

1. Scope

This specification applies to the HNR201610 Series of wire wound SMD power inductor.

2. Product Description and Identification (Part Number)

1) Description:

HNR201610 series of Wire wound SMD power inductor.

2) Product Identification (Part Number)

<u>HNR</u>	<u>201610</u>	-	<u>3R3</u>	<u>M</u>	<u>I</u>
①	②		③	④	⑤

①	Type
HNR	Metal Alloy Inductor

②	External Dimensions(L×W×H) 【mm】
201610	2.0×1.6×1.0

③	Nominal Inductance
Example	Example
1R0	1.0uH
100	10uH
101	100uH

④	Inductance Tolerance
N	±30%
M	±20%

⑤	Packing
T	Tape Carrier Package

3. Electrical Characteristics

Please refer to Item 5.

- Operating temperature range (individual chip without packing): -40℃ ~ +125℃ (Including Self-heating) .
- Storage temperature range (packaging conditions): -10℃ ~ +40℃ and RH 70% (Max.).

4. Shape and Dimensions (Unit:mm)

Dimensions and recommended PCB pattern for reflow soldering, please see Fig4-1 and Table4-1

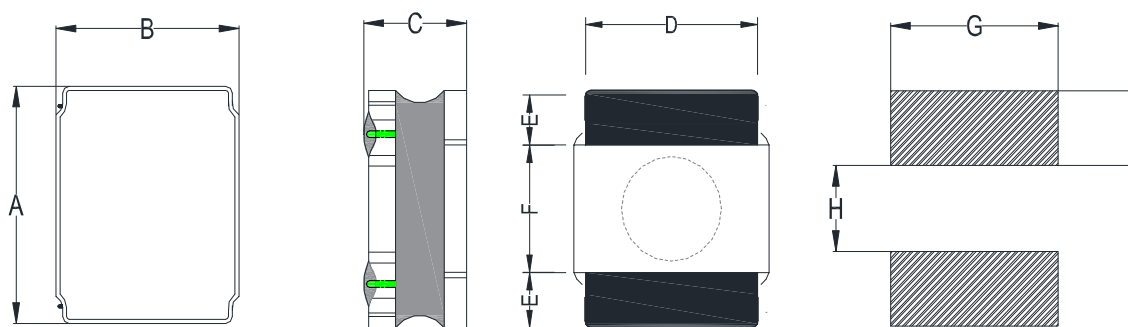


Fig4-1.

Table 4-1.

A	B	C	D	E	F	G	H	I
2.0 ± 0.2	1.6 ± 0.2	1.08Max	1.6 ± 0.2	0.6 ± 0.2	0.8 ± 0.2	1.60Ref	0.80Ref	0.80Ref

5. Electrical Characteristics

Part Number	Inductance	DC Resistance		Saturation Current		Heat Rating Current	
	1MHz/1V	Max.	Typ.	Max.	Typ.	Max.	Typ.
Units	uH	Ω	Ω	A	A	A	A
Symbol	L	DCR		Isat		Irms	
HNR201610-R24MT	$0.24 \pm 20\%$	0.040	0.033	4.50	5.50	3.00	3.45
HNR201610-R33MT	$0.33 \pm 20\%$	0.049	0.041	4.40	5.20	2.70	3.10
HNR201610-R47MT	$0.47 \pm 20\%$	0.049	0.041	4.06	4.70	2.70	3.10
HNR201610-R56MT	$0.56 \pm 20\%$	0.053	0.043	3.80	4.50	2.60	2.80
HNR201610-R68MT	$0.68 \pm 20\%$	0.065	0.057	3.50	4.00	2.50	2.80
HNR201610-1R0MT	$1.0 \pm 20\%$	0.095	0.078	3.30	3.80	2.00	2.30
HNR201610-1R5MT	$1.5 \pm 20\%$	0.130	0.110	1.95	2.30	1.70	2.00
HNR201610-2R2MT	$2.2 \pm 20\%$	0.180	0.160	1.90	2.15	1.40	1.60
HNR201610-3R3MT	$3.3 \pm 20\%$	0.307	0.245	1.40	1.60	1.10	1.30
HNR201610-4R7MT	$4.7 \pm 20\%$	0.425	0.370	1.10	1.40	0.90	1.00
HNR201610-6R8MT	$6.8 \pm 20\%$	0.620	0.500	0.95	1.10	0.70	0.82
HNR201610-8R2MT	$8.2 \pm 20\%$	0.870	0.670	0.86	1.00	0.66	0.76
HNR201610-100MT	$10 \pm 20\%$	0.875	0.700	0.80	0.95	0.60	0.70

Note:※1: Rated current: Isat(max.) or Irms(max.), whichever is smaller;

※2: Saturation Current: Max. Value, DC current at which the inductance drops less than 30% from its value without current; Typ. Value, DC current at which the inductance drops 30% from its value without current;

※3: Irms: DC current that causes the temperature rise (ΔT) from 20℃ ambient.

