

Data Sheet

Customer: _____

Product: SMD Power Inductor – AHNR Series _____

Size : 252010/252012/4020 _____

Issued Date: 06-July-2023 _____

Edition: Ver. 1 _____

Record of change

Date	Ver.	Description	Page
06-July-2023	1		

HITANO ENTERPRISE CORP.

7F-7, No. 3, Wu Chuan 1st Road, New Taipei Industrial Park,

New Taipei City, TAIWAN, R.O.C.

Tel: +886 2 2299 1331 (Rep.)

Fax: +886 2 2298 2466, 2298 2969

Prepared by	Checked by	Approved by	Accepted by (customer)
06-July-2023	06-July-2023	06-July-2023	
Hwa Wu	Andy Hsu	Arthur Su	

SMD POWER INDUCTOR

◆ Features

- * Fe base metal core provides large saturation current
- * Metallization on ferrite core results in excellent shock resistance and damage-free durability
- * Closed magnetic circuit reduces leakage flux and Electro Magnetic Interference (EMI)
- * Low DCR decreases power loss, small take up less PCB real estate
- * Automatic production ensures high quality and consistency



◆ Application

- * Smartphone
- * Blue-ray disc recorders, set top box
- * Notebook, desktop computers, servers
- * Portable gaming devices, personal navigation systems, personal multimedia devices

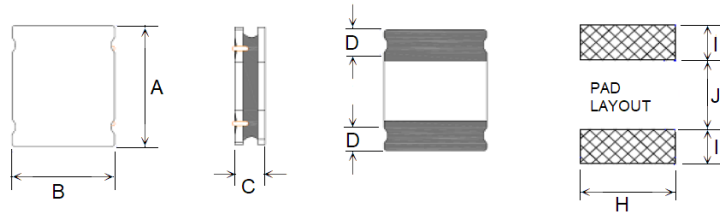
◆ Part Numbering

<u>AHNR</u>	<u>252010</u>	-	<u>4R7</u>	<u>M</u>	<u>T</u>	-	□□
SERIES	SIZE		INDUCTANCE	TOLERANCE	PACKAGE		INTERNAL CODE
	252010		R33=0.33uH	M= ±20%	T=Tape & Reel		
	252012		4R7= 4.7uH	N= ±25%			
	4020		100= 10uH	Y= ±30%			
			101= 100uH				

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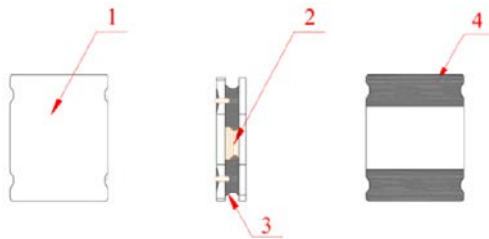
Shape & Dimensions

(A).



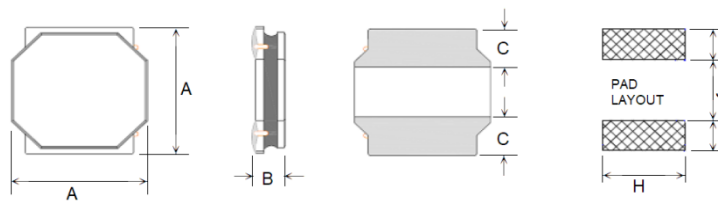
SIZE	A (mm)	B (mm)	C (mm)	D (mm)	H (Ref.)	I (Ref.)	J (Ref.)
252010	2.5±0.25	2.1±0.25	1.0 Max.	0.8	2.2	0.95	0.8
252012	2.5±0.25	2.1±0.25	1.2 Max.	0.8	2.2	0.95	0.8

Construction :



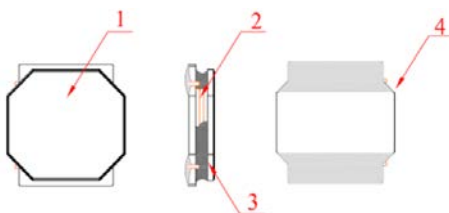
No.	Item	Material
1	Core	Matel Alloy Core
2	Wire	Copper Wire
3	Over-coating resin	Magnetic epoxy resin
4	Electrode (top surface solder cpating)	Sn

(B).



