Wire Wound SMD Power Inductors – WPN Series

Operating Temp. : -40℃~+125℃ (Including self-heating)

FEATURES

- Fe base metal material core provides large saturation current
- Metallization on ferrite core results in excellent shock resistance and damage-free durability
- Closed magnetic circuit design reduces leakage flux and Electro Magnetic Interference (EMI)
- Low DCR decreases power loss, small and slim take up less PCB real estate
- Automatic production ensures high quality and consistency

APPLICATIONS

- Smart phone
- Blue -ray disc recorders, set top box
- Notebooks, desktop computers, servers
- Portable gaming devices, personal navigation systems, personal multimedia devices

PRODUCT IDENTIFICATION

WPN	252012	H	2R2	M	T	□□□
①	②	③	④	⑤	⑥	⑦

① Type	
WPN	Wire Wound SMD Power Inductor

② (L×W×H) [mm] External Dimensions (L×W×H) [mm]	
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
3012	3.0×3.0×1.2
4012	4.0×4.0×1.2
4020	4.0×4.0×2.0

③ Feature Type	
H	H Type
M	M Type
U	U Type
E	E Type

④ Nominal Inductance	
Example	Nominal Value
R47	0.47μH
2R2	2.2μH

⑥ Packing	
T	Tape & Reel

⑤ Inductance Tolerance	
N	±30%
M	±20%

⑦ Design Code	
□□□	Design Code
* Standard product is blank	

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SHAPE AND DIMENSIONS

Fig.1

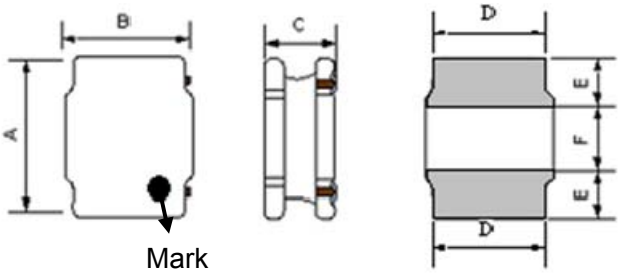


Fig.2

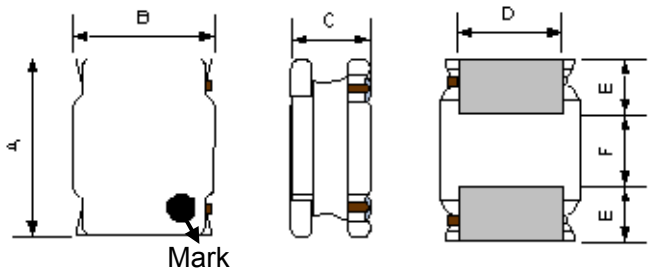


Fig.3

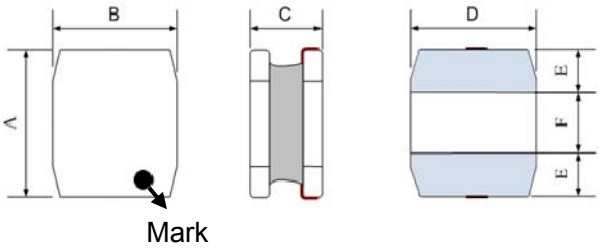


Fig.4

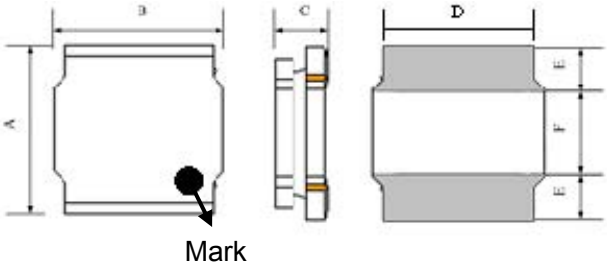
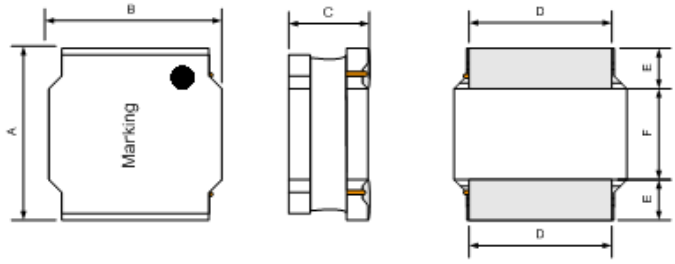
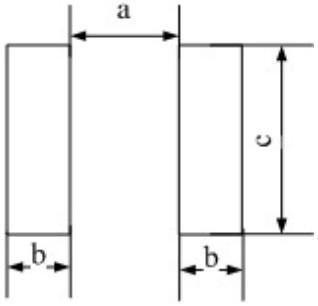


Fig.5



Recommended Land Pattern



Unit: mm

Series	Shape	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
WPN201610H	Fig.1	2.0±0.2	1.6±0.2	1.0 Max.	1.5±0.2	0.6±0.2	0.8±0.2	0.7	0.7	1.7
WPN201610M	Fig.2	2.0±0.2	1.6±0.2	1.0 Max.	1.2±0.2	0.6±0.2	0.8±0.2	0.7	0.7	1.7
WPN201610U	Fig.3	2.0±0.2	1.6±0.2	1.0 Max.	1.6±0.2	0.6±0.2	0.8±0.2	0.7	0.7	1.7
WPN201612	Fig.1	2.0±0.2	1.6±0.2	1.2 Max.	1.2±0.2	0.6±0.2	0.8±0.2	0.7	0.7	1.7
WPN252010	Fig.1	2.5±0.2	2.0±0.2	1.0 Max.	1.65±0.2	0.8±0.2	0.8±0.2	0.8	0.85	2.0
WPN252012H	Fig.1	2.5±0.2	2.0±0.2	1.2 Max.	1.65±0.2	0.8±0.2	0.8±0.2	0.8	0.85	2.0
WPN252012E	Fig.1	2.5±0.2	2.0±0.2	1.2 Max.	1.65±0.2	0.8±0.2	0.8±0.2	0.8	0.85	2.0
WPN3012	Fig.4	3.0±0.2	3.0±0.2	1.2 Max.	2.6±0.2	0.75±0.2	1.5±0.2	1.5	0.8	3.2
WPN4012	Fig.5	4.0±0.2	4.0±0.2	1.2 Max.	3.1±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7
WPN4020	Fig.5	4.0±0.2	4.0±0.2	2.0 Max.	3.1±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7

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SPECIFICATIONS

WPN201610H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN201610HR24MT	0.24±20%	0.040	0.033	145	4.50	5.50	3.00	3.45
WPN201610HR47MT	0.47±20%	0.049	0.041	102	4.00	4.70	2.70	3.10
WPN201610HR68MT	0.68±20%	0.065	0.057	77	3.50	4.00	2.50	2.80
WPN201610H1R0MT	1.0±20%	0.090	0.075	70	3.35	3.85	2.05	2.35
WPN201610H1R0MTY01	1.0±20%	0.070	0.060	65	2.60	3.05	2.20	2.55
WPN201610H1R5MT	1.5±20%	0.130	0.110	45	1.95	2.30	1.70	2.00
WPN201610H2R2MT	2.2±20%	0.170	0.142	39	1.90	2.15	1.45	1.70
WPN201610H4R7MT	4.7±20%	0.425	0.370	25	1.20	1.50	0.90	1.00
WPN201610H100MT	10±20%	0.826	0.688	15	0.80	0.95	0.65	0.75

WPN201610M Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN201610MR24MT	0.24±20%	0.026	0.022	160	5.90	6.80	4.35	4.80
WPN201610MR33MT	0.33±20%	0.038	0.032	120	5.50	6.00	3.40	3.80
WPN201610MR47MT	0.47±20%	0.044	0.037	107	4.30	5.20	3.00	3.30
WPN201610MR68MT	0.68±20%	0.060	0.050	92	3.60	4.20	2.60	3.00
WPN201610M1R0MT	1.0±20%	0.090	0.075	52	3.35	3.85	2.05	2.35
WPN201610M2R2MT	2.2±20%	0.160	0.135	41	1.80	2.00	1.60	1.75

WPN201610U Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN201610UR12MT	0.12±20%	0.015	0.012	250	9.50	11.00	5.60	6.50
WPN201610UR33MT	0.33±20%	0.025	0.022	121	5.50	6.00	4.10	4.70
WPN201610UR47MT	0.47±20%	0.033	0.028	110	4.50	5.00	3.60	4.10
WPN201610UR68MT	0.68±20%	0.045	0.037	78	3.20	3.70	3.10	3.60
WPN201610U1R0MT	1.0±20%	0.060	0.050	63	3.00	3.50	2.60	3.00
WPN201610U1R5MT	1.5±20%	0.110	0.095	50	2.80	3.20	2.00	2.30
WPN201610U2R2MT	2.2±20%	0.120	0.100	44	1.80	2.10	1.90	2.20
WPN201610U4R7MT	4.7±20%	0.288	0.240	21	1.30	1.50	1.25	1.45

