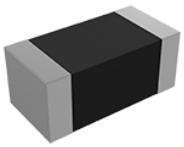
Multilayer Chip Power Inductor – MPH Series



Operating Temp. : -55℃~+125℃ (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

- DC-DC converter circuits for mobile phones, wearable devices, DVCs, HDDs, etc.

PRODUCT IDENTIFICATION

MPH **201210** **S** **R47** **M** **T**

① ② ③ ④ ⑤ ⑥

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×H) (mm)	
160805	1.6×0.8×0.55
160809	1.6×0.8×0.95
201205	2.0×1.25×0.55
201206	2.0×1.25×0.6
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

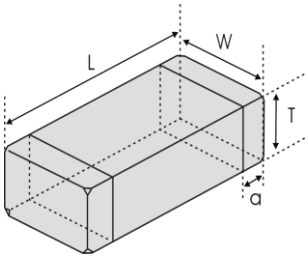
③

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

⑥

Packing	
T	Tape & Reel

SHAPE AND DIMENSIONS



Unit: mm [inch]

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]
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]

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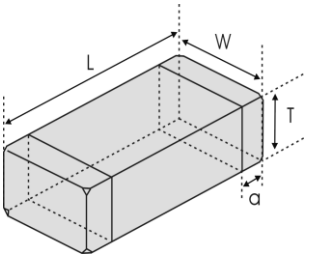
SHAPE AND DIMENSIONS



Unit: mm [inch]

Type	L	W	T	a
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]
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 [0.43±.004]	0.5±0.3 [.020±.012]

SPECIFICATION

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	0.23	0.18	120	0.85	1.05	1.15	
MPH160805SR68☐T	0.68	1	0.28	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	0.380	80	0.3	0.4	0.65	
MPH160805S2R2☐T	2.2	1	0.525	0.420	60	0.18	0.25	0.6	
MPH160806S1R0☐T	1.0	1	0.28	0.22	90	0.50	0.70	1.00	0.55±0.10 [.022±.004]
MPH160806S2R2☐T	2.2	1	0.50	0.40	30	0.20	0.30	0.65	
MPH160809SR22☐T	0.22	1	0.13	0.10	200	1.35	1.60	1.25	0.8±0.15 [.031±.006]
MPH160809SR33☐T	0.33	1	0.16	0.13	190	1.25	1.50	1.20	
MPH160809SR47☐T	0.47	1	0.19	0.15	180	1.00	1.20	1.10	
MPH160809SR68☐T	0.68	1	0.23	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	0.29	0.23	100	0.42	0.50	0.90	
MPH160809S1R8☐T	1.8	1	0.325	0.26	100	0.3	0.5	0.8	
MPH160809S2R2☐T	2.2	1	0.38	0.30	80	0.25	0.30	0.85	
MPH160809S2R7☐T	2.7	1	0.43	0.34	90	0.18	0.22	0.75	
MPH160809S3R3☐T	3.3	1	0.50	0.50	100	0.13	0.15	0.70	
MPH160809S4R7☐T	4.7	1	0.50	0.40	65	0.07	0.08	0.70	
MPH160809S6R8☐T	6.8	1	0.7	0.56	45	0.13	0.15	0.5	
MPH160809S100☐T	10	1	0.468	0.36	35	0.06	0.08	0.5	

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SPECIFICATION

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	0.23	0.18	40	0.70	0.90	0.90	
MPH201206SR22☐T	0.22	1	0.08	0.07	100	1.20	1.45	1.60	0.5±0.1 [.020±.004]
MPH201206SR33☐T	0.33	1	0.13	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	0.24	0.19	40	0.60	0.70	0.80	
MPH201206S1R5☐T	1.5	1	0.33	0.26	35	0.43	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	0.23	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	0.31	0.25	30	0.13	0.15	0.75	
MPH201210SR47☐T	0.47	1	0.10	0.08	100	1.00	1.20	1.50	0.9±0.1 [.035±.004]
MPH201210SR56☐T	0.56	1	0.14	0.11	70	1.20	1.50	1.30	
MPH201210S1R0☐T	1.0	1	0.14	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	0.31	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	1.2±0.2 [.047±.008]
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	10.0	1	0.375	0.30	35	0.11	0.13	1.00	
MPH201214H100☐T	10.0	1	0.70	0.56	20	0.20	0.23	0.20	

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]
MPH201610S1R0☐T	1.0	1	0.11	0.09	70	1.00	1.20	1.40	
MPH201610S1R5☐T	1.5	1	0.14	0.11	60	0.60	0.70	1.20	
MPH201610S2R2☐T	2.2	1	0.14	0.11	50	0.42	0.50	1.20	
MPH201610S3R3☐T	3.3	1	0.15	0.12	40	0.27	0.33	1.20	
MPH201610S4R7☐T	4.7	1	0.18	0.14	30	0.18	0.22	1.10	
MPH201612S6R8☐T	6.8	1	0.21	0.17	40	0.18	0.22	1.20	1.1±0.1 [.043±.004]
MPH201612S100☐T	10.0	1	0.31	0.25	35	0.17	0.20	1.10	

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SPECIFICATION

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☐	0.47	1	0.05	0.04	105	1.30	1.50	1.80	0.9±0.1 [.035±.004]
MPH252010S1R0☐	1.0	1	0.08	0.06	70	1.15	1.40	1.60	
MPH252010S1R5☐	1.5	1	0.09	0.07	65	1.00	1.20	1.50	
MPH252010S1R8☐	1.8	1	0.10	0.08	60	0.70	0.95	1.30	
MPH252010S2R2☐	2.2	1	0.10	0.08	55	0.70	0.85	1.30	
MPH252010S3R3☐	3.3	1	0.13	0.10	30	0.38	0.45	1.20	
MPH252010S4R7☐	4.7	1	0.14	0.11	25	0.27	0.32	1.10	
MPH252010C2R2☐	2.2	1	0.25	0.20	60	1.25	1.50	1.20	
MPH252010C3R3☐	3.3	1	0.31	0.25	50	1.00	1.20	1.10	
MPH252010C4R7☐	4.7	1	0.48	0.38	35	0.63	0.75	0.90	
MPH252010C6R8☐	6.8	1	0.56	0.45	30	0.30	0.35	0.75	
MPH252010C100☐	10.0	1	0.63	0.50	25	0.21	0.25	0.70	
MPH252012S4R7☐	4.7	1	0.23	0.18	30	0.64	0.75	1.00	1.1±0.1 [0.43±.004]
MPH252012C1R0☐	1.0	1	0.11	0.09	85	1.75	2.10	2.10	
MPH252012C2R2☐	2.2	1	0.31	0.25	50	1.35	1.60	1.10	
MPH252012C3R3☐	3.3	1	0.31	0.25	50	1.05	1.25	1.10	
MPH252012C4R7☐	4.7	1	0.50	0.40	40	0.68	0.80	0.90	
MPH252012C6R8☐	6.8	1	0.63	0.50	30	0.63	0.75	0.80	
MPH252012C100☐	10.0	1	0.63	0.50	25	0.42	0.50	0.80	

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

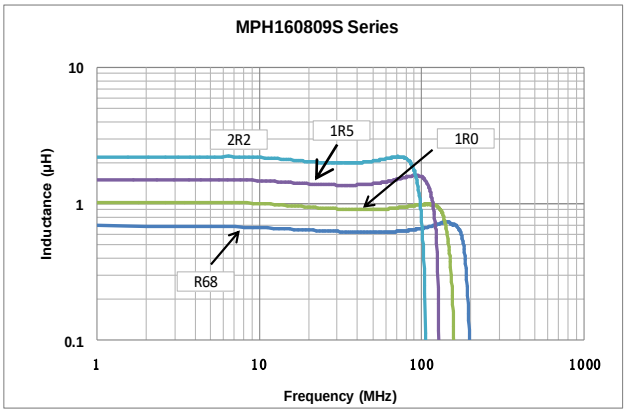
※Rated current: Isat or Irms, whichever is smaller;

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

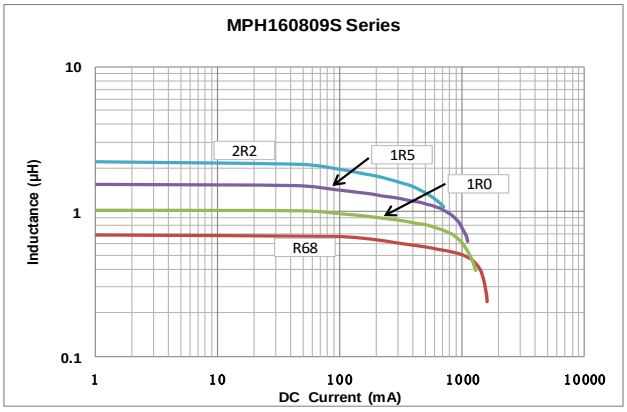
※Irms : DC current that causes the temperature rise (△T =40°C) from 20°C ambient.

TYPICAL ELECTRICAL CHARACTERISTICS

Inductance vs. Frequency Characteristics



Inductance vs. DC Current Characteristics



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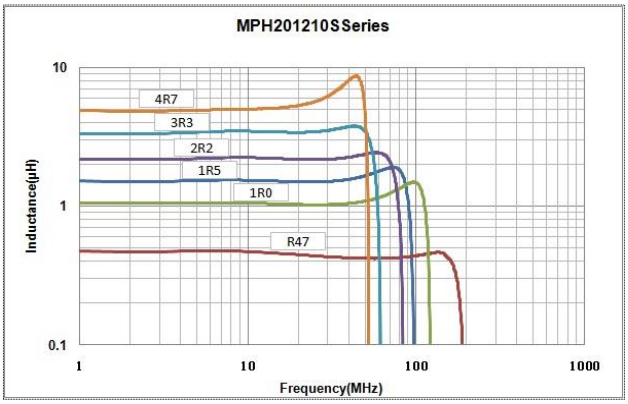
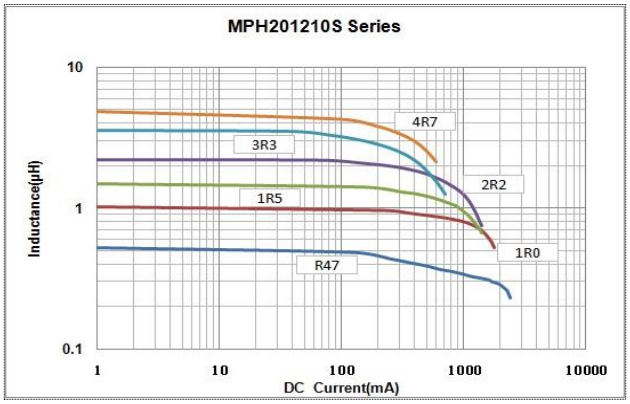
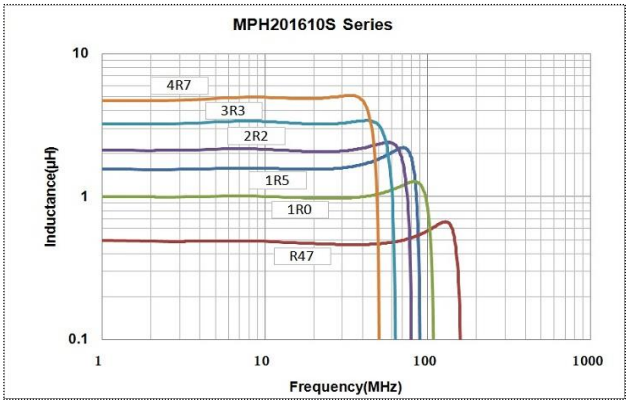
TYPICAL ELECTRICAL CHARACTERISTICS

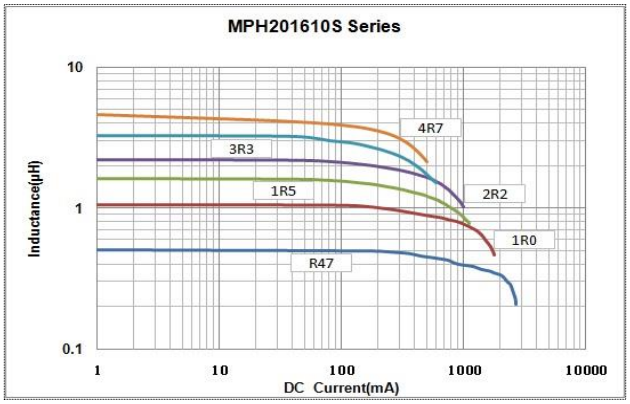


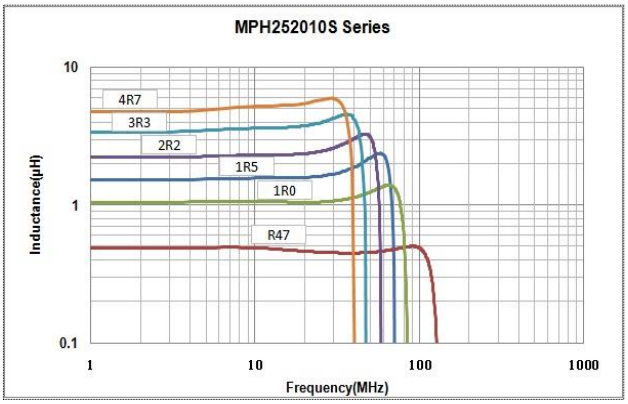
Inductance vs. Frequency Characteristics

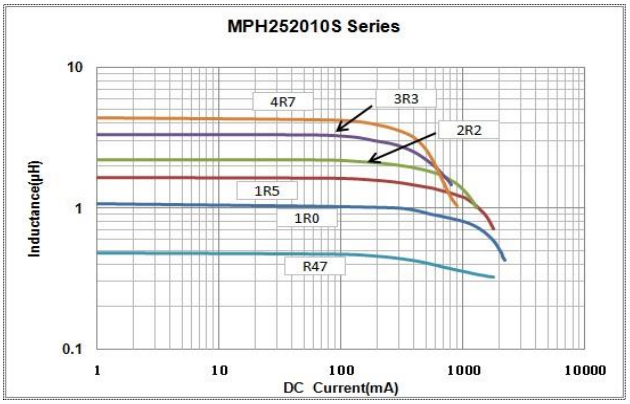


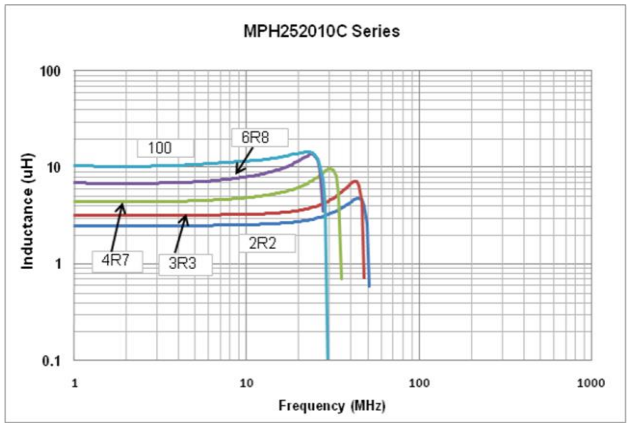
Inductance vs. DC Current Characteristics

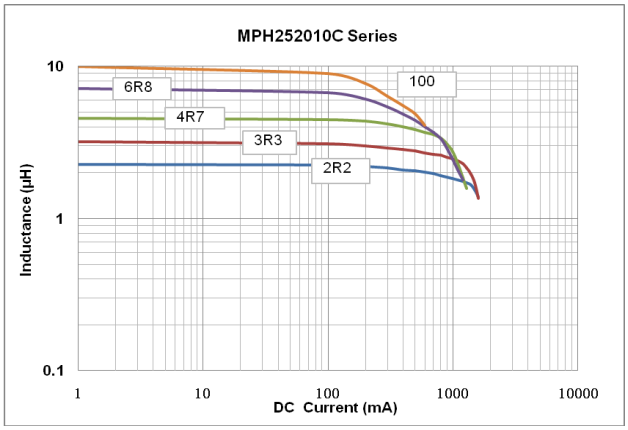




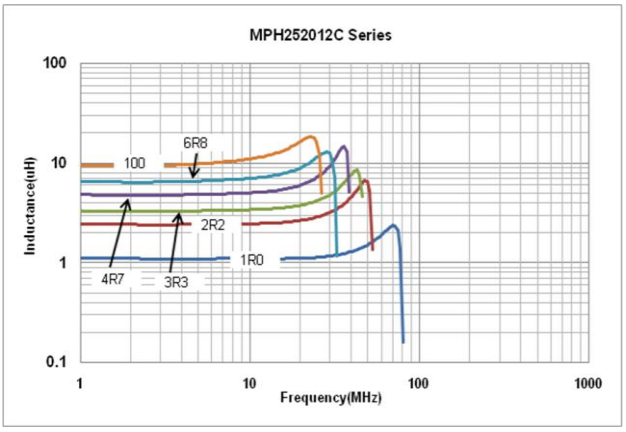


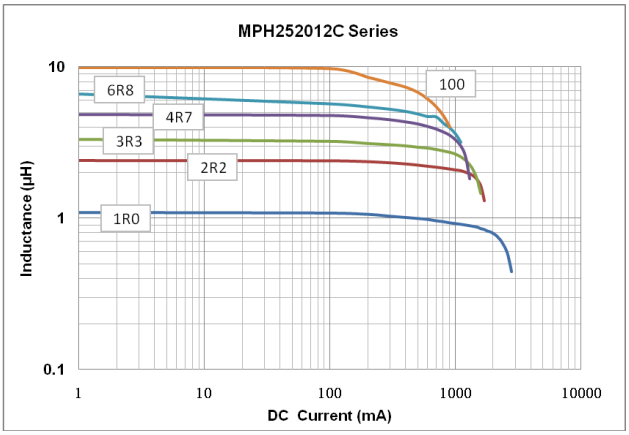






TYPICAL ELECTRICAL CHARACTERISTICS





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