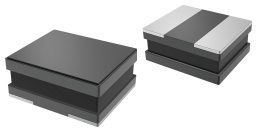
MetalLions

MNR2520** Series
Wire Wound SMD Power Inductors

FEATURES

- Magnetic-resin shielded construction reduces buzz noise to ultra-low levels
- Metallization on ferrite core results in excellent shock resistance and damage-free durability
- Closed magnetic circuit design reduces leakage flux and Electro Magnetic Interference (EMI)
- 30% higher current rating than conventional inductors of equal size
- Takes up less PCB real estate and save more power
- Operate temperature range .... －40℃～＋125℃(Including self temp. rise)
- RoHS compliant



APPLICATIONS

- Smart phone, smart TV, set top box, notebook
- Car navigation systems, telecomm base stations
- VR, AR
- LED lighting

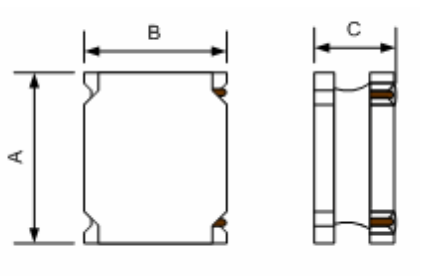
Explanation of Part Number

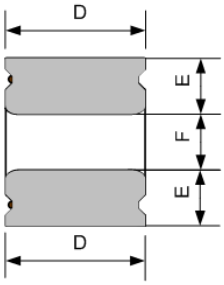
MNR -252010 T1R0 M T

1 2 3 4 5 6

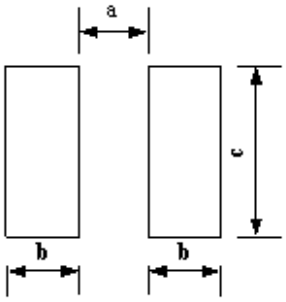
- 1:Product Series:Wire Wound SMD Power Inductors
- 2:Dimensions:
- 3: Feature Type:T Type
- 4: Initial inductance value: 1R0 = 1.0uH
- 5: Tolerance of Inductance:M:+/-20%， N:+/-30%
- 6:Packing:Tape Carrier Package

Dimensions: [mm]





Recommended Land Pattern



Unit: mm

Series	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
MNR252010	2.5±0.1	2.0±0.1	1.0 Max.	2.0±0.2	0.80±0.2	0.80±0.2	0.80	0.85	2.0
MNR252012	2.5±0.1	2.0±0.1	1.2 Max.	2.0±0.2	0.80±0.2	0.80±0.2	0.80	0.85	2.0

Electrical Characteristics List

MNR252010 Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current*3		Heat Rating Current *4	
	@100kHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
MNR252010TR47NT	0.47±30%	0.056	0.047	206	2.50	3.35	2.35	2.56
MNR252010TR56NT	0.56±30%	0.072	0.060	160	2.90	3.20	2.00	2.18
MNR252010TR68NT	0.68±30%	0.074	0.062	129	2.20	2.75	2.00	2.18
MNR252010T1R0MT	1.0±20%	0.108	0.090	100	1.85	2.20	1.65	1.80
MNR252010T1R5MT	1.5±20%	0.182	0.152	81	1.80	2.10	1.30	1.42
MNR252010T2R2MT	2.2±20%	0.209	0.174	61	1.20	1.60	1.20	1.31
MNR252010T3R3MT	3.3±20%	0.328	0.273	47	1.05	1.30	0.90	0.98
MNR252010T4R7MT	4.7±20%	0.563	0.469	42	0.95	1.15	0.70	0.76
MNR252010T5R6MT	5.6±20%	0.563	0.469	35	0.80	0.95	0.73	0.80
MNR252010T6R8MT	6.8±20%	0.896	0.747	31	0.78	0.92	0.59	0.64
MNR252010T100MT	10±20%	1.092	0.910	27	0.65	0.78	0.50	0.55