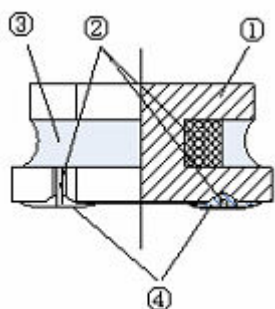
For Max. Value, $\Delta T < 40^\circ\text{C}$; for Typ. Value, ΔT is approximate 40℃.

The part temperature (ambient + temp. rise) should not exceed 125℃ under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

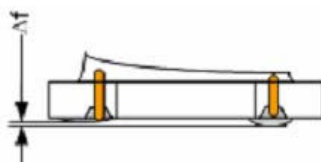
※4: Absolute maximum voltage:DC 25V

6. Structure

The structure of HNR201610 product.



NO.	Components	Material	Manufacturer
①	Core	Soft magnetic Metal	DALANG
②	Wire	Polyurethane system enameled copper wire	ELEKTRISOLA
③	Magnetic Glue	Epoxy resin and magnetic powder	Daejoo
④	Electrodes	AgNiSn or FeNiCu + Sn Alloy	



△f: Clearance between terminal and the surface of plate must be 0.1mm max when coil is placed on a flat plate.

1. Scope

This specification applies to the HNR252012 Series of wire wound SMD power inductor.

2. Product Description and Identification (Part Number)

1) Description:

HNR252012 series of Wire wound SMD power inductor.

2) Product Identification (Part Number)

<u>HNR</u>	<u>252010</u>	-	<u>3R3</u>	<u>M</u>	<u>I</u>
①	②		③	④	⑤

①	Type
HNR	Metal Alloy Inductor

②	External Dimensions(L×W×H) 【mm】
252010	2.5×2.0×1.0

③	Nominal Inductance
Example	Example
1R0	1.0uH
100	10uH
101	100uH

④	Inductance Tolerance
N	±30%
M	±20%

⑤	Packing
T	Tape Carrier Package

3. Electrical Characteristics

Please refer to Item 5.

- Operating temperature range (individual chip without packing): -40℃ ~ +125℃ (Including Self-heating) .
- Storage temperature range (packaging conditions): -10℃ ~ +40℃ and RH 70% (Max.).

4. Shape and Dimensions (Unit:mm)

Dimensions and recommended PCB pattern for reflow soldering, please see Fig4-1 and Table4-1

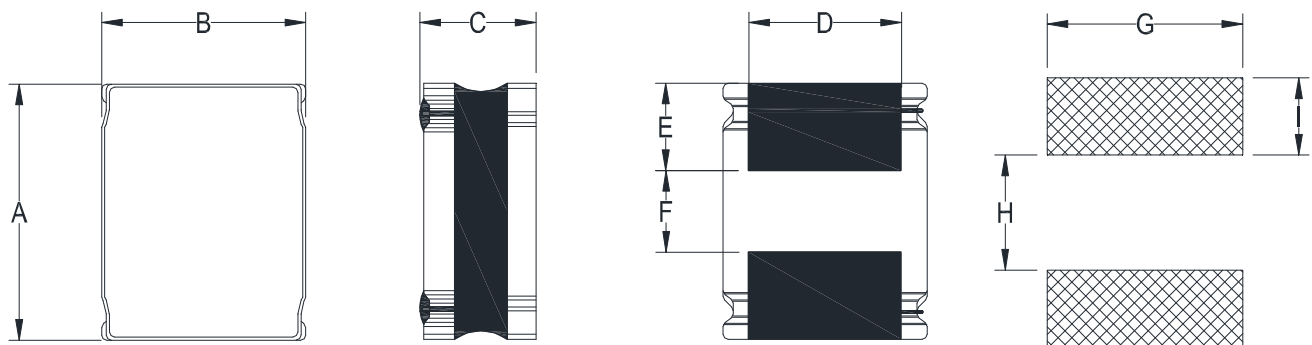


Fig4-1.

