Data Sheet

Customer:	
Product:	**SMD Power Inductor – SDIM Series**
Sizes.:	**0210/02510/02512/0310/0312/0315/0410/0412**
Issued Date:	**03-Jul-20**
Edition:	**REV.A2**

RoHS Compliant

HONG KONG HELISTO INDUSTRIAL LIMITED
香港海利斯特实业有限公司

SHENZHEN HELISTO TECHNOLOGYCOLTD
深圳市海利斯特科技有限公司

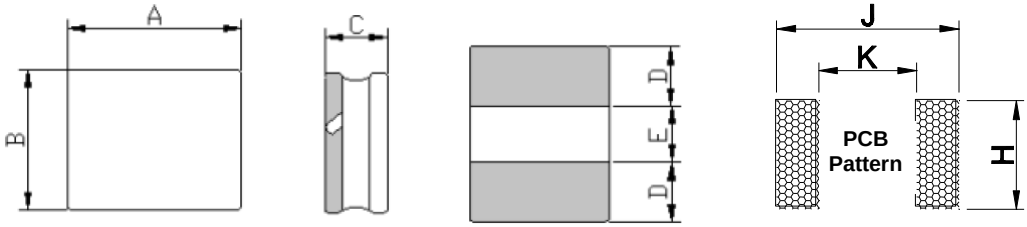
ADD:5/F., A Block, Hongdu Industrial Park, Fanshen Road, 45 Area, Baoan, Shenzhen, China
TEL:+86-755-29741555 29749555
FAX:+86-755-29742111
E-mail:donnyhai@helisto.com
www.Helisto.com

Produced by (QC)	Checked (QC)	Approved by (QC)	Prepared by (Sales)	Accepted by (Customer)
03-Jul-20	03-Jul-20	03-Jul-20	03-Jul-20	
Kris Chen	***Ben Chang***	***Ben Chang***		

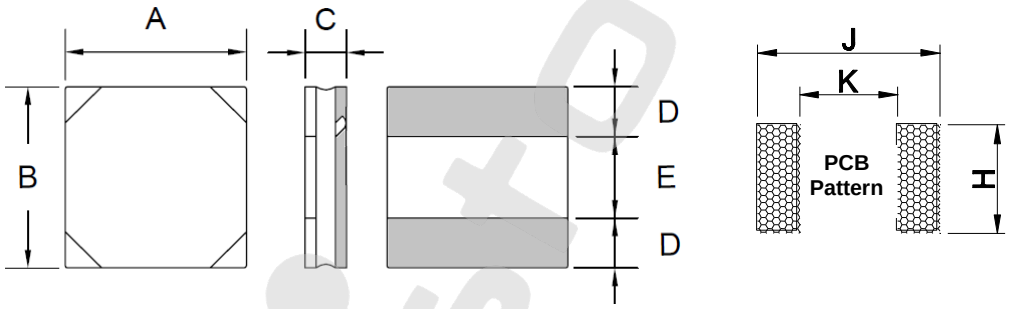
SMD Power Inductor



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℃)
- 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

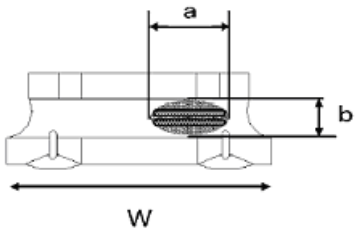
■Appearance of Exposed Wire Tolerance Limit

－Width direction(dimension a): Acceptable when a≦w/2

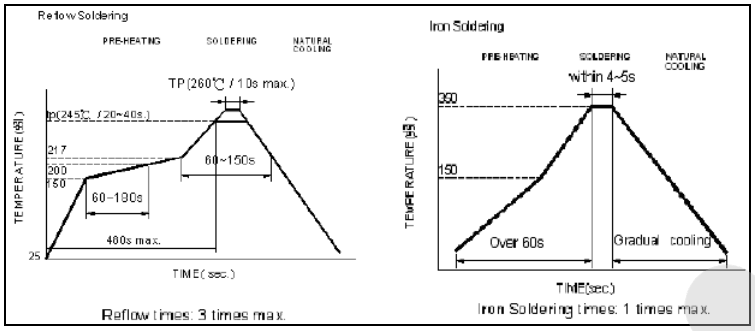
Nonconforming when a＞w/2

－Length direction(dimension b): Dimension b is not specified.