MNR252012 Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current*3		Heat Rating Current *4	
	@100kHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Max.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
MNR252012TR47NT	0.47±30%	0.061	0.047	160	3.82	4.27	2.15	2.34
MNR252012TR68NT	0.68±30%	0.074	0.057	140	3.28	3.68	1.95	2.13
MNR252012T1R0MT	1.0±20%	0.090	0.069	110	2.59	2.90	1.93	2.10
MNR252012T1R2MT	1.2±20%	0.129	0.099	100	2.38	2.67	1.46	1.59
MNR252012T1R5MT	1.5±20%	0.147	0.113	97	2.24	2.51	1.40	1.53
MNR252012T2R2MT	2.2±20%	0.216	0.166	69	1.85	2.07	1.15	1.25
MNR252012T2R7MT	2.7±20%	0.239	0.184	63	1.72	1.92	1.09	1.19
MNR252012T3R3MT	3.3±20%	0.264	0.203	62	1.61	1.80	1.04	1.13
MNR252012T3R6MT	3.6±20%	0.348	0.268	53	1.46	1.64	0.90	0.98
MNR252012T4R3MT	4.3±20%	0.377	0.290	51	1.37	1.53	0.87	0.95
MNR252012T4R7MT	4.7±20%	0.377	0.290	47	1.12	1.25	0.84	0.92
MNR252012T5R1MT	5.1±20%	0.500	0.385	44	1.23	1.37	0.75	0.82
MNR252012T5R6MT	5.6±20%	0.538	0.414	38	1.11	1.25	0.73	0.80
MNR252012T6R2MT	6.2±20%	0.542	0.417	38	1.03	1.16	0.73	0.80
MNR252012T6R8MT	6.8±20%	0.581	0.447	38	0.98	1.09	0.69	0.75
MNR252012T7R5MT	7.5±20%	0.611	0.470	35	0.97	1.09	0.68	0.74
MNR252012T8R2MT	8.2±20%	0.658	0.506	36	0.98	1.10	0.65	0.71
MNR252012T9R1MT	9.1±20%	0.690	0.531	34	0.91	1.02	0.62	0.68
MNR252012T100MT	10±20%	0.690	0.531	34	0.79	0.88	0.62	0.68
MNR252012T120MT	12±20%	1.075	0.827	28	0.78	0.88	0.51	0.56
MNR252012T150MT	15±20%	1.591	1.224	25	0.68	0.77	0.42	0.46
MNR252012T220MT	22±20%	1.976	1.520	20	0.53	0.59	0.38	0.41

※1: All test data is referenced to 20°C ambient;

※2: Rated current: Isat or Irms, whichever is smaller;

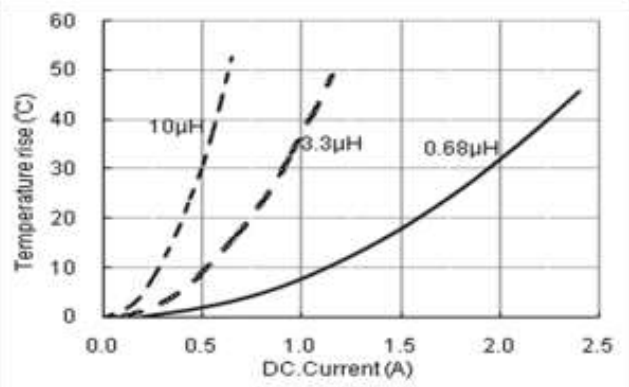
※*3: Isat: DC current at which the inductance drops approximate 30% from its value without current;

※*4: Irms: DC current that causes the temperature rise (△T =40°C) from 20°C ambient.