SIZE	A (mm)	B (mm)	C (mm)	H (Ref.)	I (Ref.)	J (Ref.)
4020	4.0±0.2	2.0 Max.	1.3	3.7	1.5	1.2

Construction :



No.	Item	Material
1	Core	Ni-Zn Ferrite
2	Wire	Copper Wire
3	Over-coating resin	Magnetic epoxy resin
4	Electrode (top surface solder coating)	Sn

SMD POWER INDUCTOR

Electrical Specification

Size 252010

Part Number	Inductance (uH)	Tolerance	Test Freq. (MHz)	DCR (mΩ) Max.	I sat (A)Max.	I rms (A)Max.
AHNR252010-R33□T-□□	0.33	Y	1	39	4.80	3.70
AHNR252010-R47□T-□□	0.47	Y	1	45	4.40	3.40
AHNR252010-R68□T-□□	0.68	Y	1	59	3.20	2.75
AHNR252010-1R0□T-□□	1.0	M, N	1	76	3.10	2.50
AHNR252010-1R5□T-□□	1.5	M, N	1	100	2.80	2.00
AHNR252010-2R2□T-□□	2.2	M, N	1	135	2.30	1.80
AHNR252010-3R3□T-□□	3.3	M, N	1	235	1.60	1.40
AHNR252010-4R7□T-□□	4.7	M, N	1	276	1.30	1.10
AHNR252010-6R8□T-□□	6.8	M, N	1	416	1.15	1.05
AHNR252010-100□T-□□	10	M, N	1	500	1.00	0.90

Size 252012

Part Number	Inductance (uH)	Tolerance	Test Freq. (MHz)	DCR (mΩ) Max.	I sat (A)Max.	I rms (A)Max.
AHNR252012-R33□T-□□	0.33	Y	1	30	5.30	3.80
AHNR252012-R47□T-□□	0.47	Y	1	35	5.00	3.80
AHNR252012-R68□T-□□	0.68	Y	1	43	4.80	3.20
AHNR252012-1R0□T-□□	1.0	M, N	1	64	4.00	2.90
AHNR252012-1R5□T-□□	1.5	M, N	1	85	3.20	2.45
AHNR252012-2R2□T-□□	2.2	M, N	1	120	2.60	2.10
AHNR252012-3R3□T-□□	3.3	M, N	1	163	1.70	1.70
AHNR252012-4R7□T-□□	4.7	M, N	1	260	1.60	1.25
AHNR252012-6R8□T-□□	6.8	M, N	1	366	1.35	1.10
AHNR252012-100□T-□□	10	M, N	1	480	1.10	0.95
AHNR252012-150□T-□□	15	M, N	1	774	0.85	0.75
AHNR252012-220□T-□□	22	M, N	1	1210	0.70	0.61

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Size 4020

Part Number	Inductance (uH)	Tolerance	Test Freq. (MHz)	DCR (mΩ) Max.	I sat (A)Max.	I rms (A)Max.
AHNR4020-R22□T-□□	0.22	Y	1	13.0	18.70	8.20
AHNR4020-R47□T-□□	0.47	Y	1	22.0	13.40	6.40
AHNR4020-R68□T-□□	0.68	Y	1	26.0	10.00	5.60
AHNR4020-1R0□T-□□	1.0	Y	1	32.6	8.70	4.70
AHNR4020-1R5□T-□□	1.5	Y	1	39.0	7.20	4.50
AHNR4020-2R2□T-□□	2.2	Y	1	60.0	6.10	3.60
AHNR4020-3R3□T-□□	3.3	Y	1	72.0	4.70	3.20
AHNR4020-4R7□T-□□	4.7	Y	1	108.0	4.00	2.85
AHNR4020-6R8□T-□□	6.8	M, N	1	156.0	3.00	2.40
AHNR4020-100□T-□□	10	M, N	1	198.0	2.80	2.00
AHNR4020-150□T-□□	15	M, N	1	365.0	2.20	1.35
AHNR4020-220□T-□□	22	M, N	1	580.0	1.35	1.25

