

MNR80** 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 $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ (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

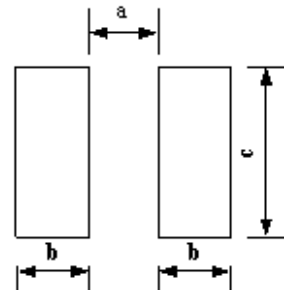
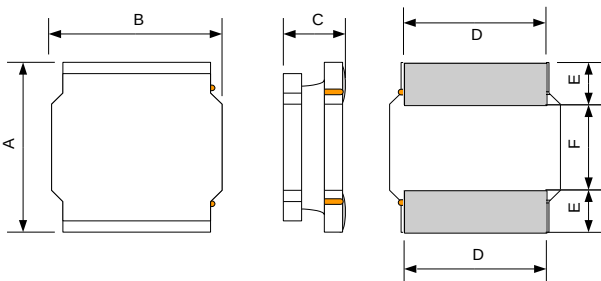
MNR 8040 T1R0 M T

1 2 3 4 5 6

- ◆ 1:Product Series:Wire Wound SMD Power Inductors
- ◆ 2:Dimensions:
- ◆ 3: Feature Type:T S Type
- ◆ 4: Initial inductance value: 1R0 = 1.0uH
- ◆ 5: Tolerance of Inductance:M:±20%
- ◆ 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.
MNR8040	8.0±0.3	8.0±0.3	4.2 Max.	6.3±0.3	2.00±0.3	4.0±0.3	3.8	2.2	7.5
MNR8065	8.0±0.3	8.0±0.3	6.5 Max.	6.3±0.3	2.00±0.3	4.0±0.3	3.8	2.2	7.5

Electrical Characteristics List

MNR8040 Series

Part NO.	Tolerance (μH)	Test Freq. (kHz/v)	DCR Max (Ω)	Isat (A)	Irms (A)
MNR8040TR47MT	0.47	100/1	0.007	12.0	7.00
MNR8040TR68MT	0.68	100/1	0.011	10.0	6.30
MNR8040TR82MT	0.82	100/1	0.011	9.80	6.30
MNR8040T1R0MT	1.0	100/1	0.011	9.80	6.30
MNR8040T1R5MT	1.5	100/1	0.014	7.70	5.65
MNR8040T2R0MT	2.0	100/1	0.016	7.10	5.15
MNR8040T2R2MT	2.2	100/1	0.016	7.10	5.15
MNR8040T2R6MT	2.6	100/1	0.017	7.10	4.60
MNR8040T3R0MT	3.0	100/1	0.022	6.50	4.40
MNR8040T3R3MT	3.3	100/1	0.022	6.50	4.40
MNR8040T3R6MT	3.6	100/1	0.024	6.30	4.35
MNR8040T3R9MT	3.9	100/1	0.024	6.30	4.35
MNR8040T4R7MT	4.7	100/1	0.026	5.90	4.00
MNR8040T5R1MT	5.1	100/1	0.031	5.50	3.80
MNR8040T5R6MT	5.6	100/1	0.031	5.50	3.80
MNR8040T6R8MT	6.8	100/1	0.036	4.50	3.60
MNR8040T8R2MT	8.2	100/1	0.046	4.20	3.40
MNR8040T100MT	10	100/1	0.048	3.60	3.10
MNR8040T120MT	12	100/1	0.065	3.40	2.70
MNR8040T150MT	15	100/1	0.073	2.90	2.50
MNR8040T180MT	18	100/1	0.092	2.70	2.20
MNR8040T220MT	22	100/1	0.096	2.40	2.00
MNR8040T270MT	27	100/1	0.101	2.15	1.90
MNR8040T330MT	33	100/1	0.130	2.00	1.70
MNR8040T390MT	39	100/1	0.163	1.95	1.65
MNR8040T430MT	43	100/1	0.147	1.90	1.55
MNR8040T470MT	47	100/1	0.177	1.70	1.50
MNR8040T510MT	51	100/1	0.230	1.60	1.30
MNR8040T560MT	56	100/1	0.230	1.60	1.30
MNR8040T620MT	62	100/1	0.250	1.50	1.25
MNR8040T680MT	68	100/1	0.255	1.40	1.20
MNR8040T720MT	72	100/1	0.338	1.40	1.15
MNR8040T750MT	75	100/1	0.338	1.40	1.15

Part NO.	Tolerance (μH)	Test Freq. (kHz/v)	DCR Max (Ω)	Isat (A)	Irms (A)
MNR8040T800MT	80	100/1	0.345	1.30	1.10
MNR8040T820MT	82	100/1	0.345	1.30	1.10
MNR8040T910MT	91	100/1	0.354	1.20	1.00
MNR8040T101MT	100	100/1	0.377	1.15	1.00
MNR8040T121MT	120	100/1	0.421	1.12	0.90
MNR8040T151MT	150	100/1	0.533	1.10	0.80
MNR8040T181MT	180	100/1	0.676	0.95	0.75
MNR8040T201MT	200	100/1	0.760	0.92	0.72
MNR8040T221MT	220	100/1	0.779	0.85	0.70
MNR8040T271MT	270	100/1	1.027	0.74	0.65
MNR8040T331MT	330	100/1	1.261	0.68	0.60
MNR8040T391MT	390	100/1	1.560	0.65	0.55
MNR8040T471MT	470	100/1	1.625	0.60	0.50
MNR8040T561MT	560	100/1	2.210	0.55	0.45
MNR8040S681MT	680	100/1	2.670	0.52	0.40
MNR8040S751MT	750	100/1	3.250	0.50	0.38
MNR8040S821MT	820	100/1	3.640	0.45	0.35
MNR8040S102MT	1000	100/1	3.800	0.40	0.30
MNR8040S122MT	1200	100/1	4.68	0.37	0.29
MNR8040S132MT	1300	100/1	5.33	0.36	0.28
MNR8040S152MT	1500	100/1	6.54	0.35	0.26
MNR8040S202MT	2000	100/1	8.71	0.30	0.23
MNR8040S222MT	2200	100/1	9.960	0.27	0.23
MNR8040S272MT	2700	100/1	11.96	0.25	0.20
MNR8040S402MT	4000	100/1	19.20	0.22	0.17
MNR8040S472MT	4700	100/1	20.80	0.21	0.15
MNR8040S502KT	5000	100/1	22.40	0.15	0.14
MNR8040S103MT	10000	100/1	54.60	0.12	0.09

※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 ($\Delta T = 40^{\circ}\text{C}$) from 20°C ambient.

MNR8065 Series

Part NO.	Tolerance(uH)	Test Freq. (kHz/v)	DCR Max (Ω)	Isat (A)	Irms (A)
MNR8065TR68MT	0.68	100/1	0.012	20.0	12.0
MNR8065T1R0MT	1.0	100/1	0.015	10.0	6.00
MNR8065T2R2MT	2.2	100/1	0.018	10.0	5.50
MNR8065T3R3MT	3.3	100/1	0.022	10.0	5.10
MNR8065T4R7MT	4.7	100/1	0.025	9.00	4.70
MNR8065T5R6MT	5.6	100/1	0.027	8.30	4.60
MNR8065T6R8MT	6.8	100/1	0.029	7.50	4.50
MNR8065T7R8MT	7.8	100/1	0.033	7.00	4.10
MNR8065T8R2MT	8.2	100/1	0.039	6.50	3.80
MNR8065T100MT	10	100/1	0.047	6.00	3.60
MNR8065T150MT	15	100/1	0.064	5.00	3.50
MNR8065T220MT	22	100/1	0.082	4.00	3.20
MNR8065T330MT	33	100/1	0.110	3.40	2.50
MNR8065T470MT	47	100/1	0.163	2.80	2.30
MNR8065T560MT	56	100/1	0.195	2.60	1.90
MNR8065T680MT	68	100/1	0.234	2.25	1.55
MNR8065T820MT	82	100/1	0.260	2.10	1.45
MNR8065T101MT	100	100/1	0.338	1.90	1.40
MNR8065T151MT	150	100/1	0.441	1.60	1.05
MNR8065T221MT	220	100/1	0.715	1.25	0.60
MNR8065T241MT	240	100/1	0.741	1.20	0.58
MNR8065T331MT	330	100/1	1.08	1.10	0.56
MNR8065T471MT	470	100/1	1.56	0.87	0.54
MNR8065T681MT	680	100/1	2.21	0.75	0.50
MNR8065S102MT	1000	100/1	3.25	0.62	0.40
MNR8065S152MT	1500	100/1	4.68	0.50	0.38
MNR8065S202MT	2000	100/1	6.37	0.40	0.34
MNR8065S222MT	2200	100/1	6.63	0.38	0.31
MNR8065S252MT	2500	100/1	8.190	0.35	0.28
MNR8065S302MT	3000	100/1	10.53	0.34	0.24
MNR8065S332MT	3300	100/1	10.80	0.30	0.22
MNR8065S472MT	4700	100/1	15.34	0.27	0.20
MNR8065S602MT	6000	100/1	17.81	0.25	0.18
MNR8065S682MT	6800	100/1	23.40	0.21	0.15
MNR8065S103MT	10000	100/1	36.40	0.17	0.11

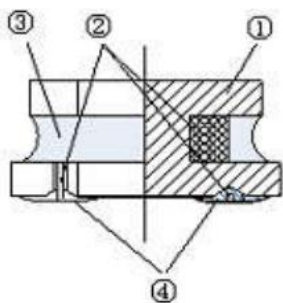
Reliability Test

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 $\pm 5\%$. 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 $245 \pm 5^\circ\text{C}$ 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 $\pm 10\%$	a. Test conditi 1)Temp.: 85°C , R.H.:85% 2)Time: 144 ± 2 hours 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.: $35 \pm 2^\circ\text{C}$ 2)Time: 48 ± 2 hours 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 1m the height
Temperature Cycling test	1. Inductance shall be within 10% of the initial value 2. Appearance: No damage	a. Test condition 1) Temp.: -55°C , time: $30 \pm 3\text{min}$ 2) Temp.: $+125^{\circ}\text{C}$, time: $30 \pm 3\text{min}$ 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 condition 1) Applied rated current 2) Temp.: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 3) Test time: $1000 + 24/-0\text{H}$ 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 condition 1) Temp.: $-55^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 2) Test time: $1000 + 24/-0\text{H}$ b. Measurement method The experimental component should be put at normal condition for 24 hours then to measure again after test.

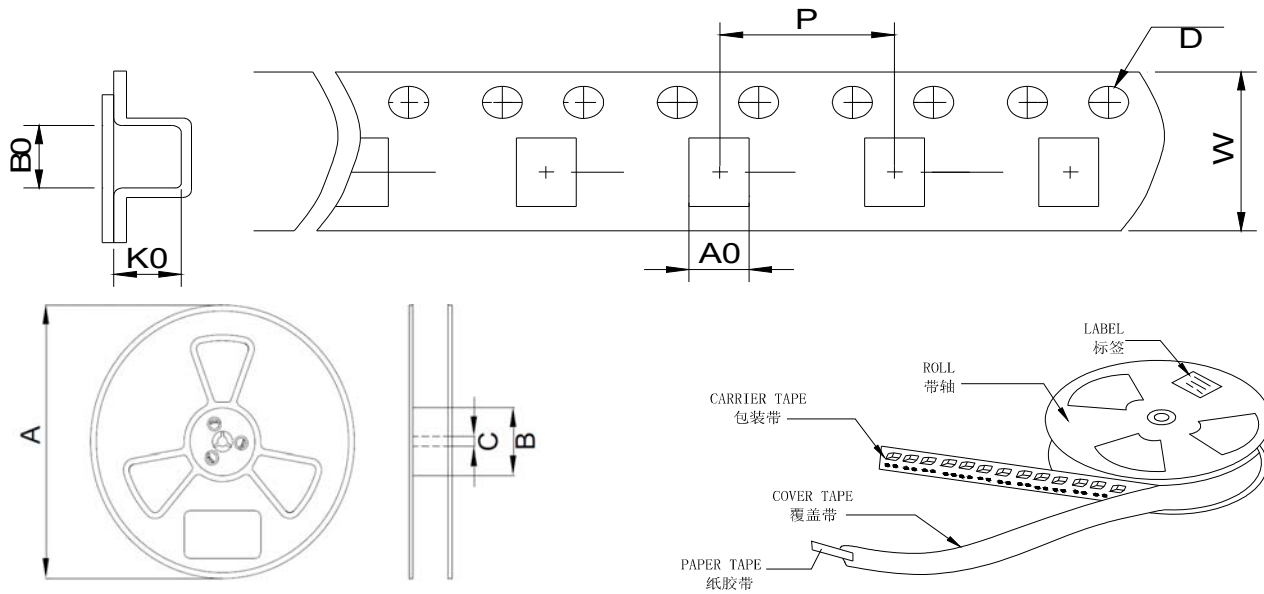
We have suggested the storage period of lead-free product should not over 6 months.

Structure (The structure of product.)



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

PACKAGING SPECIFICATION :



Type	Tape Dimension (mm)						Reel Dimension (mm)			Quantity (Pcs/Reel)
	W	A0	B0	K0	D	P	A	B	C	
MNR8040	16	8.4	8.4	4.5	1.5	12	330	100	13	1000
MNR8065	16	8.4	8.4	6.8	1.5	12	330	100	13	800

Re-flowing Profile:

