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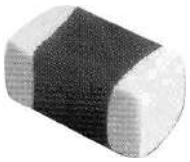
HDPH Series Multilayer Chip Power Inductor



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

HDPH 201210 S R47 M T - LF

① ② ③ ④ ⑤ ⑥ ⑦

①

Type	
HDPH	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

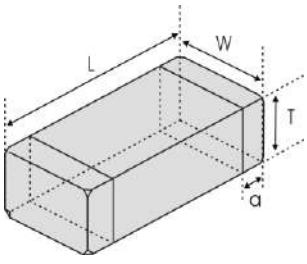
⑥

Packing	
T	Tape & Reel

⑦

Lead free product.

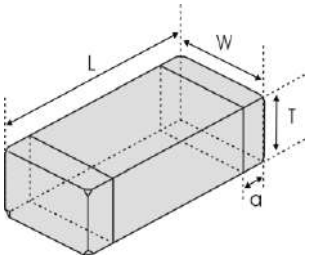
SHAPE AND DIMENSIONS



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]
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]

SHAPE AND DIMENSIONS



Unit: mm [inch]

Type	L	W	T	a
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

HDPH1608 TYPE

Part Number	Inductance	L Test Freq. L	DC Resistance		Min. Self-resonant Frequency	Saturation Current Typ.		Heat Rating Current Max.	Thickness
Units	μH	MHz	mΩ		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
HDPH160805SR22□T-LF	0.22	1	150	120	180	1200	1450	1200	0.5±0.05 [.020±.002]
HDPH160805SR33□T-LF	0.33	1	200	160	140	1100	1350	1100	
HDPH160805SR47□T-LF	0.47	1	225	180	120	850	1050	1150	
HDPH160805SR68□T-LF	0.68	1	275	220	100	650	800	900	
HDPH160805S1R0□T-LF	1.0	1	400	320	90	580	700	800	
HDPH160809SR22□T-LF	0.22	1	125	100	200	1350	1600	1250	0.8±0.15 [.031±.006]
HDPH160809SR33□T-LF	0.33	1	162	130	190	1250	1500	1200	
HDPH160809SR47□T-LF	0.47	1	187	150	180	1000	1200	1100	
HDPH160809SR68□T-LF	0.68	1	225	180	160	950	1100	1150	
HDPH160809S1R0□T-LF	1.0	1	250	200	125	650	800	1000	
HDPH160809S1R5□T-LF	1.5	1	285	230	100	420	500	900	
HDPH160809S2R2□T-LF	2.2	1	375	300	80	250	300	850	
HDPH160809S2R7□T-LF	2.7	1	425	340	90	180	220	750	
HDPH160809S3R3□T-LF	3.3	1	500	400	100	125	150	700	
HDPH160809S4R7□T-LF	4.7	1	500	400	65	65	80	700	

HDPH2012 TYPE

Part Number	Inductance	L Test Freq. L	DC Resistance		Min. Self-resonant Frequency	Saturation Current Typ.		Heat Rating Current Max.	Thickness
Units	μH	MHz	mΩ		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
HDPH201205SR54□T-LF	0.54	1	150	120	120	950	1100	1200	0.5±0.05 [.020±.002]
HDPH201205S1R0□T-LF	1.0	1	225	180	40	700	900	900	
HDPH201206SR22□T-LF	0.22	1	84	70	100	1200	1450	1600	0.5±0.1 [.020±.004]
HDPH201206SR33□T-LF	0.33	1	125	100	90	1200	1350	1200	
HDPH201206SR47□T-LF	0.47	1	150	120	80	1100	1300	1100	
HDPH201206S1R0□T-LF	1.0	1	238	190	40	600	700	800	0.5±0.1 [.020±.004]
HDPH201206S1R5□T-LF	1.5	1	325	260	35	425	500	700	
HDPH201206S2R2□T-LF	2.2	1	400	320	30	300	350	600	
HDPH201210SR47□T-LF	0.47	1	100	80	100	1000	1200	1500	0.9±0.1 [.035±.004]
HDPH201210SR56□T-LF	0.56	1	135	110	70	1200	1500	1300	