Table 4-1.

A	B	C	D	E	F	G	H	I
2.5± 0.2	2.0 ± 0.2	1.05Max	1.5±0.2	0.80±0.2	0.80±0.2	2.0Ref	0.8Ref	0.85Ref

5. Electrical Characteristics

Part Number	Inductance	DC Resistance		Saturation Current		Heat Rating Current	
	1MHz/1V	Max.	Typ.	Max.	Typ.	Max.	Typ.
Units	uH	Ω	Ω	A	A	A	A
Symbol	L	DCR		Isat		Irms	
HNR252010-R24MT	$0.24 \pm 20\%$	0.033	0.025	6.10	7.10	3.70	4.50
HNR252010-R33MT	$0.33 \pm 20\%$	0.039	0.033	4.80	5.50	3.50	4.05
HNR252010-R47MT	$0.47 \pm 20\%$	0.045	0.040	4.40	5.20	3.20	3.60
HNR252010-R68MT	$0.68 \pm 20\%$	0.059	0.049	3.20	3.60	2.75	3.20
HNR252010-1R0MT	$1.0 \pm 20\%$	0.085	0.071	3.10	3.50	2.20	2.50
HNR252010-1R5MT	$1.5 \pm 20\%$	0.106	0.090	2.60	3.00	2.00	2.30
HNR252010-2R2MT	$2.2 \pm 20\%$	0.155	0.129	1.90	2.20	1.50	1.80
HNR252010-3R3MT	$3.3 \pm 20\%$	0.235	0.196	1.60	1.80	1.20	1.40
HNR252010-4R7MT	$4.7 \pm 20\%$	0.290	0.255	1.30	1.50	1.00	1.10
HNR252010-6R8MT	$6.8 \pm 20\%$	0.480	0.380	1.00	1.15	0.95	1.00
HNR252010-100MT	$10 \pm 20\%$	0.740	0.630	0.90	1.00	0.65	0.75

Note:※1: Rated current: Isat(max.)or Irms(max.),whichever is smaller;

※2: Saturation Current: Max. Value, DC current at which the inductance drops less than 30% from its value without current; Typ. Value, DC current at which the inductance drops 30% from its value without current;

※3: Irms: DC current that causes the temperature rise (ΔT) from 20℃ ambient.

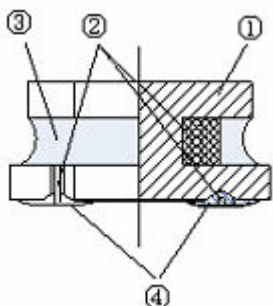
For Max. Value, $\Delta T < 40^\circ\text{C}$; for Typ. Value, ΔT is approximate 40°C .

The part temperature (ambient + temp. rise) should not exceed 125°C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

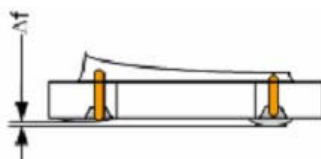
※4: Absolute maximum voltage:DC 25V

6. Structure

The structure of HNR252012 product.



NO.	Components	Material	Manufacturer
①	Core	Soft magnetic Metal	DALANG
②	Wire	Polyurethane system enameled copper wire	ELEKTRISOLA
③	Magnetic Glue	Epoxy resin and magnetic powder	Daejoo
④	Electrodes	AgNiSn or FeNiCu + Sn Alloy	



4f: Clearance between terminal and the surface of plate must be 0.1mm max when coil is placed on a flat plate.

1. Scope

This specification applies to the HNR252012 Series of wire wound SMD power inductor.

2. Product Description and Identification (Part Number)

1) Description:

HNR252012 series of Wire wound SMD power inductor.

2) Product Identification (Part Number)

<u>HNR</u>	<u>252012</u>	-	<u>3R3</u>	<u>M</u>	<u>I</u>
①	②		③	④	⑤

①	Type
HNR	Metal Alloy Inductor

②	External Dimensions(L×W×H) 【mm】
252012	2.5×2.0×1.2

③	Nominal Inductance
Example	Example
1R0	1.0uH
100	10uH
101	100uH

④	Inductance Tolerance
N	±30%
M	±20%

⑤	Packing
T	Tape Carrier Package

3. Electrical Characteristics

Please refer to Item 5.

