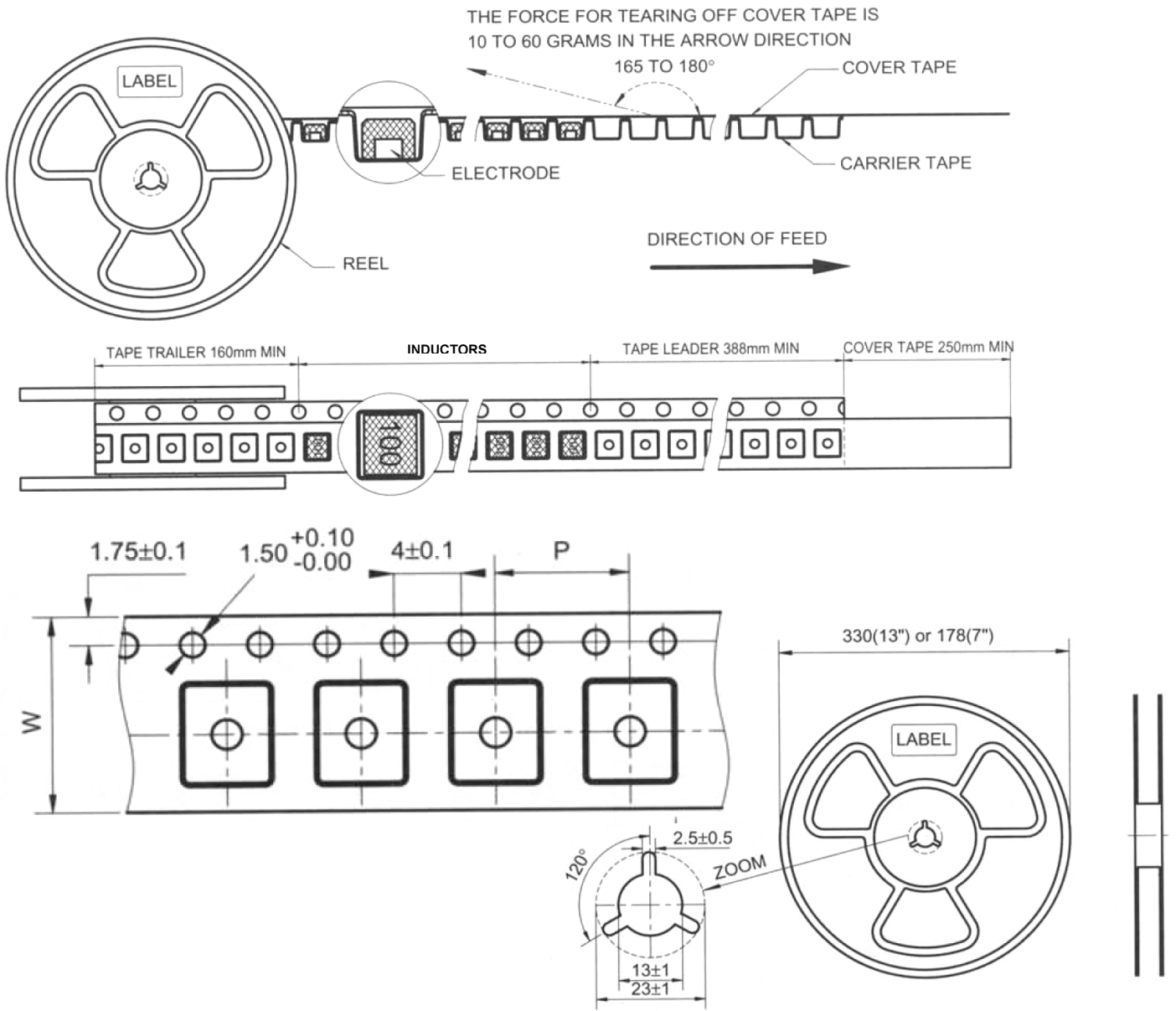
Codes	L (μ H)	Tolerance	Test Condition	DCR (Ω) max.		IDC (A) max.	
				0302	0303	0302	0303
R47	0.47	N	100 KHz, 0.25V	0.017	-	1.84	-
1R0	1.0	N	100 KHz, 0.25V	0.030	0.009	1.80	1.90
1R2	1.2	N	100 KHz, 0.25V	0.043	0.010	1.70	1.75
1R5	1.5	N	100 KHz, 0.25V	0.052	0.013	1.60	1.45
1R8	1.8	N	100 KHz, 0.25V	0.056	-	1.55	-
2R0	2.0	N	100 KHz, 0.25V	0.057	0.016	1.51	1.25
2R2	2.2	N	100 KHz, 0.25V	0.058	0.025	1.50	1.15
2R4	2.4	N	100 KHz, 0.25V	0.059	-	1.41	-
2R5	2.5	N	100 KHz, 0.25V	0.059	0.018	1.40	1.05
2R7	2.7	N	100 KHz, 0.25V	0.060	0.020	1.35	1.00
3R3	3.3	N	100 KHz, 0.25V	0.064	0.030	1.30	0.96
3R5	3.5	N	100 KHz, 0.25V	0.127	0.025	1.30	0.95
3R9	3.9	N	100 KHz, 0.25V	-	0.033	-	0.87
4R7	4.7	N	100 KHz, 0.25V	0.146	0.039	1.10	0.78
5R6	5.6	N	100 KHz, 0.25V	0.176	0.044	0.95	0.74
6R2	6.2	N	100 KHz, 0.25V	0.220	-	0.91	-
6R8	6.8	N	100 KHz, 0.25V	0.238	0.051	0.90	0.68
8R2	8.2	N	100 KHz, 0.25V	0.272	0.065	0.80	0.57
100	10	M	1KHz, 0.25V	0.299	0.092	0.70	0.43
120	12	M	1KHz, 0.25V	0.350	0.100	0.62	0.38
150	15	M	1KHz, 0.25V	0.472	0.113	0.61	0.33
180	18	M	1KHz, 0.25V	0.552	0.125	0.58	0.30
