

## Data Sheet

**Customer:**

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

**Sizes.:** 0210/02510/02512/0310/0312/0315/0410/0412

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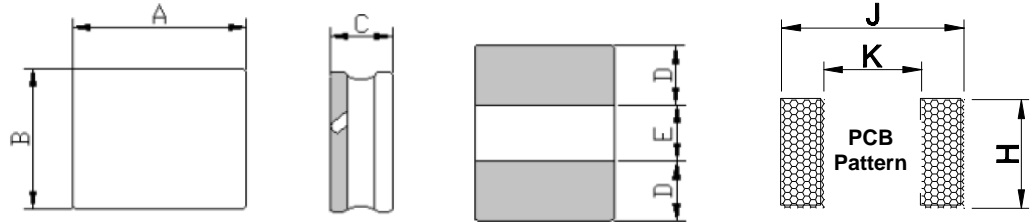
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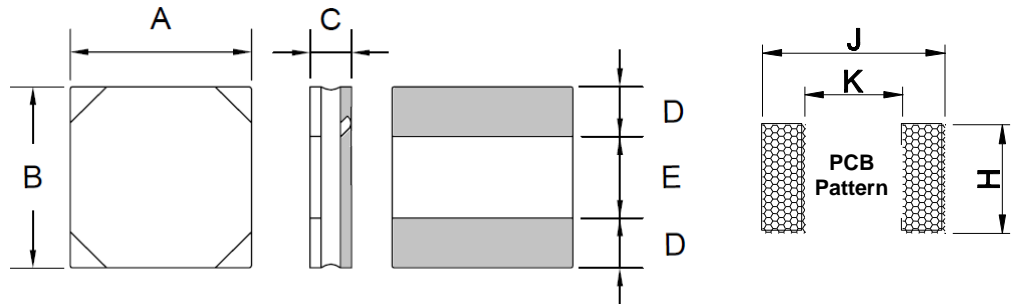
**SMD Power Inductor**



SDIM0210/02510/02512



SDIM0310/0312/0410/0412



**Dimensions**

Unit: mm

Type	A	B	C	D	E	H	J	K
SDIM0210	2.0-0.1/+0.2	1.6-0.1/+0.2	1.0 max	0.5 ref	1.0 ref	1.9	2.3	0.8
SDIM02510	2.5-0.1/+0.2	2.0-0.1/+0.2	1.0 max	0.75 ref	1.0 ref	2.4	2.9	1.0
SDIM02512	2.5-0.1/+0.2	2.0-0.1/+0.2	1.2 max	0.75 ref	1.0 ref	2.4	2.9	1.0
SDIM0310	3.0±0.2	3.0±0.2	1.0 max	1.0 ref	1.0 ref	3.2	3.2	1.0
SDIM0312	3.0±0.2	3.0±0.2	1.2 max	1.0 ref	1.0 ref	3.2	3.2	1.0
SDIM0410	4.0±0.2	4.0±0.2	1.0 max	1.2 ref	1.6 ref	4.2	4.2	1.2
SDIM0412	4.0±0.2	4.0±0.2	1.2 max	1.2 ref	1.6 ref	4.2	4.2	1.2

**Features**

- Low profile power inductors
- 100% Lead(Pb) & Halogen-Free and RoHS compliant

**Applications**

- Smart Phone
- Digital Camera
- GPS and Portable Devices

**Inductance and rated current ranges**

- SDIM0210 0.24~4.7μH 6.5~1.4A
- SDIM02510 0.24~4.7μH 8.0~1.4A
- SDIM02512 0.33~3.3μH 7.2~1.3A
- SDIM0310 0.47~10μH 5.8~1.1A
- SDIM0312 0.33~10μH 7.0~1.3A
- SDIM0410 0.47~10μH 7.0~1.5A
- SDIM0412 0.47~10μH 8.0~1.7A

- Test equipment:

L: HP4284A LCR meter

DCR: Milli-ohm meter

- Electrical specifications at 25°C

**Characteristics**

- Saturation Rated Current (I sat): The DC current when the inductance becomes 30% lower than its initial value. (Ta=25°C)
- Temperature Rise Current (I rms): The actual current when temperature of coil becomes ΔT40°C
- Measurement board data