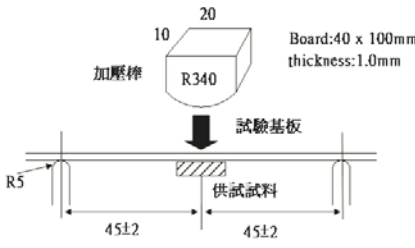
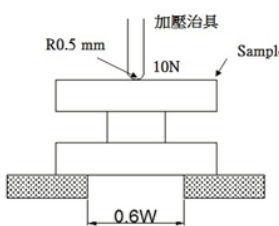
Note :

- * The operating temperature range is -40°C~+125°C (Including self-temperature rise)
- * □ Tolerance M : ±20% / N : ±25% / Y : ±30%
- * Isat : For inductance drop 30% from its value without current
- * Irms : The value of D.C current when the temperature rise is $\Delta T \leq 40^\circ\text{C}$ (Ta=25°C)

SMD POWER INDUCTOR

Electrical Specification

Mechanical Reliability:

Test Items	Test Conditions	Criteria
Bending test	<p>Apply pressure gradually in the direction of the arrow at a rate of about 0.5mm/s until bent depth reaches 2mm and hold for 30±5s</p> 	change from an initial value L: within±10%
Adhesion strength	<p>A static load using a R0.5 pressing tool with 10N shall be applied to the body of the specimen in the direction of the arrow and shall be hold for 10s, measure after removing pressure.</p> 	change from an initial value L: within±10%
Vibration	<p>Frequency: 10~55~10Hz Amplitude: 1.5mm Sweep time: 2 cycle Test Directions: X,Y,Z Test Time: 2 hours each direction</p>	change from an initial value L: within±10%
Drop	<p>Drop specimen three times on concrete floor from a height of 1meter which mounted on test board.</p>	change from an initial value L: within±10%

SMD POWER INDUCTOR

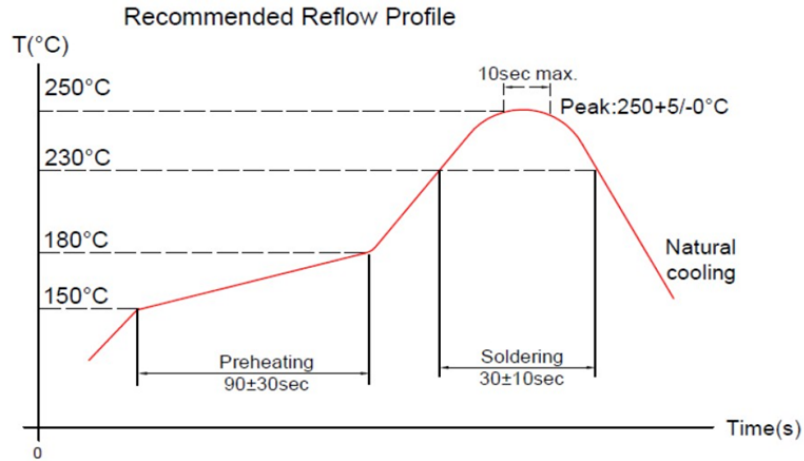
Electrical Specification

Mechanical Reliability:

Test Items	Test Conditions	Criteria
Low temperature storage	Placed at -40°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	change from an initial value L: within ±10%
High temperature storage	Placed at +125°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	change from an initial value L: within ±10%
Thermal shock	Condition for 1 cycle: -40°C, 30min. ~ +125°C, 30min. Number of cycles: 100	change from an initial value L: within ±10%
Humidity resistance	Placed at 90 to 95%RH, +60±2°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	change from an initial value L: within ±10%
Solderability test	Terminals shall be immersed for 5 to 10 seconds in flux at room temperature. Dip sample into solder bath containing molten solder at 245±3°C for 3±0.5 seconds	New solder shall cover 90% minimum of the surface immersed.
Heat endurance of reflow soldering resistance	The test sample shall be exposed to reflow oven at 230±5°C for 40 seconds, with peak temperature at 260°C for 10 seconds, 2 times.	Inductance shall be within ±10% of the initial value. Appearance: No damage
Hand soldering heat resistance	The peak temperature: 350±10°C · 3.5±0.5 seconds.	change from an initial value L: within ±10%
High temperature dynamic operation test	Placed at +85°C for 500 hours, then measured at room ambient temperature with current test after placing 24 hours.	Inductance shall be within ±10% of the initial value. Appearance: No damage
Humidity dynamic operation test	Placed at 90 to 95%RH, +60°C for 500 hours, then measured at room ambient temperature with current test after placing 24 hours.	Inductance shall be within ±10% of the initial value. Appearance: No damage

