

## SMD Wire Wound Power Inductors---MRH Series



### Feature

- Metallization on Metal Alloy core result in excellent thermal shock.
- Magnetic-resin shielded construction reduce buzz noise to ultra-low levels.
- Closed magnetic circuit design reduces leakage flux and excellent for EMI.
- Operating temperature range  $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$  (Including self - temperature rise).

### Application

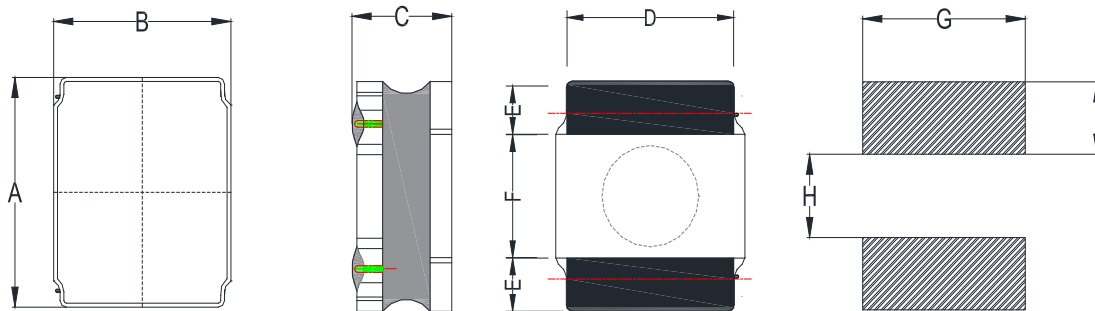
- Smart phone, MID, table terminal, HDDs, DCSs, VRMs.
- Set Top Boxes, Mobile power.
- Portable gaming device, navigation systems.

### Production identification

MRH    201610    S    -    2R2    M    T  
 ①            ②            ③            ④            ⑤            ⑥

- ① Series name
- ② Size:  $2.0 \times 1.6 \times 1.0\text{mm}$
- ③ Standard product
- ④ Inductance:  $2.2\mu\text{H}$
- ⑤ Tolerance:  $\pm 20\%$
- ⑥ Packing

### Series Shape and Dimensions (Unit:mm)

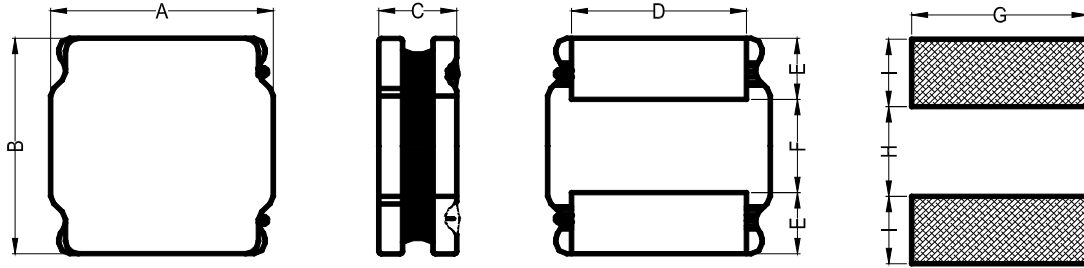


Series	A	B	C	D	E	F	$G_{\text{Typ}}$	$H_{\text{Typ}}$	$I_{\text{Typ}}$	SPQ
MRH201610	$2.0 \pm 0.2$	$1.6 \pm 0.2$	1.08Max	$1.50 \pm 0.2$	$0.6 \pm 0.2$	$0.8 \pm 0.2$	1.70	0.70	0.70	2000
MRH252010	$2.5 \pm 0.2$	$2.0 \pm 0.2$	1.05Max	$1.65 \pm 0.2$	$0.8 \pm 0.2$	$0.8 \pm 0.2$	2.00	0.80	0.85	2000
MRH252012	$2.5 \pm 0.2$	$2.0 \pm 0.2$	1.26Max	$1.65 \pm 0.2$	$0.8 \pm 0.2$	$0.8 \pm 0.2$	2.00	0.80	0.85	2000

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### Series Shape and Dimensions (Unit:mm)