Irms1: Material : FR4

Board dimensions : 100 X 50 X 1.6t mm

Pattern dimensions: 45 X 30 mm (Double side board)

Pattern thickness : 50 μm

Irms2: Material : FR4

Board dimensions : 100 X 50 X 1.6t mm

Pattern dimensions: 45 X 45 mm (Double side board)

Pattern thickness : 70 μm

- Operating temperature range: -40~125°C(Including self - temperature rise)

**SMD Power Inductor**

**Product Identification**

SDIM	0312	M	T	100
Product Type	Dimensions (AxC)	Inductor Tolerance	Packaging Style	Inductance
	0210: 2.0x1.0 02510: 2.5x1.0 02512: 2.5x1.2 0310: 3.0x1.0 0312: 3.0x1.2 0410: 4.0x1.0 0412: 4.0x1.2	M: ±20%	T: Tape and Reel	R24: 0.24μH 1R0: 1.0μH 100: 10μH

**Electrical Characteristics**

SDIM0210 Type(□: Tolerance):

Part No.	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	I sat (A) max.	I rms 1 (A) max.	I rms 2 (A) max.
SDIM0210□TR24	0.24	M	1MHz, 1V	0.020	6.5	5.1	5.5
SDIM0210□TR33	0.33	M	1MHz, 1V	0.023	5.0	5.0	5.2
SDIM0210□TR47	0.47	M	1MHz, 1V	0.029	4.5	4.3	4.7
SDIM0210□TR68	0.68	M	1MHz, 1V	0.044	4.4	3.5	3.8
SDIM0210□T1R0	1.0	M	1MHz, 1V	0.060	4.0	2.9	3.1
SDIM0210□T1R5	1.5	M	1MHz, 1V	0.082	2.8	2.5	2.7
SDIM0210□T2R2	2.2	M	1MHz, 1V	0.120	2.4	2.0	2.1
SDIM0210□T3R3	3.3	M	1MHz, 1V	0.192	1.7	1.6	1.8
SDIM0210□T4R7	4.7	M	1MHz, 1V	0.216	1.4	1.4	1.6

SDIM02510 Type(□: Tolerance):

Part No.	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	I sat (A) max.	I rms 1 (A) max.	I rms 2 (A) max.
SDIM02510□TR24	0.24	M	1MHz, 1V	0.022	8.0	5.0	5.5
SDIM02510□TR33	0.33	M	1MHz, 1V	0.028	6.5	4.8	5.1
SDIM02510□TR47	0.47	M	1MHz, 1V	0.035	5.9	4.2	4.8
SDIM02510□TR68	0.68	M	1MHz, 1V	0.040	4.6	3.8	4.0
SDIM02510□T1R0	1.0	M	1MHz, 1V	0.053	4.3	3.1	3.4
SDIM02510□T1R5	1.5	M	1MHz, 1V	0.074	3.1	2.8	3.0
SDIM02510□T2R2	2.2	M	1MHz, 1V	0.093	2.3	2.3	2.5
SDIM02510□T4R7	4.7	M	1MHz, 1V	0.216	1.4	1.5	1.6

SDIM02512 Type(□: Tolerance):

Part No.	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	I sat (A) max.	I rms 1 (A) max.	I rms 2 (A) max.
SDIM02512□TR33	0.33	M	1MHz, 1V	0.021	7.2	5.0	5.5
SDIM02512□TR47	0.47	M	1MHz, 1V	0.023	6.7	4.5	5.0
SDIM02512□TR68	0.68	M	1MHz, 1V	0.032	4.9	3.8	4.5
SDIM02512□T1R0	1.0	M	1MHz, 1V	0.040	4.7	3.3	3.8
SDIM02512□T1R5	1.5	M	1MHz, 1V	0.060	3.9	3.0	3.5
SDIM02512□T2R2	2.2	M	1MHz, 1V	0.084	3.0	2.2	2.6
SDIM02512□T3R3	3.3	M	1MHz, 1V	0.100	1.3	1.2	1.4

**Electrical Characteristics**

SDIM0310 Type(□: Tolerance):