- Operating temperature range (individual chip without packing): -40℃ ~ +125℃ (Including Self-heating) .
- Storage temperature range (packaging conditions): -10℃ ~ +40℃ and RH 70% (Max.).

4. Shape and Dimensions (Unit:mm)

Dimensions and recommended PCB pattern for reflow soldering, please see Fig4-1 and Table4-1

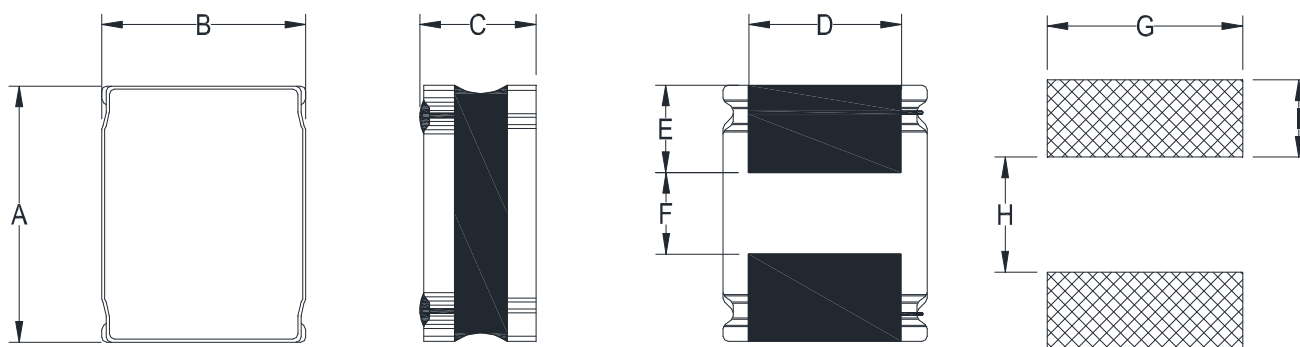


Fig4-1.

Table 4-1.

A	B	C	D	E	F	G	H	I
2.5± 0.2	2.0 ± 0.2	1.26Max	1.5±0.2	0.80±0.2	0.80±0.2	2.0Ref	0.8Ref	0.85Ref

5. Electrical Characteristics

Part Number	Inductance	DC Resistance		Saturation Current		Heat Rating Current	
	1MHz/1V	Max.	Typ.	Max.	Typ.	Max.	Typ.
Units	uH	Ω	Ω	A	A	A	A
Symbol	L	DCR		Isat		Irms	
HNR252012-R24MT	$0.24 \pm 20\%$	0.023	0.019	6.50	7.80	4.05	4.70
HNR252012-R33MT	$0.33 \pm 20\%$	0.028	0.023	5.35	6.30	3.70	4.30
HNR252012-R47MT	$0.47 \pm 20\%$	0.035	0.029	4.90	5.60	3.45	4.00
HNR252012-R68MT	$0.68 \pm 20\%$	0.045	0.039	3.80	4.50	3.15	3.60
HNR252012-1R0MT	$1.0 \pm 20\%$	0.054	0.048	3.60	4.20	3.00	3.40
HNR252012-1R5MT	$1.5 \pm 20\%$	0.078	0.060	2.90	3.50	2.40	2.80
HNR252012-2R2MT	$2.2 \pm 20\%$	0.120	0.100	2.60	3.00	1.90	2.15
HNR252012-3R3MT	$3.3 \pm 20\%$	0.215	0.175	1.70	2.10	1.50	1.80
HNR252012-4R7MT	$4.7 \pm 20\%$	0.260	0.225	1.60	1.90	1.25	1.45
HNR252012-6R8MT	$6.8 \pm 20\%$	0.366	0.305	1.20	1.40	0.95	1.10
HNR252012-100MT	$10 \pm 20\%$	0.480	0.435	1.10	1.35	0.85	1.00

Note:※1: Rated current: Isat(max.)or Irms(max.),whichever is smaller;

※2: Saturation Current: Max. Value, DC current at which the inductance drops less than 30% from its value without current; Typ. Value, DC current at which the inductance drops 30% from its value without current;

※3: Irms: DC current that causes the temperature rise (ΔT) from 20℃ ambient.