Series	A	B	C	D	E	F	G <sub>Typ</sub>	H <sub>Typ</sub>	I <sub>Typ</sub>	SPQ
MRH3012	3.0±0.2	3.0±0.2	1.20Max	2.6±0.2	0.75±0.2	1.5±0.2	3.2	1.5	0.8	2000
MRH3015	3.0±0.2	3.0±0.2	1.60Max	2.6±0.2	0.75±0.2	1.5±0.2	3.2	1.5	0.8	2000
MRH3020	3.0±0.2	3.0±0.2	2.00Max	2.6±0.2	0.75±0.2	1.5±0.2	3.2	1.5	0.8	3000
MRH4012	4.0±0.2	4.0±0.2	1.20Max	3.1±0.2	0.95±0.2	2.1±0.2	3.7	1.9	1.1	4500
MRH4020	4.0±0.2	4.0±0.2	2.00Max	3.1±0.2	0.95±0.2	2.1±0.2	3.7	1.9	1.1	3000

### MRH201610 Electrical Characteristics

Part Number	Inductance (μH)	Tolerance (±%)	DCR(Ω)		Isat (A)		I <sub>rms</sub> (A)		Test Condition
			Max	Typ	Max	Typ	Max	Typ	
MRH201610S-R24MT	0.24	20	0.040	0.033	4.50	5.50	3.00	3.45	1MHz /1.0V
MRH201610S-R33MT	0.33	20	0.049	0.041	4.40	5.20	2.70	3.10	1MHz /1.0V
MRH201610S-R47MT	0.47	20	0.049	0.041	4.06	4.70	2.70	3.10	1MHz /1.0V
MRH201610S-R56MT	0.56	20	0.053	0.043	3.80	4.50	2.60	2.80	1MHz /1.0V
MRH201610S-R68MT	0.68	20	0.065	0.057	3.50	4.00	2.50	2.80	1MHz /1.0V
MRH201610S-1R0MT	1.0	20	0.095	0.078	3.30	3.80	2.00	2.30	1MHz /1.0V
MRH201610S-1R5MT	1.5	20	0.130	0.110	1.95	2.30	1.70	2.00	1MHz /1.0V
MRH201610S-2R2MT	2.2	20	0.180	0.160	1.90	2.15	1.40	1.60	1MHz /1.0V
MRH201610S-3R3MT	3.3	20	0.307	0.245	1.40	1.60	1.10	1.30	1MHz /1.0V
MRH201610S-4R7MT	4.7	20	0.425	0.370	1.10	1.40	0.90	1.00	1MHz /1.0V
MRH201610S-100MT	10	20	0.875	0.700	0.80	0.95	0.60	0.70	1MHz /1.0V

#### Notes:

1. I<sub>rms</sub>: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $20^{\circ}\text{C}$  ambient.
2. I<sub>sat</sub>: DC current at which the inductance drops approximate 30% from it's value without current.

## SMD Wire Wound Power Inductors---MRH Series



### MRH252010 Electrical Characteristics

Part Number	Inductance (μH)	Tolerance (±%)	DCR(Ω)		Isat (A)		I <sub>rms</sub> (A)		Test Condition
			Max	Typ	Max	Typ	Max	Typ	
MRH252010S-R24MT	0.24	20	0.033	0.025	6.10	7.10	3.70	4.50	1MHz /1.0V
MRH252010S-R33MT	0.33	20	0.039	0.033	4.80	5.50	3.50	4.05	1MHz /1.0V
MRH252010S-R47MT	0.47	20	0.045	0.040	4.40	5.20	3.20	3.60	1MHz /1.0V
MRH252010S-R68MT	0.68	20	0.059	0.049	3.20	3.60	2.75	3.20	1MHz /1.0V
MRH252010S-1R0MT	1.0	20	0.085	0.071	3.10	3.50	2.20	2.50	1MHz /1.0V
MRH252010S-1R5MT	1.5	20	0.106	0.090	2.60	3.00	2.00	2.30	1MHz /1.0V
MRH252010S-2R2MT	2.2	20	0.155	0.129	1.90	2.20	1.50	1.80	1MHz /1.0V
MRH252010S-3R3MT	3.3	20	0.235	0.196	1.60	1.80	1.20	1.40	1MHz /1.0V
MRH252010S-4R7MT	4.7	20	0.290	0.255	1.30	1.50	1.00	1.10	1MHz /1.0V
MRH252010S-6R8MT	6.8	20	0.480	0.380	1.00	1.15	0.95	1.00	1MHz /1.0V
MRH252010S-100MT	10	20	0.740	0.630	0.90	1.00	0.65	0.75	1MHz /1.0V