Part No.	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	I sat (A) max.	I rms (A) max.
SDIM0310□TR47	0.47	M	1MHz, 1V	0.039	5.8	3.5
SDIM0310□TR68	0.68	M	1MHz, 1V	0.058	5.0	3.0
SDIM0310□T1R0	1.0	M	1MHz, 1V	0.080	4.6	2.5
SDIM0310□T1R5	1.5	M	1MHz, 1V	0.100	3.5	2.3
SDIM0310□T2R2	2.2	M	1MHz, 1V	0.135	2.7	2.0
SDIM0310□T3R3	3.3	M	1MHz, 1V	0.238	2.2	1.5
SDIM0310□T4R7	4.7	M	1MHz, 1V	0.315	1.9	1.3
SDIM0310□T6R8	6.8	M	1MHz, 1V	0.360	1.4	1.1
SDIM0310□T100	10	M	1MHz, 1V	0.420	1.1	1.0

SDIM0312 Type(□: Tolerance):

Part No.	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	I sat (A) max.	I rms (A) max.
SDIM0312□TR33	0.33	M	1MHz, 1V	0.024	7.0	4.5
SDIM0312□TR47	0.47	M	1MHz, 1V	0.030	6.5	4.2
SDIM0312□TR68	0.68	M	1MHz, 1V	0.038	5.5	3.7
SDIM0312□T1R0	1.0	M	1MHz, 1V	0.049	4.5	3.5
SDIM0312□T1R5	1.5	M	1MHz, 1V	0.072	4.0	3.0
SDIM0312□T2R2	2.2	M	1MHz, 1V	0.108	3.0	2.3
SDIM0312□T3R3	3.3	M	1MHz, 1V	0.156	2.5	1.7
SDIM0312□T4R7	4.7	M	1MHz, 1V	0.216	2.3	1.5
SDIM0312□T6R8	6.8	M	1MHz, 1V	0.300	1.9	1.3
SDIM0312□T100	10	M	1MHz, 1V	0.350	1.3	1.2

SDIM0410 Type(□: Tolerance):

Part No.	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	I sat (A) max.	I rms (A) max.
SDIM0410□TR47	0.47	M	100KHz, 1V	0.045	7.0	4.0
SDIM0410□TR68	0.68	M	100KHz, 1V	0.060	6.0	3.5
SDIM0410□T1R0	1.0	M	100KHz, 1V	0.069	5.0	3.2
SDIM0410□T1R5	1.5	M	100KHz, 1V	0.075	3.5	3.0
SDIM0410□T2R2	2.2	M	100KHz, 1V	0.090	2.6	2.5
SDIM0410□T3R3	3.3	M	100KHz, 1V	0.140	2.3	2.0
SDIM0410□T4R7	4.7	M	100KHz, 1V	0.240	2.0	1.7
SDIM0410□T6R8	6.8	M	100KHz, 1V	0.360	1.8	1.4
SDIM0410□T100	10	M	100KHz, 1V	0.510	1.5	1.2

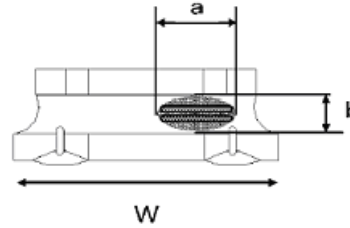
SDIM0412 Type(□: Tolerance):

Part No.	L (μH)	Tolerance	Test Condition	DCR (Ω) max.	I sat (A) max.	I rms (A) max.
SDIM0412□TR47	0.47	M	100KHz, 1V	0.033	8.0	5.0
SDIM0412□TR68	0.68	M	100KHz, 1V	0.043	7.0	4.0
SDIM0412□T1R0	1.0	M	100KHz, 1V	0.050	5.5	3.5
SDIM0412□T1R5	1.5	M	100KHz, 1V	0.060	4.7	3.3
SDIM0412□T2R2	2.2	M	100KHz, 1V	0.078	4.0	3.0
SDIM0412□T3R3	3.3	M	100KHz, 1V	0.120	3.3	2.5
SDIM0412□T4R7	4.7	M	100KHz, 1V	0.145	2.7	2.0
SDIM0412□T6R8	6.8	M	100KHz, 1V	0.180	1.9	1.8
SDIM0412□T100	10	M	100KHz, 1V	0.330	1.7	1.4