WPN201612H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN201612HR24MT	0.24±20%	0.023	0.019	116	5.85	6.75	4.50	5.20
WPN201612HR33MT	0.33±20%	0.031	0.026	95	5.15	6.00	3.85	4.45
WPN201612HR47MT	0.47±20%	0.041	0.034	84	3.95	4.60	3.40	3.90
WPN201612H1R0MT	1.0±20%	0.059	0.049	60	2.70	3.10	2.70	3.00
WPN201612H1R5MT	1.5±20%	0.109	0.091	42	1.90	2.35	2.10	2.45

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Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN201612H2R2MT	2.2±20%	0.146	0.122	32	1.70	2.00	1.80	2.05

WPN252010H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN252010HR33MT	0.33±20%	0.039	0.033	117	4.80	5.50	3.50	4.05
WPN252010HR47MT	0.47±20%	0.045	0.038	80	4.40	5.20	3.20	3.70
WPN252010HR68MT	0.68±20%	0.059	0.049	65	3.20	3.60	2.75	3.20
WPN252010H1R0MT	1.0±20%	0.076	0.063	46	3.10	3.50	2.50	2.90
WPN252010H1R5MT	1.5±20%	0.106	0.088	40	2.60	3.00	2.00	2.30
WPN252010H2R2MT	2.2±20%	0.155	0.129	26	1.90	2.20	1.50	1.80
WPN252010H3R3MT	3.3±20%	0.235	0.196	24	1.60	1.80	1.20	1.40
WPN252010H4R7MT	4.7±20%	0.276	0.230	19	1.30	1.50	1.10	1.30
WPN252010H100MT	10±20%	0.500	0.435	12	0.90	1.00	0.80	0.90

WPN252012H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN252012HR24MT	0.24±20%	0.023	0.019	117	6.50	7.80	4.05	4.70
WPN252012HR33MT	0.33±20%	0.028	0.023	104	5.30	6.20	3.70	4.30
WPN252012HR47MT	0.47±20%	0.035	0.029	89	4.90	5.60	3.45	4.00
WPN252012HR68MT	0.68±20%	0.043	0.036	67	3.70	4.30	3.15	3.60
WPN252012H1R0MT	1.0±20%	0.054	0.048	52	3.60	4.20	3.00	3.40
WPN252012H1R5MT	1.5±20%	0.072	0.060	38	2.90	3.50	2.40	2.80
WPN252012H2R2MT	2.2±20%	0.120	0.100	32	2.60	3.00	1.90	2.15
WPN252012H2R2MTY01	2.2±20%	0.102	0.085	36	2.30	2.70	2.10	2.40
WPN252012H3R3MT	3.3±20%	0.163	0.136	25	1.70	2.10	1.80	2.05
WPN252012H4R7MT	4.7±20%	0.260	0.225	23	1.60	1.90	1.25	1.45
WPN252012H6R8MT	6.8±20%	0.366	0.305	16	1.15	1.35	0.95	1.10
WPN252012H100MT	10±20%	0.480	0.435	14	1.10	1.35	0.85	1.00

WPN252012E Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN252012E1R0MT	1.0±20%	0.044	0.037	52	4.50	5.00	3.50	3.90
WPN252012ER47MT	0.47±20%	0.032	0.026	92	7.00	8.00	4.10	4.70
WPN252012E1R0MT	1.0±20%	0.044	0.037	52	4.50	5.00	3.50	3.90

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SPECIFICATIONS

WPN3012H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN3012HR33MT	0.33±20%	0.027	0.023	107	7.20	8.90	4.20	4.85
WPN3012HR47MT	0.47±20%	0.033	0.028	86	6.80	8.00	3.90	4.50
WPN3012HR68MT	0.68±20%	0.042	0.035	63	5.80	6.80	3.40	3.90
WPN3012H1R0MT	1.0±20%	0.054	0.045	51	4.20	5.40	2.70	3.10

WPN3012H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN3012H1R5MT	1.5±20%	0.074	0.064	37	3.40	4.10	2.50	2.90
WPN3012H2R2MT	2.2±20%	0.108	0.090	28	2.80	3.35	2.05	2.35
WPN3012H3R3MT	3.3±20%	0.155	0.129	25	2.20	2.60	1.70	2.00
WPN3012H4R7MT	4.7±20%	0.235	0.196	20	2.00	2.50	1.30	1.50
WPN3012H6R8MT	6.8±20%	0.340	0.290	16	1.60	1.90	1.10	1.25
WPN3012H100MT	10±20%	0.474	0.395	12	1.20	1.45	1.00	1.15

WPN4012H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN4012HR33MT	0.33±20%	0.032	0.027	113	10.30	11.50	4.30	4.90
WPN4012HR47MT	0.47±20%	0.041	0.034	96	9.10	9.90	3.80	4.40
WPN4012HR68MT	0.68±20%	0.041	0.034	70	5.50	6.35	3.80	4.40
WPN4012H1R0MT	1.0±20%	0.059	0.049	55	5.70	6.60	3.20	3.70
WPN4012H1R0MTY01	1.0±20%	0.049	0.041	56	4.50	5.30	3.60	4.20
WPN4012H1R2MT	1.2±20%	0.059	0.049	48	4.00	4.80	3.20	3.70
WPN4012H1R5MT	1.5±20%	0.070	0.058	38	3.90	4.60	2.90	3.30
WPN4012H2R2MT	2.2±20%	0.079	0.066	28	2.80	3.30	2.70	3.10
WPN4012H3R3MT	3.3±20%	0.125	0.104	23	2.80	3.30	2.10	2.50
WPN4012H4R7MT	4.7±20%	0.166	0.138	19	2.30	2.60	1.90	2.20
WPN4012H6R8MT	6.8±20%	0.226	0.188	17	1.60	2.20	1.60	1.85
WPN4012H100MT	10±20%	0.335	0.279	12	1.55	1.85	1.30	1.50
WPN4012H220MT	22±20%	0.679	0.566	7	1.05	1.30	0.90	1.05

WPN4020H Series

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN4020HR22MT	0.22±20%	0.013	0.011	108	18.70	22.00	8.20	9.50
WPN4020HR47MT	0.47±20%	0.022	0.018	72	13.40	15.50	6.40	7.40
WPN4020HR68MT	0.68±20%	0.022	0.018	57	8.70	11.10	6.40	7.40
WPN4020H1R0MT	1.0±20%	0.026	0.022	37	8.70	11.10	5.80	6.70
WPN4020H1R5MT	1.5±20%	0.036	0.030	30	7.70	9.60	5.20	6.00

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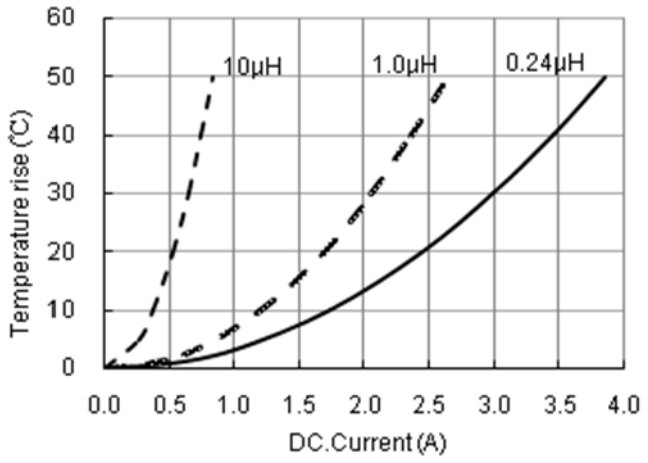
Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
	@1MHz	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WPN4020H2R2MT	2.2±20%	0.048	0.040	25	6.10	7.60	4.30	5.00
WPN4020H3R3MT	3.3±20%	0.072	0.060	19	4.70	5.90	3.45	4.00
WPN4020H4R7MT	4.7±20%	0.108	0.090	17	4.00	4.90	2.85	3.30
WPN4020H6R8MT	6.8±20%	0.156	0.130	13	3.00	4.20	2.40	2.80
WPN4020H100MT	10±20%	0.216	0.180	11	2.80	3.50	2.00	2.35

※1: All test data is referenced to 20°C ambient;
※2: Rated current: Isat or Irms, whichever is smaller;
※3: For WPN2016 & WPN2520 size inductors, absolute maximum voltage: DC 25V; For WPN30 & WPN40 size inductors, absolute maximum voltage: DC 40V;
※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.