### MRH252012 Electrical Characteristics

Part Number	Inductance (μH)	Tolerance (±%)	DCR(Ω)		Isat (A)		I <sub>rms</sub> (A)		Test Condition
			Max	Typ	Max	Typ	Max	Typ	
MRH252012S-R24MT	0.24	20	0.023	0.019	6.50	7.80	4.05	4.70	1MHz /1.0V
MRH252012S-R33MT	0.33	20	0.028	0.023	5.35	6.30	3.70	4.30	1MHz /1.0V
MRH252012S-R47MT	0.47	20	0.035	0.029	4.90	5.60	3.45	4.00	1MHz /1.0V
MRH252012S-R68MT	0.68	20	0.045	0.039	3.80	4.50	3.15	3.60	1MHz /1.0V
MRH252012S-1R0MT	1.0	20	0.054	0.048	3.60	4.20	3.00	3.40	1MHz /1.0V
MRH252012S-1R5MT	1.5	20	0.072	0.060	2.90	3.50	2.40	2.80	1MHz /1.0V
MRH252012S-2R2MT	2.2	20	0.120	0.100	2.60	3.00	1.90	2.15	1MHz /1.0V
MRH252012S-3R3MT	3.3	20	0.215	0.175	1.70	2.10	1.50	1.80	1MHz /1.0V
MRH252012S-4R7MT	4.7	20	0.260	0.225	1.60	1.90	1.25	1.45	1MHz /1.0V
MRH252012S-6R8MT	6.8	20	0.366	0.305	1.20	1.40	0.95	1.10	1MHz /1.0V
MRH252012S-100MT	10	20	0.480	0.435	1.10	1.35	0.85	1.00	1MHz /1.0V

#### Notes:

1. I<sub>rms</sub>: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $20^{\circ}\text{C}$  ambient.
2. Isat: DC current at which the inductance drops approximate 30% from it's value without current.

## SMD Wire Wound Power Inductors---MRH Series



### MRH30 Electrical Characteristics

Part Number	Inductance ( $\mu\text{H}$ )	Tolerance ( $\pm\%$ )	DCR( $\Omega$ )		Isat (A)		I <sub>rms</sub> (A)		Test Condition
			Max	Typ	Max	Typ	Max	Typ	
MRH3012S-R47MT	0.47	20	0.040	0.031	6.80	8.00	3.80	4.20	1MHz /1.0V
MRH3012S-1R0MT	1.0	20	0.054	0.046	4.20	5.40	2.70	3.10	1MHz /1.0V
MRH3012S-1R5MT	1.5	20	0.074	0.062	3.40	4.10	2.50	2.90	1MHz /1.0V
MRH3012S-2R2MT	2.2	20	0.108	0.090	2.80	3.35	2.05	2.35	1MHz /1.0V
MRH3012S-3R3MT	3.3	20	0.185	0.144	2.20	2.60	1.50	1.80	1MHz /1.0V
MRH3012S-4R7MT	4.7	20	0.255	0.215	2.00	2.50	1.15	1.35	1MHz /1.0V
MRH3012S-6R8MT	6.8	20	0.340	0.290	1.60	1.90	1.10	1.25	1MHz /1.0V
MRH3012S-100MT	10	20	0.474	0.395	1.20	1.45	1.00	1.15	1MHz /1.0V
MRH3015S-R22MT	0.22	20	0.019	0.015	8.80	11.00	5.20	6.00	1MHz /1.0V
MRH3015S-R33MT	0.33	20	0.021	0.016	8.00	10.00	5.00	6.00	1MHz /1.0V
MRH3015S-R47MT	0.47	20	0.026	0.020	7.60	9.50	4.60	5.20	1MHz /1.0V
MRH3015S-R68MT	0.68	20	0.036	0.028	7.00	8.30	4.00	4.60	1MHz /1.0V
MRH3015S-1R0MT	1.0	20	0.048	0.037	5.80	7.00	3.50	4.00	1MHz /1.0V
MRH3015S-2R2MT	2.2	20	0.095	0.074	3.70	4.60	2.20	2.70	1MHz /1.0V
MRH3015S-3R3MT	3.3	20	0.150	0.110	3.40	3.40	2.00	2.50	1MHz /1.0V
MRH3015S-4R7MT	4.7	20	0.185	0.150	2.50	3.00	1.70	2.00	1MHz /1.0V
MRH3015S-6R8MT	6.8	20	0.320	0.245	2.00	2.40	1.20	1.35	1MHz /1.0V
MRH3015S-100MT	10	20	0.450	0.350	1.60	2.00	1.10	1.25	1MHz /1.0V
MRH3020S-R24MT	0.24	20	0.020	0.016	12.50	14.50	6.00	7.10	1MHz /1.0V
MRH3020S-R47MT	0.47	20	0.024	0.019	11.00	12.50	5.80	7.00	1MHz /1.0V
MRH3020S-1R0MT	1.0	20	0.045	0.036	8.00	10.00	4.50	5.20	1MHz /1.0V
MRH3020S-3R3MT	3.3	20	0.124	0.098	4.60	5.50	2.50	3.00	1MHz /1.0V

