

Multilayer Chip Power Inductor – MPH Series



Operating temp. : -55°C ~+125°C (Including self-heating)

- FEATURES**
- ◆ Higher DC bias current and lower DC resistance due to trench technology
 - ◆ Low profile and thin thickness
 - ◆ Monolithic structure for high reliability
 - ◆ Excellent solderability and high heat resistance
 - ◆ No cross coupling due to magnetic shield

- APPLICATIONS**
- ◆ Mobile phones, mobile PC, wearable devices, security monitoring DC-DC converter for other

PRODUCT IDENTIFICATION

1 MPH	2 201210	3 S	4 R47	5 M	6 T
-----------------	--------------------	---------------	-----------------	---------------	---------------

1 Type	
MPH	Chip Power Inductor

4 Nominal Inductance	
Example	Nominal Value
R47	0.47μH
4R7	4.7μH

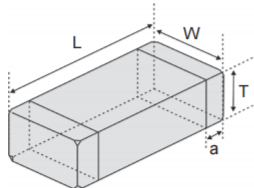
5 Inductance Tolerance	
M	±20%
N	±30%

2 External Dimensions (L×W) (mm)	
160805	1.6×0.8×0.55
160806	1.6×0.8×0.65
160809	1.6×0.8×0.95
201205	2.0×1.25×0.55
201206	2.0×1.25×0.6
201209	2.0×1.25×0.9
201210	2.0×1.25×1.0
201214	2.0×1.2×1.4
201610	2.0×1.6×1.0
201612	2.0×1.6×1.2
252010	2.5×2.0×1.0
252012	2.5×2.0×1.2

3 Feature Type	
S	Standard
U	Ultra Low Rdc
H	High Saturation Current
C	Inner Core

6 Packing	
T	Tape & Reel

SHAPE AND DIMENSIONS



Type	L	W	T	a
160805	1.60±0.15 [.063±.006]	0.8±0.15 [.031±.006]	0.5±0.05 [.020±.002]	0.3±0.2 [.012±.008]
160806	1.60±0.15 [.063±.006]	0.8±0.15 [.031±.006]	0.55±0.10 [.022±.04]	0.35±0.15 [.014±.06]
160809	1.60±0.15 [.063±.006]	0.8±0.15 [.031±.006]	0.8±0.15 [.031±.006]	0.3±0.2 [.012±.008]
201205	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.25±0.2 [.049±.008]	0.5±0.05 [.020±.004]	0.5±0.3 [.020±.012]
201206	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.25±0.2 [.049±.008]	0.5±0.1 [.020±.004]	0.5±0.3 [.020±.012]
201209	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.25±0.2 [.049±.008]	0.8±0.1 [.031±.004]	0.5±0.3 [.020±.012]
201210	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.25±0.2 [.049±.008]	0.9±0.1 [.035±.004]	0.5±0.3 [.020±.012]
201214	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.25±0.2 [.049±.008]	1.2±0.2 [.047±.008]	0.5±0.3 [.020±.012]
201610	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.6±0.2 [.063±.008]	0.9±0.1 [.035±.004]	0.5±0.3 [.020±.012]
201612	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.6±0.2 [.063±.008]	1.1±0.1 [.043±.004]	0.5±0.3 [.020±.012]
252010	2.5±0.2 [.098±.008]	2.0(+0.3,-0.1) [.079(+.012,-.004)]	0.9±0.1 [.035±.004]	0.5±0.3 [.020±.012]
252012	2.5±0.2 [.098±.008]	2.0(+0.3,-0.1) [.079(+.012,-.004)]	1.1±0.1 [.043±.004]	0.5±0.3 [.020±.012]

Unit: mm [inch]