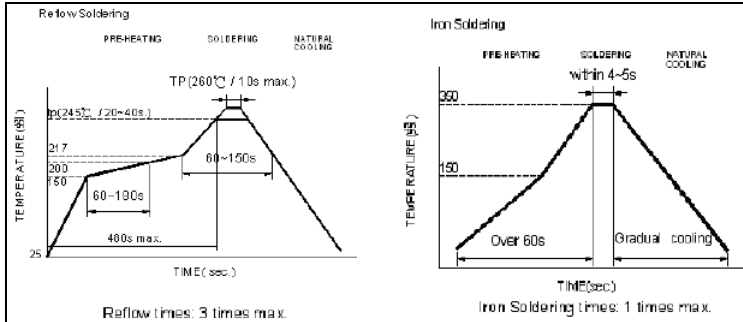
**SMD Power Inductor**

**■ Appearance of Exposed Wire Tolerance Limit**

- Width direction(dimension a): Acceptable when  $a \leq w/2$   
Nonconforming when  $a > w/2$
- Length direction(dimension b): Dimension b is not specified.
- The total area of exposed wire occurring to each sides is not greater than 50% of coating resin area, and is acceptable.

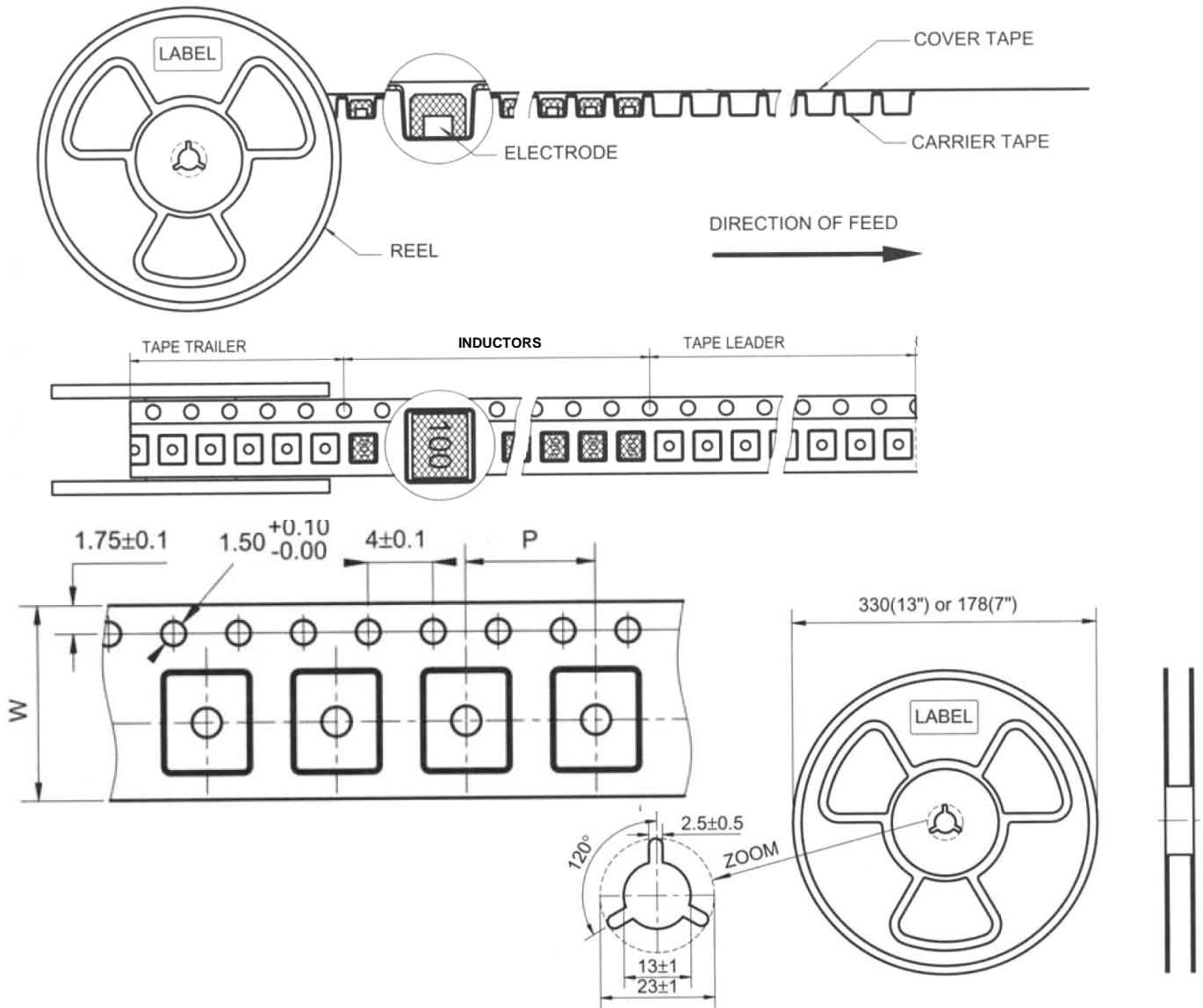


**■ Soldering**



**SMD Power Inductor**

**■Tape and Reel specifications**



Unit: mm

Type	Tape size		Parts Per Reel	
	W	P	7"	13"
SDIM0210	8	4	2000	-
SDIM02510	8	4	2000	-
SDIM02512	8	4	2000	-
SDIM0310	8	4	2000	-
SDIM0312	8	4	2000	-
SDIM0410	12	8	-	5000
SDIM0412	12	8	-	4500

**SMD Power Inductor**

**■ SMT Power Inductor Environmental Specifications**

**General**

Items	Specifications
Shelf Storage conditions	Temperature range: 15~28°C; Humidity: <80% relative humidity. Recommended product should be used within 12 months from the time of delivery.

**Environmental test**

Test Items	Specifications	Test Conditions / Test Methods
Life Test	Appearance: No damage Inductance: within±10% of initial value RDC : within ±15% of initial value and shall not exceed the specification value	<b>IPC/JEDEC J-STD-020D</b> Temperature: 125±2°C (inductor) Applied current: rated current Time: 1000±12 hours, measure at room temperature after placing for 24±2 hrs.
Biased Humidity		<b>IPC/JEDEC J-STD-020D</b> 1000hrs min 85°C/85%RH 100% of rated current measure at room temperature after placing for 24±2 hrs.
Moisture Resistance		<b>IPC/JEDEC J-STD-020D</b> 1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs, keep at 25°C for 2 hrs then keep at -10°C for 3 hrs 4. Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock test		<b>IPC/JEDEC J-STD-020D</b> -40±2°C 30±5minutes→25±2°C ≤0.5 minutes→125±2°C 30±5 minutes, as 1 cycle. Go through 500 cycles. measure at room temperature after placing for 24±2 hrs.