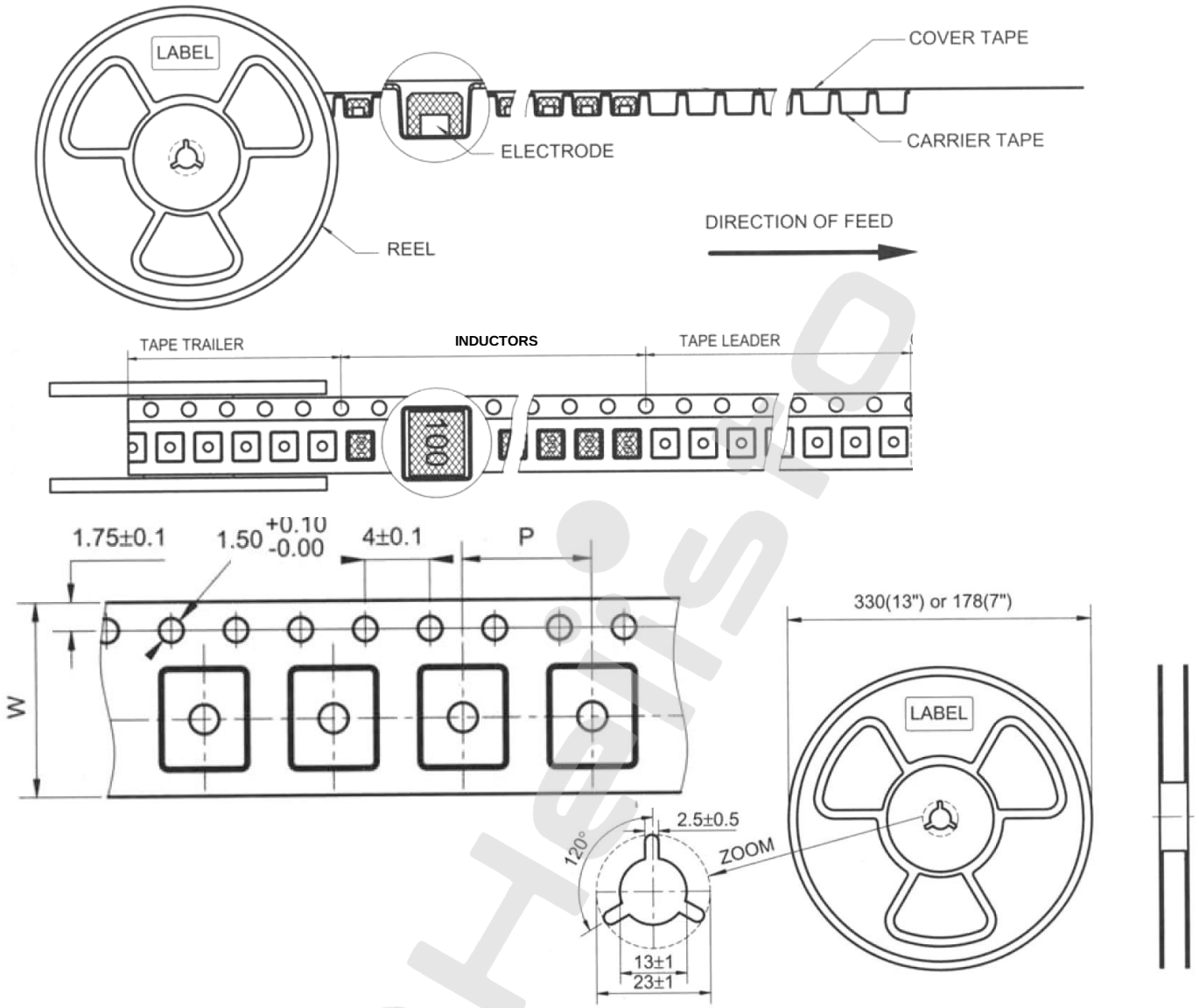
－The total area of exposed wire occurring to each sides is not greater than 50% of coating resin area, and is acceptable.



■Soldering



■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

■SMT Power Inductor Environmental Specifications

General

Items	Specifications
Shelf Storage conditions	Temperature range: 15~28℃; 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	**IPC/JEDEC J-STD-020D** Temperature: 125±2℃(inductor) Applied current: rated current Time: 1000±12 hours, measure at room temperature after placing for 24±2 hrs.
Biased Humidity		**IPC/JEDEC J-STD-020D** 1000hrs min 85℃/85%RH 100% of rated current measure at room temperature after placing for 24±2 hrs.
Moisture Resistance		**IPC/JEDEC J-STD-020D** 1. Baked at50℃ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs. 3. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs,keep at 25℃ for 2 hrs then keep at -10℃ for 3 hrs 4. Keep at 25℃ 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		**IPC/JEDEC J-STD-020D** -40±2℃ 30±5minutes→25±2℃ ≦0.5 minutes→125±2℃ 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℃,60sec, Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245±5℃, 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 Temperature: 260±5℃ (solder temp); Time: 10±1s; Temperature ramp/immersion and emersion rate: 25mm/s ±6 mm/s; Number of heat cycles: 1
Bending		Shall be mounted on a FR4 substrate of the following dimensions: >=0805inch(2012mm):40x100x1.2mm,<0805nch(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		Type: SDM; Peak value (g's): 50; Normal duration (D) (ms): 11; Wave form: Half-sine; Velocity change (Vi)ft/sec: 11.3
Terminal Strength		**IPC/JEDEC J-STD-020D** With the component mounted on a PCB with the device to be tested, apply a force(>0805:1kg , <=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. 