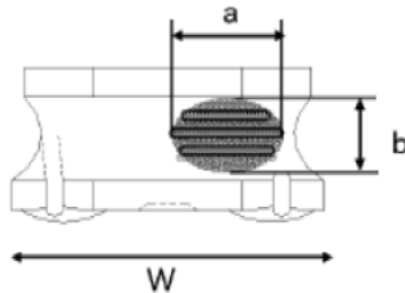
SMD POWER INDUCTOR

REFLOW-PROFILE :



The reflow condition recommended above is according to the machine used by our company. Big differences will arise as a result of the type of machine, reflow conditions, method, etc used. Hence, before setting up your reflow conditions, please confirm with the above.

VOID APPEARANCE TOLERANCE LIMIT :



Void appearance tolerance limit:

Size of voids occurring to coating resin is specified below

① Width direction (dimension a) : Acceptable when $a \leq w/2$

Nonconforming when $a > w/2$

② Length direction (dimension b) : Dimension b is not specified

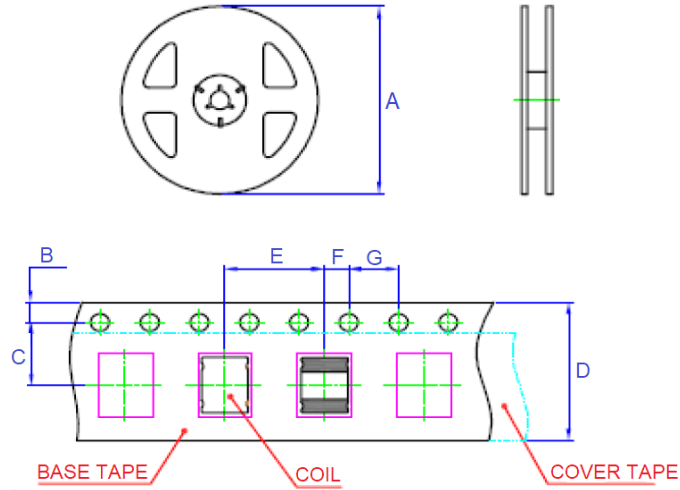
③ When total area of voids (including one exposing coil)

occurring to each sides is not greater than 50% of coating resin area, that is acceptable

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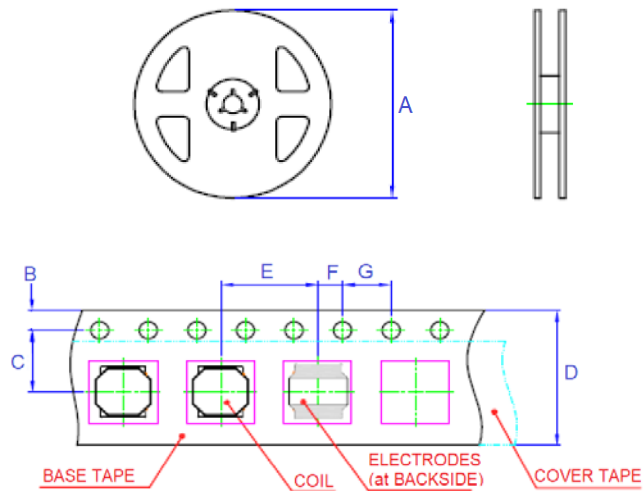
Tape & Reel Packaging Dimension

(A).



SIZE	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Packaging Quantity
252010	178±0.2	1.75±0.1	3.5±0.1	8.0±0.1	4.0±0.1	2.0±0.1	4.0±0.1	2000 pcs/reel
252012	178±0.2	1.75±0.1	3.5±0.1	8.0±0.1	4.0±0.1	2.0±0.1	4.0±0.1	2000 pcs/reel

(B).



SIZE	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Packaging Quantity
4020	178±0.2	1.75±0.1	5.5±0.1	12.0±0.1	8.0±0.1	2.0±0.1	4.0±0.1	800 pcs/reel