**Mechanical test**

Test Items	Specifications	Test Conditions / Test Methods									
Solderability test	Terminal area must have 95% minimum solder coverage.	Preheat: 150°C, 60sec, Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245±5°C, Flux for lead free: Rosin. 9.5% Dip time: 4±1sec, Depth: completely cover the termination									
Resistance to Soldering Heat	Appearance: No damage Inductance: within±10% of initial value RDC : within ±15% of initial value and shall not exceed the specification value	Depth: completely cover the termination <table border="1"> <thead> <tr> <th>Temperature</th> <th>Time</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260±5°C (solder temp)</td> <td>10±1s</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table>	Temperature	Time	Temperature ramp/immersion and emersion rate	Number of heat cycles	260±5°C (solder temp)	10±1s	25mm/s ±6 mm/s	1	
Temperature		Time	Temperature ramp/immersion and emersion rate	Number of heat cycles							
260±5°C (solder temp)		10±1s	25mm/s ±6 mm/s	1							
Bending		Shall be mounted on a FR4 substrate of the following dimensions: >=0805inch(2012mm):40x100x1.2mm, <0805inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm, <0805inch(2012mm):0.8mm duration of 10 sec.									
Vibration test		Oscillation frequency: 10~2K~10Hz. For 20 minutes Equipment: Vibration checker, Total amplitude: 1.52mm±10% Testing time: 12 hours (20 minutes, 12 cycles each of 3 orientations)									
Shock	<table border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (Vi)ft/sec</th> </tr> </thead> <tbody> <tr> <td>SDM</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SDM	50	11	Half-sine	11.3
Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec							
SDM	50	11	Half-sine	11.3							
Terminal Strength	<p><b>IPC/JEDEC J-STD-020D</b></p> <p>With the component mounted on a PCB with the device to be tested, apply a force(&gt;0805:1kg, &lt;=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.</p> 