220	22	M	1KHz, 0.25V	0.592	0.146	0.52	0.28
270	27	M	1KHz, 0.25V	0.630	0.176	0.44	0.26
330	33	M	1KHz, 0.25V	1.075	0.214	0.43	0.23
390	39	M	1KHz, 0.25V	1.269	0.225	0.37	0.21
470	47	M	1KHz, 0.25V	1.309	0.304	0.34	0.19
560	56	M	1KHz, 0.25V	1.960	0.324	0.29	0.170
680	68	M	1KHz, 0.25V	2.613	0.472	0.25	0.156
820	82	M	1KHz, 0.25V	2.950	0.539	0.20	0.142
101	100	M	1KHz, 0.25V	3.255	0.608	0.19	0.128
121	120	M	1KHz, 0.25V	3.350	0.757	0.15	0.116
151	150	M	1KHz, 0.25V	3.550	0.882	0.12	0.106
181	180	M	1KHz, 0.25V	4.000	1.130	0.10	0.095
221	220	M	1KHz, 0.25V	4.900	1.269	0.09	0.087
271	270	M	1KHz, 0.25V	5.300	1.570	0.085	0.080
331	330	M	1KHz, 0.25V	7.280	1.930	0.08	0.078
391	390	M	1KHz, 0.25V	8.200	2.360	0.078	0.073
471	470	M	1KHz, 0.25V	9.200	2.770	0.075	0.068
561	560	M	1KHz, 0.25V	11.00	3.520	0.072	0.065
681	680	M	1KHz, 0.25V	13.37	4.250	0.07	0.056
821	820	M	1KHz, 0.25V	16.50	4.830	0.068	0.050
102	1000	M	1KHz, 0.25V	19.55	6.260	0.065	0.047
122	1200	M	1KHz, 0.25V	25.50	7.860	0.045	0.043
152	1522	M	1KHz, 0.25V	36.15	9.980	0.038	0.039
182	1800	M	1KHz, 0.25V	57.62	12.17	0.036	0.036
272	2700	M	1KHz, 0.25V	-	16.12	-	0.029
332	3300	M	1KHz, 0.25V	-	22.04	-	0.026