HDPH2012 TYPE

Part Number	Inductance	L Test Freq. L	DC Resistance		Min. Self-resonant Frequency	Saturation Current Typ.		Heat Rating Current Max.	Thickness
Units	μH	MHz	mΩ		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
HDPH201210S1R0□T-LF	1.0	1	137	110	60	950	1150	1300	0.9±0.1 [.035±.004]
HDPH201210S1R5□T-LF	1.5	1	200	160	50	700	800	1100	
HDPH201210S2R2□T-LF	2.2	1	250	200	40	420	500	900	
HDPH201210S2R7□T-LF	2.7	1	250	200	35	350	420	900	
HDPH201210S3R3□T-LF	3.3	1	250	200	30	280	350	900	
HDPH201210S4R7□T-LF	4.7	1	312	250	30	230	280	800	
HDPH201214S4R7□T-LF	4.7	1	500	400	20	540	630	750	1.2±0.2 [.047±.008]
HDPH201214S6R8□T-LF	6.8	1	375	300	45	210	250	1000	
HDPH201214S100□T-LF	10.0	1	375	300	35	110	130	1000	

HDPH2016 TYPE

Part Number	Inductance	L Test Freq. L	DC Resistance		Min. Self-resonant Frequency	Saturation Current Typ.		Heat Rating Current Max.	Thickness
Units	μH	MHz	mΩ		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
HDPH201610SR47□T-LF	0.47	1	100	80	100	1350	1600	1500	0.9±0.1 [.035±.004]
HDPH201610S1R0□T-LF	1.0	1	112	90	70	1000	1200	1400	
HDPH201610S1R5□T-LF	1.5	1	137	110	60	600	700	1200	
HDPH201610S2R2□T-LF	2.2	1	137	110	50	420	500	1200	
HDPH201610S3R3□T-LF	3.3	1	150	120	40	270	330	1200	
HDPH201610S4R7□T-LF	4.7	1	175	140	30	180	220	1100	
HDPH201612S6R8□T-LF	6.8	1	212	170	40	180	220	1200	1.1±0.1 [.043±.004]
HDPH201612S100□T-LF	10.0	1	312	250	35	170	200	1100	

HDPH2520 TYPE

Part Number	Inductance	L Test Freq. L	DC Resistance		Min. Self-resonant Frequency	Saturation Current Typ.		Heat Rating Current Max.	Thickness
Units	μH	MHz	mΩ		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
HDPH252010SR47□T-LF	0.47	1	50	40	105	1300	1500	1800	0.9±0.1 [.035±.004]
HDPH252010S1R0□T-LF	1.0	1	75	60	70	1150	1400	1600	
HDPH252010S1R5□T-LF	1.5	1	87	70	65	1000	1200	1500	
HDPH252010S1R8□T-LF	1.8	1	100	80	60	700	950	1300	0.9±0.1 [.035±.004]
HDPH252010S2R2□T-LF	2.2	1	100	80	55	700	850	1300	
HDPH252010S3R3□T-LF	3.3	1	125	100	30	380	450	1200	
HDPH252010S4R7□T-LF	4.7	1	137	110	25	270	320	1100	
HDPH252010C2R2□T-LF	2.2	1	250	200	60	1250	1500	1200	
HDPH252010C3R3□T-LF	3.3	1	312	250	50	1000	1200	1100	
HDPH252010C4R7□T-LF	4.7	1	475	380	35	630	750	900	
HDPH252010C6R8□T-LF	6.8	1	562	450	30	300	350	750	
HDPH252010C100□T-LF	10.0	1	625	500	25	210	250	700	
HDPH252012S4R7□T-LF	4.7	1	225	180	30	640	750	1000	1.1±0.1 [0.43±.004]
HDPH252012C1R0□T-LF	1.0	1	106	85	85	1750	2100	2100	

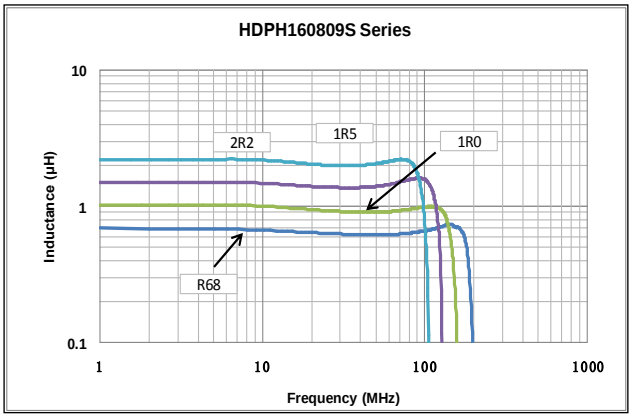
HDPH2520 TYPE

Part Number	Inductance	L Test Freq. L	DC Resistance		Min. Self-resonant Frequency	Saturation Current Typ.		Heat Rating Current Max.	Thickness
Units	μH	MHz	mΩ		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
HDPH252012C2R2☐T-LF	2.2	1	312	250	50	1350	1600	1100	1.1±0.1 [0.43±.004]
HDPH252012C3R3☐T-LF	3.3	1	312	250	50	1050	1250	1100	
HDPH252012C4R7☐T-LF	4.7	1	500	400	40	680	800	900	
HDPH252012C6R8☐T-LF	6.8	1	625	500	30	630	750	800	
HDPH252012C100☐T-LF	10.0	1	625	500	25	420	500	800	