SPECIFICATIONS MPH1608 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance		Min. Self-resonant Frequency	Saturation Current		Heat Rating Current Max.	Thickness
Units	μH	MHz	Ω		MHz	A		A	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
MPH160805SR22 □ T	0.22	1	0.15	0.12	180	1.20	1.45	1.20	0.5±0.05 [.020±.002]
MPH160805SR33 □ T	0.33	1	0.20	0.16	140	1.10	1.35	1.10	
MPH160805SR47 □ T	0.47	1	0.225	0.18	120	0.85	1.05	1.15	
MPH160805SR68 □ T	0.68	1	0.275	0.22	100	0.65	0.80	0.90	
MPH160805S1R0 □ T	1.0	1	0.40	0.32	90	0.58	0.70	0.80	
MPH160805S1R5 □ T	1.5	1	0.475	0.38	80	0.30	0.40	0.65	
MPH160805S2R2 □ T	2.2	1	0.525	0.42	60	0.18	0.25	0.60	0.55±0.10 [.022±.004]
MPH160806S1R0 □ T	1.0	1	0.275	0.22	90	0.50	0.70	1.00	
MPH160806S2R2 □ T	2.2	1	0.50	0.40	30	0.20	0.30	0.65	0.8±0.15 [.031±.006]
MPH160809SR22 □ T	0.22	1	0.125	0.10	200	1.35	1.60	1.25	
MPH160809SR33 □ T	0.33	1	0.1625	0.13	190	1.25	1.50	1.20	
MPH160809SR47 □ T	0.47	1	0.1875	0.15	180	1.00	1.20	1.10	
MPH160809SR68 □ T	0.68	1	0.225	0.18	160	0.95	1.10	1.15	
MPH160809S1R0 □ T	1.0	1	0.25	0.20	125	0.65	0.80	1.00	
MPH160809S1R5 □ T	1.5	1	0.287	0.23	100	0.42	0.50	0.90	
MPH160809S1R8 □ T	1.8	1	0.325	0.26	100	0.30	0.50	0.80	
MPH160809S2R2 □ T	2.2	1	0.375	0.30	80	0.25	0.30	0.85	
MPH160809S2R7 □ T	2.7	1	0.425	0.34	90	0.18	0.22	0.75	
MPH160809S3R3 □ T	3.3	1	0.50	0.40	100	0.125	0.15	0.70	
MPH160809S4R7 □ T	4.7	1	0.50	0.40	65	0.065	0.08	0.70	
MPH160809S6R8 □ T	6.8	1	0.70	0.56	45	0.13	0.15	0.50	
MPH160809S100 □ T	10	1	0.468	0.36	35	0.06	0.08	0.50	

MPH2012 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance		Min. Self-resonant Frequency	Saturation Current		Heat Rating Current Max.	Thickness
Units	μH	MHz	Ω		MHz	A		A	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
MPH201205SR54 □ T	0.54	1	0.15	0.12	120	0.95	1.10	1.20	0.5±0.05 [.020±.002]
MPH201205S1R0 □ T	1.0	1	0.225	0.18	40	0.70	0.90	0.90	
MPH201206SR22 □ T	0.22	1	0.087	0.07	100	1.20	1.45	1.60	0.5±0.1 [.020±.004]
MPH201206SR33 □ T	0.33	1	0.125	0.10	90	1.20	1.35	1.20	
MPH201206SR47 □ T	0.47	1	0.15	0.12	80	1.10	1.30	1.10	
MPH201206S1R0 □ T	1.0	1	0.237	0.19	40	0.60	0.70	0.80	
MPH201206S1R5 □ T	1.5	1	0.325	0.26	35	0.425	0.50	0.70	
MPH201206S2R2 □ T	2.2	1	0.40	0.32	30	0.30	0.35	0.60	
MPH201209S1R0 □ T	1.0	1	0.15	0.12	60	0.80	1.05	1.30	0.8±0.1 [.031±.004]
MPH201209S1R5 □ T	1.5	1	0.20	0.16	50	0.50	0.70	1.10	
MPH201209S2R2 □ T	2.2	1	0.225	0.18	40	0.25	0.28	1.00	
MPH201209S3R3 □ T	3.3	1	0.25	0.20	30	0.18	0.22	0.90	
MPH201209S4R7 □ T	4.7	1	0.312	0.25	30	0.125	0.15	0.75	0.9±0.1 [.035±.004]
MPH201210SR47 □ T	0.47	1	0.10	0.08	100	1.00	1.20	1.50	
MPH201210SR56 □ T	0.56	1	0.135	0.11	70	1.20	1.50	1.30	
MPH201210S1R0 □ T	1.0	1	0.1375	0.11	60	0.95	1.15	1.30	
MPH201210S1R5 □ T	1.5	1	0.20	0.16	50	0.70	0.80	1.10	
MPH201210S2R2 □ T	2.2	1	0.25	0.20	40	0.42	0.50	0.90	
MPH201210S2R7 □ T	2.7	1	0.25	0.20	35	0.35	0.42	0.90	
MPH201210S3R3 □ T	3.3	1	0.25	0.20	30	0.28	0.35	0.90	
MPH201210S4R7 □ T	4.7	1	0.3125	0.25	30	0.23	0.28	0.80	
MPH201214S2R2 □ T	2.2	1	0.437	0.35	35	0.60	0.80	0.80	
MPH201214S3R3 □ T	3.3	1	0.50	0.40	25	0.57	0.63	0.75	
MPH201214S4R7 □ T	4.7	1	0.50	0.40	20	0.54	0.63	0.75	
MPH201214S6R8 □ T	6.8	1	0.375	0.30	45	0.21	0.25	1.00	
MPH201214S100 □ T	10	1	0.375	0.30	35	0.11	0.13	1.00	
MPH201214H100 □ T	10	1	0.70	0.56	20	0.20	0.23	0.20	