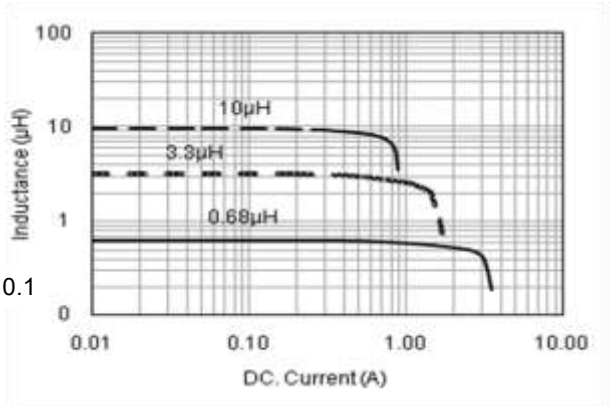
TYPICAL ELECTRICAL CHARACTERISTICS

MNR252010 Series

Temperature vs. DC Current Characteristics

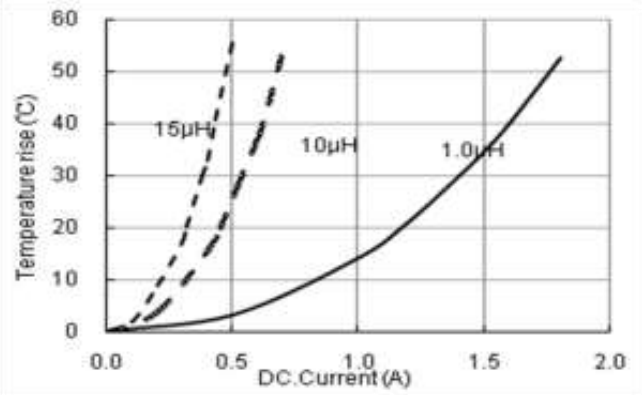


Inductance vs. DC Current Characteristics

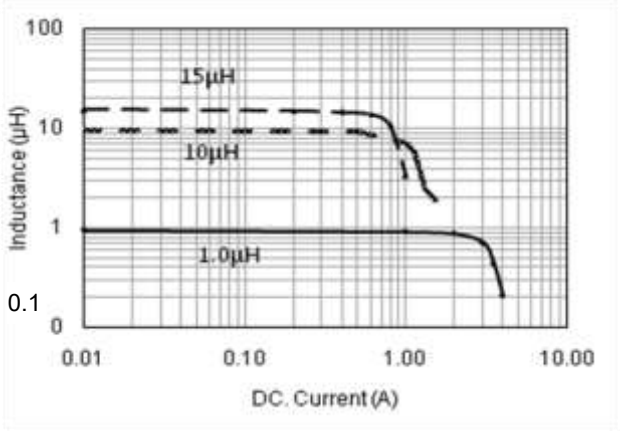


MNR252012 Series

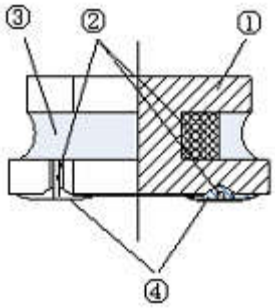
Temperature vs. DC Current Characteristics



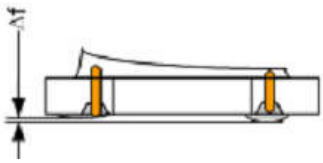
Inductance vs. DC Current Characteristics



Structure



NO.	Components	Material
①	Core	Ni-Zn Ferrite
②	Wire	Polyurethane system enameled copper wire
③	Magnetic Glue	Epoxy resin and magnetic powder
④	Electrodes	AgNiSn or FeNiCu + Sn Alloy



Δf:Clearancebetweenterminalandthesurfaceofplatemustbe0.1mmmaxwhencoilisplacedonaflatplate.