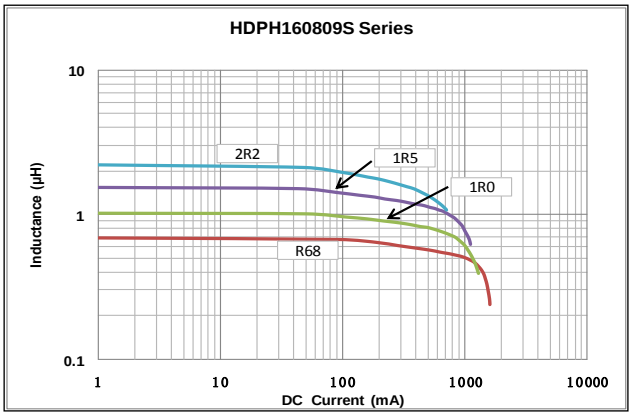
※☐: Please specify the inductance tolerance code (M=±20%, N=±30%);
※Rated current: Isat or Irms, whichever is smaller;
※Isat: DC current at which the inductance drops approximate 30% from its value without current;
※Irms : DC current that causes the temperature rise (△T =40°C) from 20°C ambient.

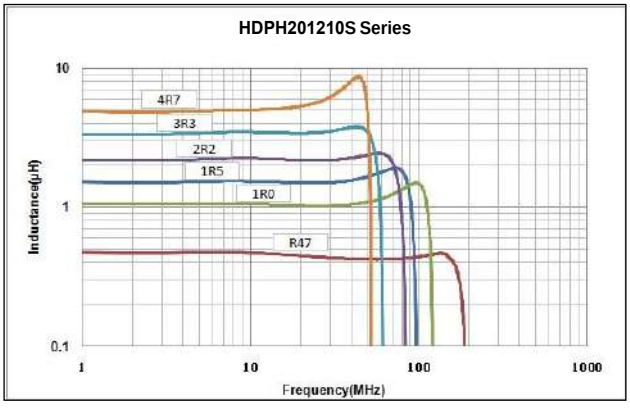
TYPICAL ELECTRICAL CHARACTERISTICS

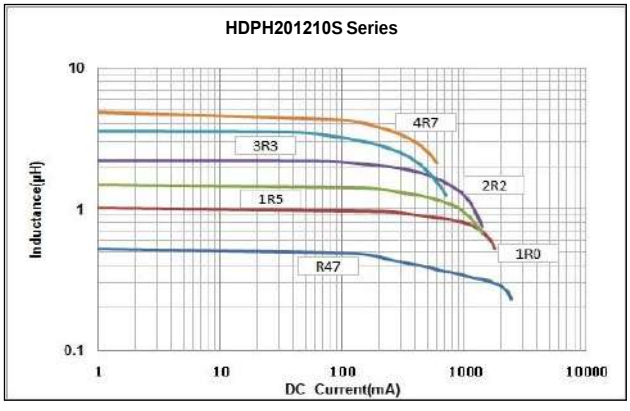
Inductance vs. Frequency Characteristics



Inductance vs. DC Current Characteristics

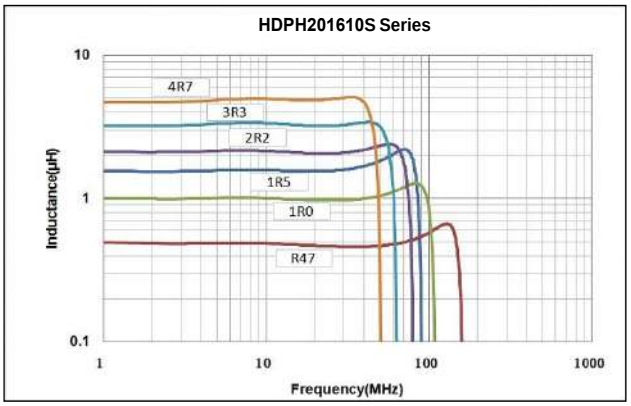






TYPICAL ELECTRICAL CHARACTERISTICS

Inductance vs. Frequency Characteristics



Inductance vs. DC Current Characteristics