Multilayer Chip Ferrite Inductor
Multilayer Chip Inductor for Choke
Multilayer Chip Power Inductor
Multilayer Ultra High Q Chip Ceramic Inductor
High Q Chip Ceramic Inductor
Multilayer Chip Ceramic Inductor
Multilayer High Frequency Chip Ceramic Inductor
Wire Wound Chip Ceramic Inductor
Wire Wound Chip Ferrite Inductor
SMD Power Inductor

SPECIFICATIONS MPH2016 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance		Min. Self-resonant Frequency	Saturation Current		Heat Rating Current Max.	Thickness
Units	μH	MHz	Ω		MHz	A		A	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
MPH201610SR47 □ T	0.47	1	0.10	0.08	100	1.35	1.60	1.50	0.9±0.1 [.035±.004]
MPH201610SR10 □ T	1.0	1	0.1125	0.09	70	1.00	1.20	1.40	
MPH201610SR15 □ T	1.5	1	0.1375	0.11	60	0.60	0.70	1.20	
MPH201610SR22 □ T	2.2	1	0.1375	0.11	50	0.42	0.50	1.20	
MPH201610SR33 □ T	3.3	1	0.15	0.12	40	0.27	0.33	1.20	
MPH201610SR47 □ T	4.7	1	0.175	0.14	30	0.18	0.22	1.10	
MPH201612SR68 □ T	6.8	1	0.212	0.17	40	0.18	0.22	1.20	1.1±0.1 [.043±.004]
MPH201612SR100 □ T	10	1	0.312	0.25	35	0.17	0.20	1.10	

MPH2520 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance		Min. Self-resonant Frequency	Saturation Current		Heat Rating Current Max.	Thickness
Units	μH	MHz	Ω		MHz	A		A	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
MPH252010SR47 □ T	0.47	1	0.05	0.04	105	1.30	1.50	1.80	0.9±0.1 [.035±.004]
MPH252010SR10 □ T	1.0	1	0.075	0.06	70	1.15	1.40	1.60	
MPH252010SR15 □ T	1.5	1	0.0875	0.07	65	1.00	1.20	1.50	
MPH252010SR18 □ T	1.8	1	0.10	0.08	60	0.70	0.95	1.30	
MPH252010SR22 □ T	2.2	1	0.10	0.08	55	0.70	0.85	1.30	
MPH252010SR33 □ T	3.3	1	0.125	0.10	30	0.38	0.45	1.20	
MPH252010SR47 □ T	4.7	1	0.1375	0.11	25	0.27	0.32	1.10	
MPH252010C2R2 □ T	2.2	1	0.25	0.20	60	1.25	1.50	1.20	
MPH252010C3R3 □ T	3.3	1	0.312	0.25	50	1.00	1.20	1.10	
MPH252010C4R7 □ T	4.7	1	0.475	0.38	35	0.63	0.75	0.90	
MPH252010C6R8 □ T	6.8	1	0.562	0.45	30	0.30	0.35	0.75	
MPH252010C100 □ T	10	1	0.625	0.50	25	0.21	0.25	0.70	
MPH252012SR47 □ T	4.7	1	0.225	0.18	30	0.64	0.75	1.00	1.1±0.1 [0.43±.004]
MPH252012C1R0 □ T	1.0	1	0.106	0.085	85	1.75	2.10	2.10	
MPH252012C2R2 □ T	2.2	1	0.312	0.25	50	1.35	1.60	1.10	
MPH252012C3R3 □ T	3.3	1	0.312	0.25	50	1.05	1.25	1.10	
MPH252012C4R7 □ T	4.7	1	0.50	0.40	40	0.68	0.80	0.90	
MPH252012C6R8 □ T	6.8	1	0.625	0.50	30	0.63	0.75	0.80	
MPH252012C100 □ T	10	1	0.625	0.50	25	0.42	0.50	0.80	

※ □: Please specify the inductance tolerance code (M=±20%, N=±30%);

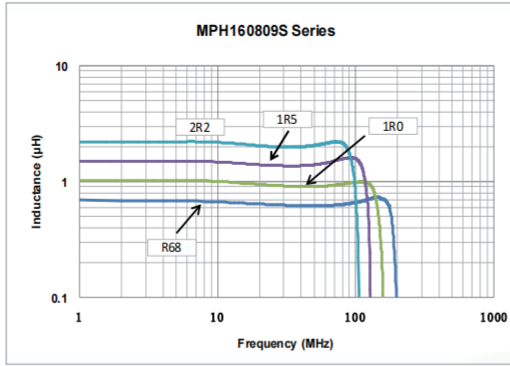
※ Rated current: Isat or Irms, whichever is smaller;

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

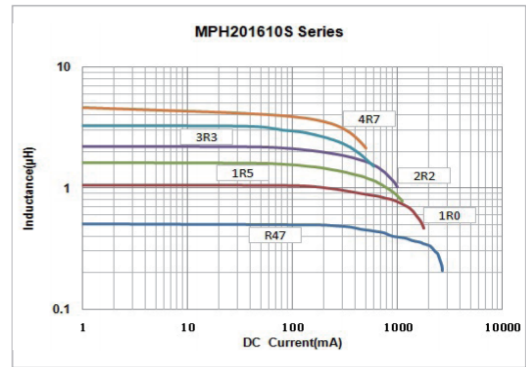
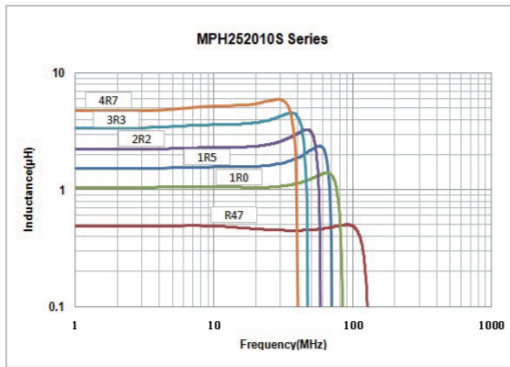
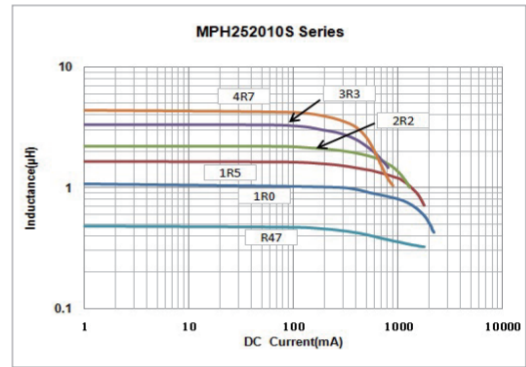
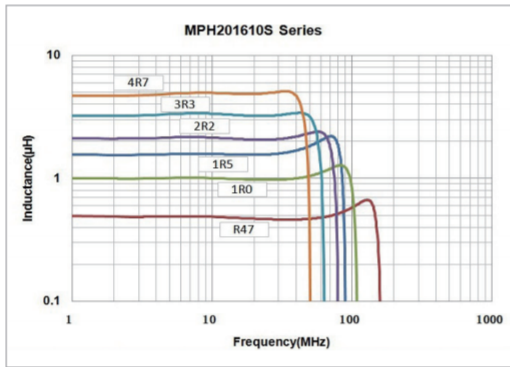
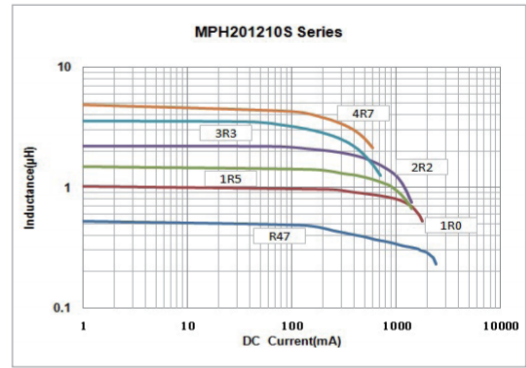
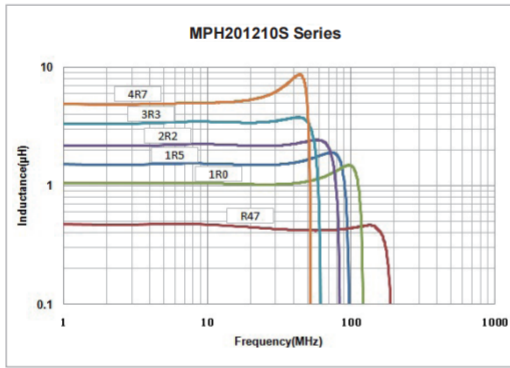
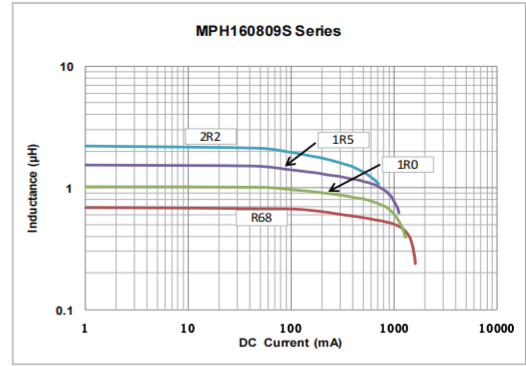
※ Irms: DC current that causes the temperature rise ($\Delta T=40^{\circ}\text{C}$) from 20°C ambient.

TYPICAL ELECTRICAL CHARACTERISTICS

Inductance vs. Frequency Characteristics

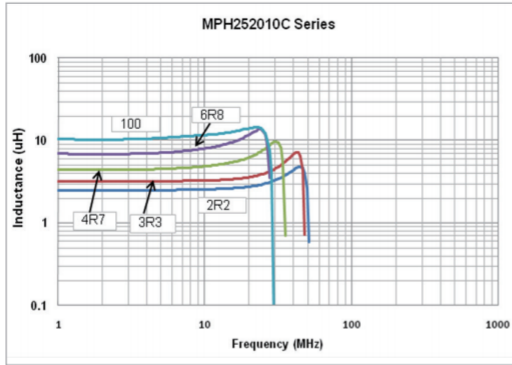


Inductance vs. DC Current Characteristics



TYPICAL ELECTRICAL CHARACTERISTICS

Inductance vs. Frequency Characteristics



Inductance vs. DC Current Characteristics