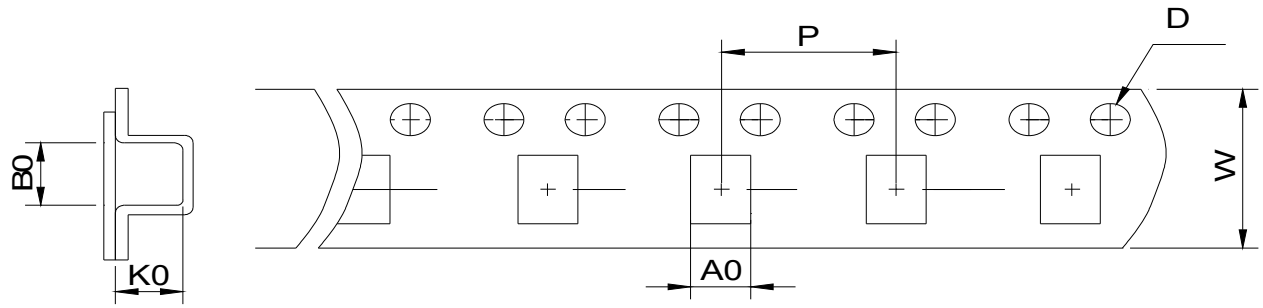
Reliability Test

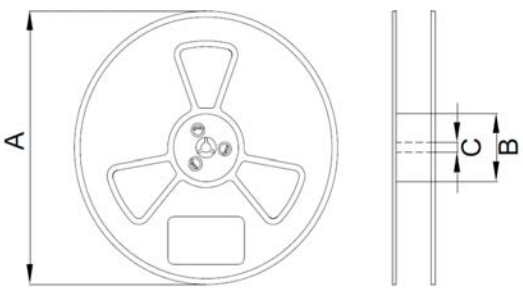
TEST ITEM	SPECIFICATION	TEST CONDITION
Withstanding voltage test	After test, inductors shall have no evidence of electrical and mechanical damage.	AC voltage of 100v and AC current of 1mA applied between inductor's terminal and core for 3 secs.
Resistance to soldering heat	1. Inductor shall have no eviden of electrical and mechanical damage. 2. Inductance shall not chan more than ±5%. 3. Q shall not change more than 20%.	a. Temp: 260±5 b. Time: 10±1.0 se
Solderability test	The terminal shall be at least 95% covered with solder.	After fluxing, the terminal shall be dipped in a melted solder bath at 245±5℃ for 4±1.0 secs.
High temperature & high humidity test	The anti-erosion quality of the surface and the specimen's inductance shall not change from the initial value within ±10%	a. Test conditi 1)Temp.:85℃, R.H.:85% 2)Time:144±2hours b. Measurement method The experimental component should be put at normal condition for 2 hours then to measure again after test
Salt spray test		a. Test conditi 1)Temp.:35±2℃ 2)Time:48±2hours 3)Salt solution PH:6.5~7.2 b. Measurement method The experimental component should be put at normal condition for 2 hours then to measure again after test
Vibration test	1. Inductance shall be within 10% of the initial value. 2. Appearance:no dama	a. Frequency: 10 to 55 b. Amplitude: 1.5 c. Direction and tim X, Y and Z directions for 2 hours each.

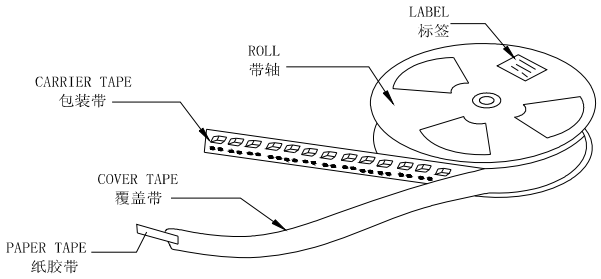
TEST ITEM	SPECIFICATION	TEST CONDITION
Free fall test	No mechanical damage shall be noticed.	Drop 5 times on a concrete floor from lm the height
Temperature Cycling test	1. Inductance shall be within 10% of the initial value 2. Appearance:No dama	a. Test conditi 1)Temp.:-55℃,time:30±3min 2)Temp.:+125℃,time: 30±3min 3)Cycles times:12 cycles b. Measurement method The experimental component should be put at normal condition for 2 hours then to measure again after test
High Temperature resistance test		a. Test conditi 1)Applied rated current 2)Temp.:85℃±2℃ 3)Test time:1000+24/-0H b. Measurement method The experimental component should be put at normal condition for 24 hours then to measure again after test.
Low temperature resistance test		a. Test conditi 1)Temp.:-55℃±2℃ 2)Test time:1000+24/-0H b. Measurement method The experimental component should be put at normal condition for 24 hours then to measure again after test.

We have suggested the storage period of lead-free product should not over 6 months.

PACKAGING SPECIFICATION :







Type	Tape Dimension (mm)						Reel Dimension (mm)			Quantity (Pcs/Reel)
	W	A0	B0	K0	D	P	A	B	C	
MNR252010	8	2.4	2.9	1.35	1.5	4	178	58	13	2000
MNR252012	8	2.4	2.9	1.35	1.5	4	178	58	13	2000

Re-flowing Profile: