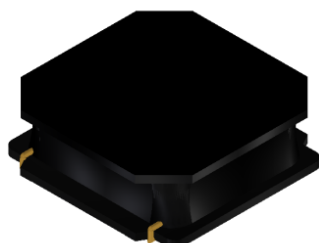
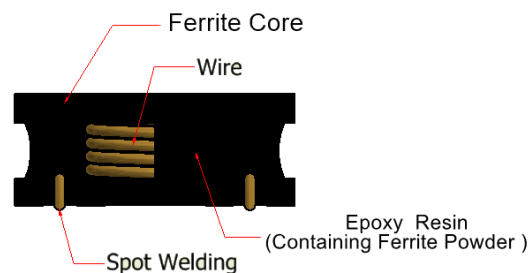


MNR60series



CONSTRUCTION



FEATURES

Magnetically structure
Low DC resistance
Large Current Capability

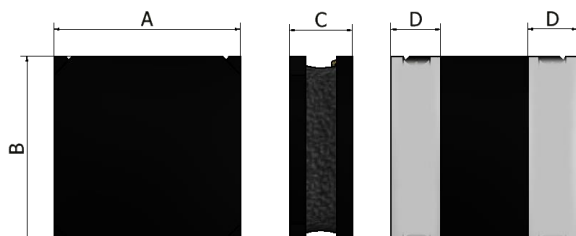
APPLICATIONS

Hard Disk Drives
Car audio equipment
Tablet PC
Navigation system
SSD
Touch Panel

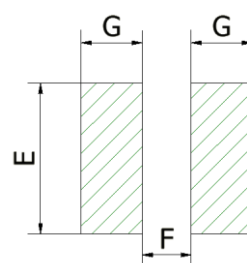
SPECIFICATIONS

Operating temperature range	-40 to +125°C
Storage temperature range	Under 25°C
Packaging style	Taping
Quantities	1,000~2000 pieces/reel

SHAPE AND DIMENSIONS



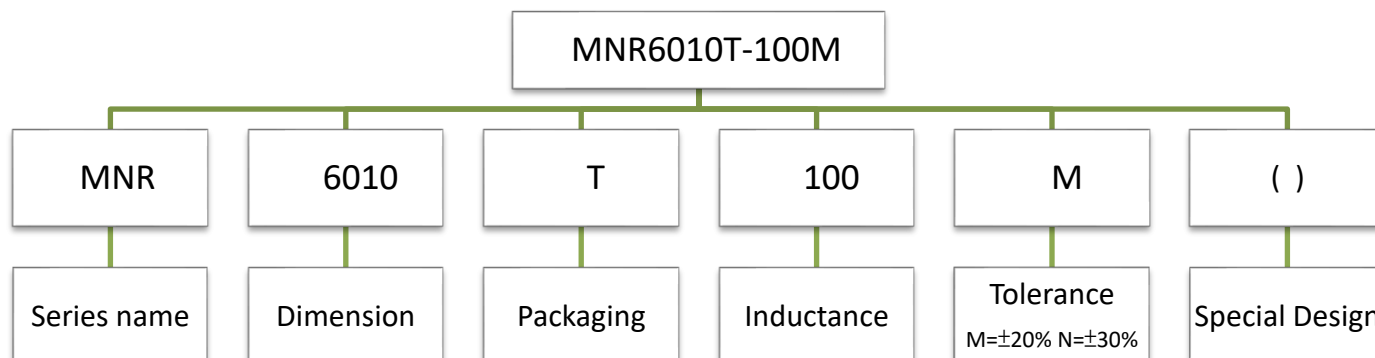
RECOMMENDED PATTERN



(Unit: mm)

TYPE	A	B	C	D	E	F	G
MNR6010	6.0±0.1	6.0±0.1	1.0max	1.4±0.2	6.2	2.8	1.8
MNR6012	6.0±0.1	6.0±0.1	1.2max	1.4±0.2	6.2	2.8	1.8
MNR6020	6.0±0.1	6.0±0.1	2.0±0.2	1.4±0.2	6.2	2.8	1.8
MNR6045	6.0±0.1	6.0±0.1	4.6±0.2	1.6±0.2	6.2	2.8	1.8

PRODUCT IDENTIFICATION (ex.)



SMD Wire Wound Power Inductors



ELECTRICAL CHARACTERISTICS

Part No.	Inductance (uH)	Inductance tolerance	Test Frequency (kHz)	DC Resistance (Ω) ±20%	Saturation current Isat(mA)		Temperature rise current Irms(mA)	
					Typ.	Max.	Typ.	Max.
MNR6010T-2R2M	2.2	±20%	100	0.155	2200	1900	1900	1700
MNR6010T-3R3M	3.3	±20%	100	0.205	1900	1600	1600	1450
MNR6010T-4R7M	4.7	±20%	100	0.277	1650	1350	1500	1400
MNR6010T-6R8M	6.8	±20%	100	0.450	1600	1300	1220	1150
MNR6010T-8R2M	8.2	±20%	100	0.390	1200	1100	1210	1100
MNR6010T-100M	10	±20%	100	0.400	1200	1000	1200	1050

Part No.	Inductance (uH)	Inductance tolerance	Test Frequency (kHz)	DC Resistance (Ω) ±20%	Saturation current Isat(mA)		Temperature rise current Irms(mA)	
					Typ.	Max.	Typ.	Max.
MNR6012T-2R2N	2.2	±30%	100	0.090	2800	2100	2100	1730
MNR6012T-3R3M	3.3	±20%	100	0.120	2500	1800	1900	1700
MNR6012T-4R7M	4.7	±20%	100	0.125	2000	1500	1850	1550
MNR6012T-5R6M	5.6	±20%	100	0.145	1850	1500	1750	1400
MNR6012T-6R8M	6.8	±20%	100	0.165	1600	1300	1350	1180
MNR6012T-100M	10	±20%	100	0.235	1300	1000	1250	1000
MNR6012T-150M	15	±20%	100	0.330	1100	800	1000	790
MNR6012T-220M	22	±20%	100	0.465	900	760	750	630
MNR6012T-330M	33	±20%	100	0.700	750	590	670	530
MNR6012T-470M	47	±20%	100	1.050	610	520	540	460
MNR6012T-680M	68	±20%	100	1.350	530	440	450	410
MNR6012T-101M	100	±20%	100	2.180	450	350	380	320

Part No.	Inductance (uH)	Inductance tolerance	Test Frequency (kHz)	DC Resistance (Ω) ±30%	Saturation current Isat(mA)		Temperature rise current Irms(mA)	
					Typ.	Max.	Typ.	Max.
MNR6020T-R90N	0.9	±30	100	0.018	6300	5000	4200	4000
MNR6020T-1R0N	1.0	±30	100	0.019	6200	4900	4100	3900
MNR6020T-1R5N	1.5	±30	100	0.026	5000	4000	3600	3200
MNR6020T-2R2N	2.2	±30	100	0.034	4200	3500	3200	2900
MNR6020T-3R3N	3.3	±30	100	0.040	3200	3000	2700	2400
MNR6020T-4R7N	4.7	±30	100	0.058	2500	2300	2200	2000
MNR6020T-6R8M	6.8	±20	100	0.085	2200	2000	1800	1650
MNR6020T-100M	10	±20	100	0.125	2000	1800	1600	1450
MNR6020T-150M	15	±20	100	0.190	1300	1100	1300	1100
MNR6020T-220M	22	±20	100	0.260	1100	900	1100	900

SMD Wire Wound Power Inductors



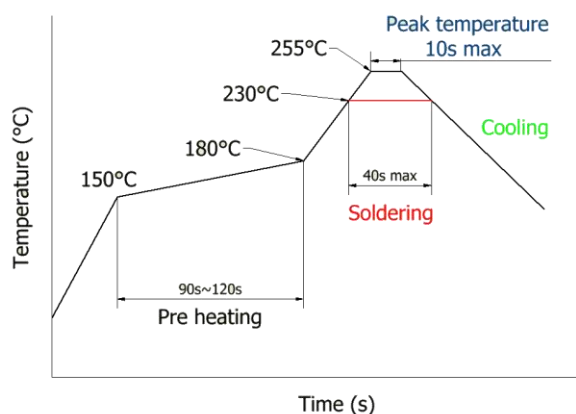
Part No.	Inductance (uH)	Inductance tolerance	Test Frequency (kHz)	DC Resistance (Ω) ± 30%	Saturation current Isat(mA)		Temperature rise current Irms(mA)	
					Typ.	Max.	Typ.	Max.
MNR6045T-1R0N	1.0	±30	100	0.011	9850	9700	5140	5000
MNR6045T-1R5N	1.5	±30	100	0.012	8800	8650	4950	4700
MNR6045T-2R2N	2.2	±30	100	0.014	6750	6600	4600	4400
MNR6045T-3R3M	3.3	±20	100	0.024	5900	5700	3700	3500
MNR6045T-4R7M	4.7	±20	100	0.031	4970	4800	3300	3100
MNR6045T-6R8M	6.8	±20	100	0.035	3900	3800	3000	2900
MNR6045T-100M	10	±20	100	0.048	3200	3100	2450	2300
MNR6045T-150M	15	±20	100	0.068	2500	2400	2050	1950
MNR6045T-220M	22	±20	100	0.089	2050	1850	1800	1700
MNR6045T-330M	33	±20	100	0.137	1650	1550	1450	1350
MNR6045T-470M	47	±20	100	0.200	1400	1350	1200	1100
MNR6045T-680M	68	±20	100	0.289	1200	1100	1000	950
MNR6045T-820M	82	±20	100	0.341	1050	1050	900	900
MNR6045T-101M	100	±20	100	0.433	950	950	800	800
MNR6045T-121M	120	±20	100	0.484	850	850	770	770
MNR6045T-151M	150	±20	100	0.580	800	800	700	700
MNR6045T-221M	220	±20	100	0.834	700	700	590	590
MNR6045T-331M	330	±20	100	1.270	570	570	570	570
MNR6045T-471M	470	±20	100	1.800	500	500	420	420
MNR6045T-681M	680	±20	100	2.500	420	420	330	330
MNR6045T-102M	1000	±20	100	4.500	300	300	300	300
MNR6045T-152M	1500	±20	100	6.500	240	240	210	210

*The saturation current value (Isat) is the DC current value having inductance decrease down to 30% (at 25°C)

*The temperature rise current value (Irms) is the DC current value having temperature increase up to 40°C (at 25°C)

*Rated current: smaller value of either Isat or Irms.

RECOMMENDED SOLDERING CONDITIONS

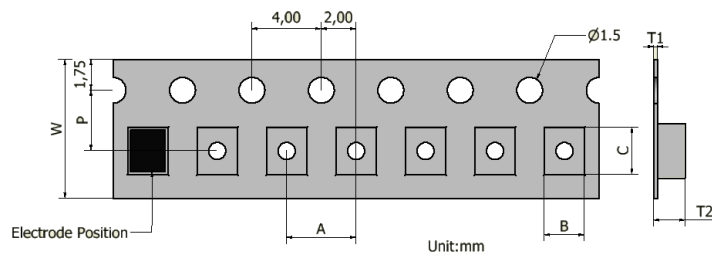


SMD Wire Wound Power Inductors



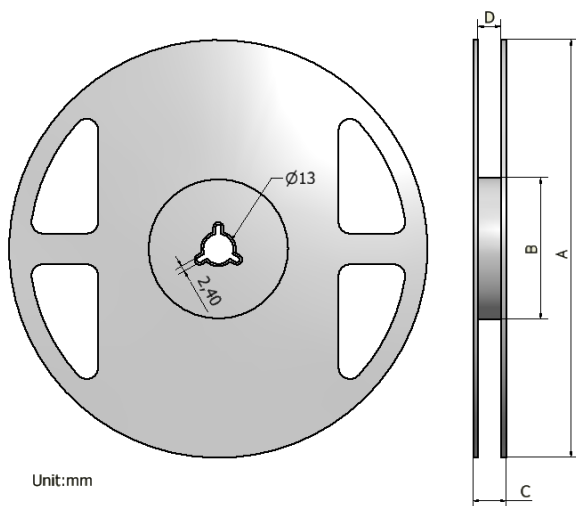
PACKAGE

(1) Taping specifications



Type	W	P	A	B	C	T1	T2
MNR6010	12	5.5	8.0	6.3	6.3	0.35	1.4
MNR6012	12	5.5	8.0	6.3	6.3	0.35	1.6
MNR6020	16	7.5	12.0	7.0	7.0	0.35	2.4
MNR6045	16	7.5	12.0	7.0	7.0	0.35	4.9

(2) Reel Specifications



Type	A	B	C	D	Q'ty/Reel
MNR6010	180±0.1	60±0.1	14.5±0.1	10±0.15	2000
MNR6012	180±0.1	60±0.1	14.5±0.1	10±0.15	2000
MNR6020	330±1.5	75±2.0	17.5±0.5	12.5±0.5	2000
MNR6045	330±1.5	75±2.0	17.5±0.5	12.5±0.5	1500

Label

Wire Wound Power Inductors
MNR60□□T-□□□M/N
□□□□PCS
Lot No. _____
MORITEK TECHNICAL CO., LTD.

Type	Q'ty
PCS/Reel	1500~2000
Reel/inner Box	9000~10000
Inner Box/Carton	45000~50000

RELIABILITY TEST

1-1.Mechanical Performance

No	Item	Specification	Test Method
1	Vibration	Appearance : No damage Inductance : within $\pm 10\%$ of initial value	Test device shall be soldered on the substrate Oscillation Frequency : 10 to 55 to 10Hz for 1min Amplitude : 1.5mm Time : 2hrs for each axis (X, Y & Z), total 6hrs
2	Resistance to Soldering Heat	Apperance : No damage	Pre-heating : 150°C, 1min Solder Composition : Sn/Ag3.0/Cu0.5 Solder Temperature : 260 ± 5 °C Immersion Time : 10 ± 1 sec
3	Solder ability	The electrodes shall be at least 90% covered with new solder coating	Pre-heating : 150°C, 1min Solder Composition : Sn/Ag3.0/Cu0.5 Solder Temperature : 245 ± 5 °C Immersion Time : 4 ± 1 sec
4	Resistance to solvent	There must be no change in appearance or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.

1-2.Environmental Performance

1-2.Environmental Performance

No	Item	Specification	Test Method														
1	Temperature Shock	Appearance : No damage Inductance : within±10% of initial value	10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to −55 °C 30 minutes exposure to 125 °C 15 seconds maximum transition between temperatures														
2	Temperature Cycle		One cycle : <table><tr><th>Step</th><th>Temperature (°C)</th><th>Time (min)</th></tr><tr><td>1</td><td>-25±3</td><td>30</td></tr><tr><td>2</td><td>25±2</td><td>3</td></tr><tr><td>3</td><td>85±3</td><td>30</td></tr><tr><td>4</td><td>25±2</td><td>3</td></tr></table> Total : 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (°C)	Time (min)	1	-25±3	30	2	25±2	3	3	85±3	30	4	25±2
Step	Temperature (°C)	Time (min)															
1	-25±3	30															
2	25±2	3															
3	85±3	30															
4	25±2	3															
3	Humidity Resistance		Temperature : 40±2°C Relative Humidity : 90 ~ 95% Time : 1000hrs Measured after exposure in the room condition for 24hrs														
4	Heat Life		Temperature : 85±3°C Relative Humidity : 20% Applied Current : Rated Current Time : 1000hrs Measured after exposure in the room condition for 24hrs														
5	Cold Resistance		Temperature : -25±3°C Relative Humidity : 0% Time : 1000hrs Measured after exposure in the room condition for 24hrs														