Electrical Characteristics

PDRH 0502 / 0503 / 0603 Type

Codes	L (μH)	Tolerance	Test Condition	DCR (Ω) max.			IDC (A) max.		
				0502	0503	0603	0502	0503	0603
R47	0.47	N	100KHz, 0.25V	0.015	0.010	-	2.33	4.82	-
R82	0.82	N	100KHz, 0.25V	-	-	0.013	-	-	4.80
1R0	1.0	N	100KHz, 0.25V	0.024	0.015	0.014	2.27	4.00	4.70
1R1	1.1	N	100KHz, 0.25V	-	0.020	-	-	3.87	-
1R2	1.2	N	100KHz, 0.25V	0.044	0.022	0.016	2.15	3.80	3.90
1R5	1.5	N	100KHz, 0.25V	0.045	0.026	0.018	2.00	3.00	3.52
1R8	1.8	N	100KHz, 0.25V	-	-	0.019	-	-	3.25
2R0	2.0	N	100KHz, 0.25V	0.046	0.027	0.022	1.90	2.92	2.95
2R2	2.2	N	100KHz, 0.25V	0.059	0.029	0.022	1.63	2.41	2.95
2R5	2.5	N	100KHz, 0.25V	-	-	0.024	-	-	2.75
3R0	3.0	N	100KHz, 0.25V	-	-	0.027	-	-	2.55
3R3	3.3	N	100KHz, 0.25V	0.073	0.040	0.030	1.34	1.95	2.45
3R5	3.5	N	100KHz, 0.25V	0.073	0.040	-	1.34	1.95	-
3R9	3.9	N	100KHz, 0.25V	-	0.042	0.034	-	1.93	2.35
4R1	4.1	N	100KHz, 0.25V	0.087	-	-	1.14	-	-
4R7	4.7	N	100KHz, 0.25V	0.087	0.052	0.042	1.14	1.60	2.25
5R6	5.6	N	100KHz, 0.25V	-	0.052	0.048	-	1.60	2.05
6R2	6.2	N	100KHz, 0.25V	-	0.062	-	-	1.55	-
6R8	6.8	N	100KHz, 0.25V	0.105	0.068	0.054	0.95	1.51	1.85
8R2	8.2	N	100KHz, 0.25V	0.139	0.084	0.058	0.90	1.38	1.65
100	10	M	1KHz, 0.25V	0.150	0.090	0.065	0.76	1.33	1.45
120	12	M	1KHz, 0.25V	-	0.120	0.082	-	1.06	1.35
150	15	M	1KHz, 0.25V	0.210	0.142	0.096	0.63	1.05	1.25
180	18	M	1KHz, 0.25V	0.270	0.192	0.110	0.60	0.90	1.15
220	22	M	1KHz, 0.25V	0.275	0.208	0.140	0.56	0.86	0.98
270	27	M	1KHz, 0.25V	0.452	0.222	0.170	0.48	0.75	0.90
330	33	M	1KHz, 0.25V	0.455	0.257	0.210	0.44	0.72	0.80
390	39	M	1KHz, 0.25V	-	0.320	0.240	-	0.64	0.72
470	47	M	1KHz, 0.25V	0.730	0.352	0.280	0.35	0.62	0.70
560	56	M	1KHz, 0.25V	-	0.459	0.340	-	0.53	0.66
680	68	M	1KHz, 0.25V	0.935	0.525	0.410	0.30	0.51	0.58
820	82	M	1KHz, 0.25V	1.300	0.770	0.490	0.27	0.48	0.52
101	100	M	1KHz, 0.25V	1.500	0.801	0.550	0.23	0.43	0.46
121	120	M	1KHz, 0.25V	1.910	0.850	0.700	0.22	0.34	0.42
151	150	M	1KHz, 0.25V	2.680	1.100	0.780	0.21	0.26	0.36
181	180	M	1KHz, 0.25V	3.040	1.190	0.960	0.20	0.24	0.34
221	220	M	1KHz, 0.25V	3.520	1.530	1.080	0.195	0.20	0.32
271	270	M	1KHz, 0.25V	4.380	-	1.360	0.193	-	0.28
331	330	M	1KHz, 0.25V	5.560	2.030	1.820	0.190	0.19	0.24
391	390	M	1KHz, 0.25V	6.850	3.000	2.050	0.185	0.16	0.22
471	470	M	1KHz, 0.25V	7.820	3.500	2.580	0.180	0.15	0.20
561	560	M	1KHz, 0.25V	-	4.080	3.160	-	0.14	0.18
681	680	M	1KHz, 0.25V	-	-	4.040	-	-	0.16
821	820	M	1KHz, 0.25V	15.00	-	4.900	0.120	-	0.14
102	1000	M	1KHz, 0.25V	-	-	6.000	-	-	0.13
122	1200	M	1KHz, 0.25V	-	8.500	7.600	-	0.070	0.12
152	1522	M	1KHz, 0.25V	-	10.00	9.440	-	0.065	0.10
182	1800	M	1KHz, 0.25V	-	13.15	11.70	-	0.062	0.098
222	2200	M	1KHz, 0.25V	-	19.00	13.40	-	0.050	0.095
252	2500	M	1KHz, 0.25V	-	20.00	-	-	0.045	-
272	2700	M	1KHz, 0.25V	-	-	17.30	-	-	0.086
332	3300	M	1KHz, 0.25V	-	-	22.10	-	-	0.078

■Tape and Reel specifications



Unit: mm

Type	Tape size		Parts Per Reel
	W	P	13"
PDRH0302	12	8	3500
PDRH0303	12	8	2500
PDRH0502	12	8	3500
PDRH0503	12	8	2500
PDRH0603	12	8	2000

■ 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 1 hour at room temperature.
Low temperature Storage test		Temperature -25±2°C, Time: 48±2 hours, Tested after 1 hour at room temperature.
Humidity test		Temperature 40±2°C, 90~95% relative humidity Time: 96±2 hours, apply rated current, Tested after 1 hour 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
Solderability test	Terminal area must have 90% minimum solder coverage.	Product with Lead-free terminal: Dip pads in flux then dip in solder pot 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.	Apply frequency 10~55Hz. 1.5mm amplitude in each of perpendicular direction for 2 hours.
Shock resistance	$\Delta L/L \leq 10\%$	Drop down with 981m/s ² (100G) shock attitude upon a rubber block method shock testing machine, for 1 time. In each of three orientations.

The condition of reflow (recommendation):