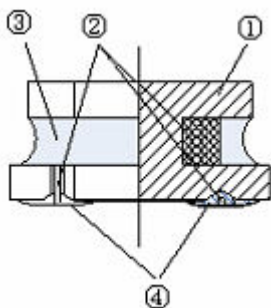
For Max. Value, $\Delta T < 40^\circ\text{C}$; for Typ. Value, ΔT is approximate 40°C .

The part temperature (ambient + temp. rise) should not exceed 125°C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

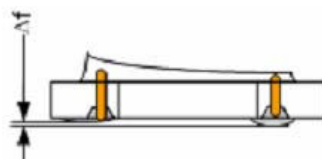
※4: Absolute maximum voltage:DC 25V

6. Structure

The structure of HNR252012 product.



NO.	Components	Material	Manufacturer
①	Core	Soft magnetic Metal	DALANG
②	Wire	Polyurethane system enameled copper wire	ELEKTRISOLA
③	Magnetic Glue	Epoxy resin and magnetic powder	Daejoo
④	Electrodes	AgNiSn or FeNiCu + Sn Alloy	



△f: Clearance between terminal and the surface of plate must be 0.1mm max when coil is placed on a flat plate.

1. Scope

This specification applies to the HNR3015 Series of wire wound SMD power inductor.

2. Product Description and Identification (Part Number)

1) Description:

HNR3015 series of Wire wound SMD power inductor.

2) Product Identification (Part Number)

<u>HNR</u>	<u>3015</u>	-	<u>3R3</u>	<u>M</u>	<u>I</u>
①	②		③	④	⑤

①	Type
HNR	Metal Alloy Inductor

②	External Dimensions(L×W×H) 【mm】
3015	3.0×3.0×1.5

③	Nominal Inductance
Example	Example
1R0	1.0uH
100	10uH
101	100uH

④	Inductance Tolerance
N	±30%
M	±20%

⑤	Packing
T	Tape Carrier Package

3. Electrical Characteristics

Please refer to Item 5.

- Operating temperature range (individual chip without packing): -40℃ ~ +125℃ (Including Self-heating) .
- Storage temperature range (packaging conditions): -10℃ ~ +40℃ and RH 70% (Max.).

4. Shape and Dimensions (Unit:mm)

Dimensions and recommended PCB pattern for reflow soldering, please see Fig4-1 and Table4-1

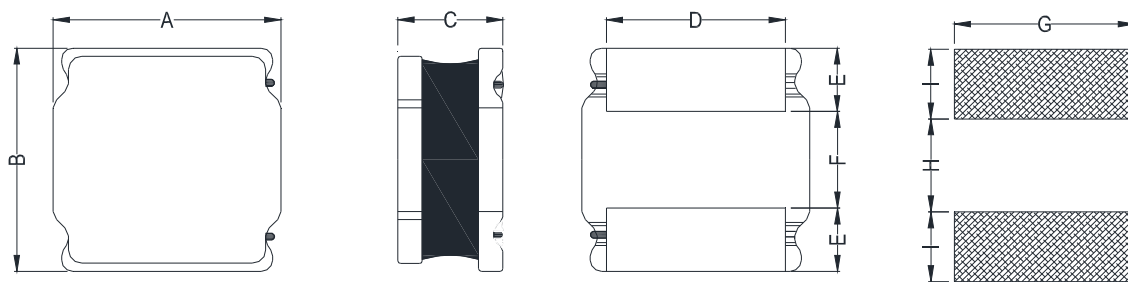


Fig4-1.

Table 4-1.

A	B	C	D	E	F	G	H	I
3.0 ± 0.2	3.0± 0.2	1.55Max	2.5Ref	0.8 Ref	1.4 Ref	2.7 Ref	1.5 Ref	0.8 Ref