#### Notes:

1. I<sub>rms</sub>: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $20^{\circ}\text{C}$  ambient.
2. Isat: DC current at which the inductance drops approximate 30% from it's value without current.

## SMD Wire Wound Power Inductors---MRH Series



### MRH40 Electrical Characteristics

Part Number	Inductance ( $\mu\text{H}$ )	Tolerance ( $\pm\%$ )	DCR( $\Omega$ )		Isat (A)		I <sub>rms</sub> (A)		Test Condition
			Max	Typ	Max	Typ	Max	Typ	
MRH4012S-R56MT	0.56	20	0.050	0.040	6.00	7.00	3.20	3.80	1MHz /1.0V
MRH4012S-R68MT	0.68	20	0.055	0.042	5.20	6.20	3.25	3.80	1MHz /1.0V
MRH4012S-1R0MT	1.0	20	0.059	0.049	3.80	4.60	3.00	3.50	1MHz /1.0V
MRH4012S-2R2MT	2.2	20	0.090	0.075	2.80	3.30	2.50	3.00	1MHz /1.0V
MRH4012S-3R3MT	3.3	20	0.130	0.106	2.80	3.30	2.00	2.50	1MHz /1.0V
MRH4012S-4R7MT	4.7	20	0.175	0.145	2.30	2.60	1.80	2.10	1MHz /1.0V
MRH4012S-6R8MT	6.8	20	0.230	0.190	1.60	2.20	1.50	1.75	1MHz /1.0V
MRH4012S-100MT	10	20	0.360	0.300	1.55	1.85	0.85	1.00	1MHz /1.0V
MRH4020S-R24MT	0.24	20	0.017	0.013	14.00	17.00	6.00	7.00	1MHz /1.0V
MRH4020S-R33MT	0.33	20	0.020	0.015	13.00	16.00	5.90	6.80	1MHz /1.0V
MRH4020S-R47MT	0.47	20	0.022	0.016	11.00	12.00	5.90	6.80	1MHz /1.0V
MRH4020S-R68MT	0.68	20	0.024	0.019	9.00	11.50	5.80	6.70	1MHz /1.0V
MRH4020S-1R0MT	1.0	20	0.028	0.023	8.70	11.00	5.80	6.70	1MHz /1.0V
MRH4020S-1R5MT	1.5	20	0.038	0.032	7.70	9.60	5.20	6.00	1MHz /1.0V
MRH4020S-2R2MT	2.2	20	0.056	0.046	6.00	7.50	4.00	4.80	1MHz /1.0V
MRH4020S-3R3MT	3.3	20	0.088	0.073	4.70	5.90	3.40	4.00	1MHz /1.0V
MRH4020S-4R7MT	4.7	20	0.115	0.095	4.00	4.90	2.85	3.30	1MHz /1.0V
MRH4020S-6R8MT	6.8	20	0.160	0.130	3.00	4.20	2.40	2.80	1MHz /1.0V
MRH4020S-8R2MT	8.2	20	0.220	0.175	2.90	3.80	2.10	2.40	1MHz /1.0V
MRH4020S-100MT	10	20	0.220	0.190	2.80	3.50	2.00	2.35	1MHz /1.0V
MRH4020S-150MT	15	20	0.400	0.305	2.10	2.80	0.75	0.98	1MHz /1.0V

#### Notes:

1. I<sub>rms</sub>: DC current that will causes the temperature rise ( $\Delta t=40^{\circ}\text{C}$ ) from  $20^{\circ}\text{C}$  ambient.
2. Isat: DC current at which the inductance drops approximate 30% from it's value without current.

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