5. Electrical Characteristics

Part Number	Inductance	DC Resistance		Saturation Current		Heat Rating Current	
	1MHz/1V	Max.	Typ.	Max.	Typ.	Max.	Typ.
Units	uH	Ω	Ω	A	A	A	A
Symbol	L	DCR		Isat		Irms	
HNR3015-R22MT	$0.22 \pm 20\%$	0.019	0.0154	8.80	11.0	5.00	5.90
HNR3015-R24MT	$0.24 \pm 20\%$	0.019	0.0154	8.60	10.6	5.00	5.90
HNR3015-R33MT	$0.33 \pm 20\%$	0.021	0.016	8.00	10.0	4.90	5.80
HNR3015-R47MT	$0.47 \pm 20\%$	0.026	0.020	7.60	9.50	4.60	5.00
HNR3015-R68MT	$0.68 \pm 20\%$	0.0365	0.028	7.00	8.30	3.80	4.50
HNR3015-1R0MT	$1.0 \pm 20\%$	0.048	0.037	5.80	7.00	3.30	3.80
HNR3015-1R5MT	$1.5 \pm 20\%$	0.072	0.055	4.60	5.50	2.20	2.70
HNR3015-2R2MT	$2.2 \pm 20\%$	0.095	0.074	3.70	4.60	2.20	2.50
HNR3015-3R3MT	$3.3 \pm 20\%$	0.150	0.110	3.40	3.40	2.00	2.30
HNR3015-4R7MT	$4.7 \pm 20\%$	0.185	0.150	2.50	3.00	1.70	1.90
HNR3015-6R8MT	$6.8 \pm 20\%$	0.320	0.245	2.00	2.40	1.20	1.35
HNR3015-100MT	$10 \pm 20\%$	0.450	0.350	1.60	2.00	1.10	1.20
HNR3015-150MT	$15 \pm 20\%$	0.610	0.460	1.45	1.75	1.10	1.20

Note:※1: Rated current: Isat(max.)or Irms(max.),whichever is smaller;

※2: Saturation Current: Max. Value, DC current at which the inductance drops less than 30% from its value without current; Typ. Value, DC current at which the inductance drops 30% from its value without current;

※3: Irms: DC current that causes the temperature rise (ΔT) from 20℃ ambient.

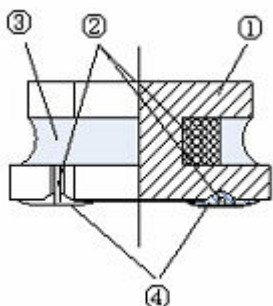
For Max. Value, $\Delta T < 40^\circ\text{C}$; for Typ. Value, ΔT is approximate 40℃.

The part temperature (ambient + temp. rise) should not exceed 125℃ under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

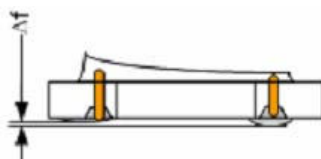
Absolute Maximum Voltage : DC 40V

6. Structure

The structure of HNR3015 product.



NO.	Components	Material	Manufacturer
①	Core	Soft magnetic Metal	DALANG
②	Wire	Polyurethane system enameled copper wire	ELEKTRISOLA
③	Magnetic Glue	Epoxy resin and magnetic powder	Daejoo
④	Electrodes	AgNiSn or FeNiCu + Sn Alloy	



△f: Clearance between terminal and the surface of plate must be 0.1mm max when coil is placed on a flat plate.

1. Scope

This specification applies to the HNR4020 Series of wire wound SMD power inductor.

2. Product Description and Identification (Part Number)

1) Description:

HNR4020 series of Wire wound SMD power inductor.

2) Product Identification (Part Number)

<u>HNR</u>	<u>4020</u>	-	<u>2R2</u>	<u>M</u>	<u>I</u>
①	②		③	④	⑤

①	Type
HNR	Metal Alloy Inductor

②	External Dimensions(L×W×H) 【mm】
4020	4.0×4.0×2.0

③	Nominal Inductance
Example	Example
1R0	1.0uH
100	10uH
101	100uH

④	Inductance Tolerance
N	± 30%
M	± 20%

⑤	Packing
T	Tape Carrier Package

3. Electrical Characteristics

Please refer to Item 5.

- Operating temperature range (individual chip without packing): -40℃ ~ +125℃ (Including Self-heating) .
- Storage temperature range (packaging conditions): -10℃ ~ +40℃ and RH 70% (Max.).

4. Shape and Dimensions (Unit:mm)

Dimensions and recommended PCB pattern for reflow soldering, please see Fig4-1 and Table4-1

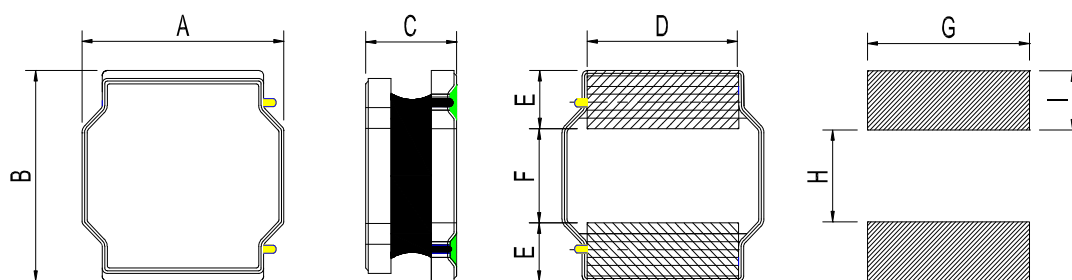


Fig4-1.

Table 4-1.

A	B	C	D	E	F	G	H	I
4.0 ± 0.2	4.0 ± 0.2	2.0Max	3.3±0.2	1.0±0.2	2.0±0.2	3.7Ref	1.9Ref	1.1Ref

5. Electrical Characteristics

Part Number	Inductance	DC Resistance		Saturation Current		Heat Rating Current	
	1MHz/1V	Max.	Typ.	Max.	Typ.	Max.	Typ.
Units	uH	Ω	Ω	A	A	A	A
Symbol	L	DCR		Isat		Irms	
HNR4020-R24MT	$0.24 \pm 20\%$	0.017	0.013	14.0	17.0	6.00	7.00
HNR4020-R33MT	$0.33 \pm 20\%$	0.020	0.015	13.0	16.0	5.90	6.80
HNR4020-R47MT	$0.47 \pm 20\%$	0.022	0.016	11.0	12.0	5.90	6.80
HNR4020-R68MT	$0.68 \pm 20\%$	0.0245	0.0192	9.00	11.5	5.80	6.70
HNR4020-1R0MT	$1.0 \pm 20\%$	0.028	0.023	8.70	11.0	5.80	6.70
HNR4020-1R5MT	$1.5 \pm 20\%$	0.038	0.032	7.70	9.60	5.20	6.00
HNR4020-2R2MT	$2.2 \pm 20\%$	0.056	0.046	6.00	7.50	4.00	4.80
HNR4020-3R3MT	$3.3 \pm 20\%$	0.088	0.073	4.70	5.90	3.40	4.00
HNR4020-4R7MT	$4.7 \pm 20\%$	0.115	0.095	4.00	4.90	2.85	3.30
HNR4020-6R8MT	$6.8 \pm 20\%$	0.160	0.130	3.00	4.20	2.40	2.80
HNR4020-8R2MT	$8.2 \pm 20\%$	0.220	0.175	2.90	3.80	2.10	2.40
HNR4020-100MT	$10 \pm 20\%$	0.220	0.190	2.80	3.50	2.00	2.35
HNR4020-150MT	$15 \pm 20\%$	0.400	0.305	2.10	2.80	1.00	1.20
HNR4020-220MT	$22 \pm 20\%$	0.545	0.415	1.30	1.50	0.95	1.10

Note:※1: Rated current: Isat(max.)or Irms(max.),whichever is smaller;

※2: Saturation Current: Max. Value, DC current at which the inductance drops less than 30% from its value without current; Typ. Value, DC current at which the inductance drops 30% from its value without current;

※3: Irms: DC current that causes the temperature rise (ΔT) from 20°C ambient.

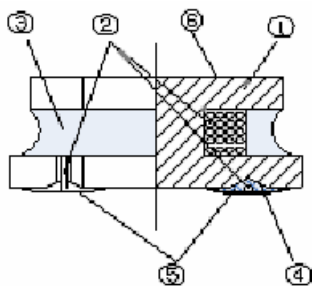
For Max. Value, $\Delta T < 40^\circ\text{C}$; for Typ. Value, ΔT is approximate 40°C .

The part temperature (ambient + temp. rise) should not exceed 125°C under worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

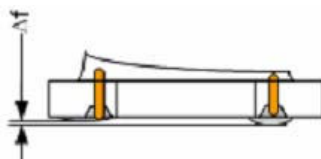
Absolute Maximum Voltage : DC 40V

6. Structure

The structure of HNR4020 product.



NO.	Components	Material
①	Core	Soft magnetic Metal
②	Wire	Polyurethane system enameled copper wire
③	Magnetic Glue	Epoxy resin and magnetic powder
④	Substrate	FeNiCu/Ag
⑤	Top Electrodes	Sn alloy
⑥	Marking	Nitrocellulose



Δf : Clearance between terminal and the surface of plate must be 0.1mm max when coil is placed on a flat plate.