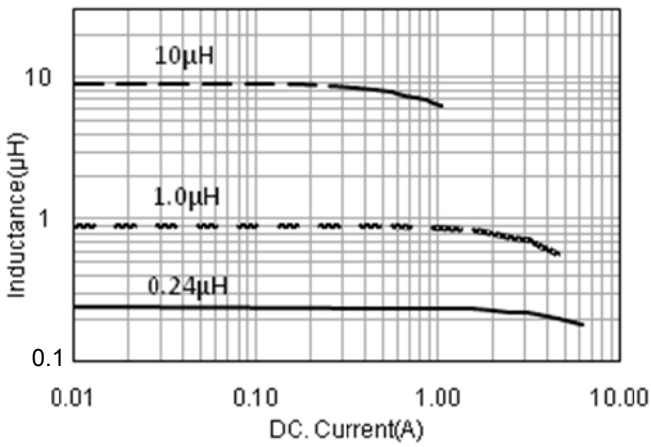
TYPICAL ELECTRICAL CHARACTERISTICS

WPN201610H Series

Temperature vs. DC Current Characteristics

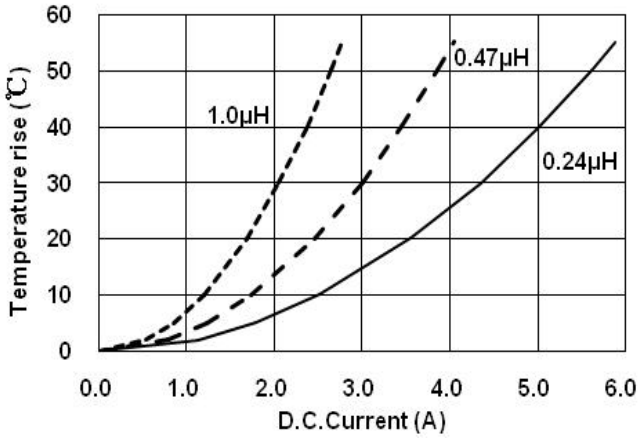


Inductance vs. DC Current Characteristics

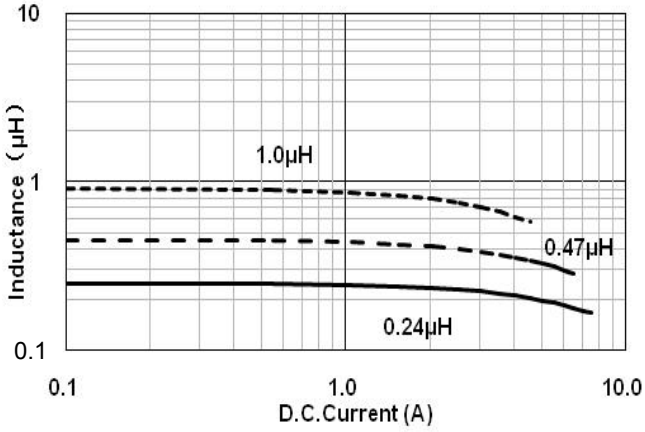


WPN201610M Series

Temperature vs. DC Current Characteristics



Inductance vs. DC Current Characteristics



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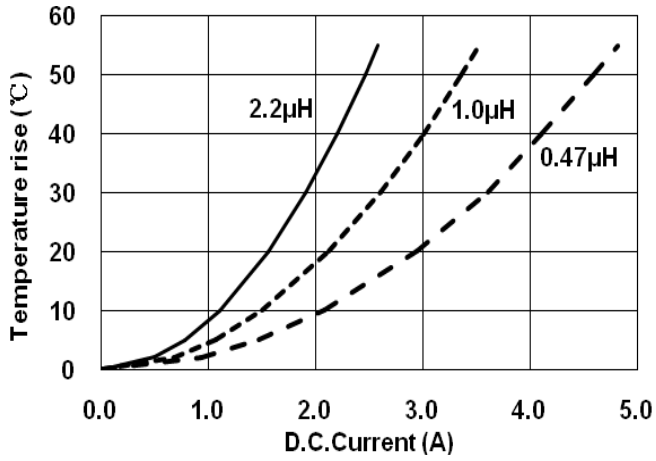
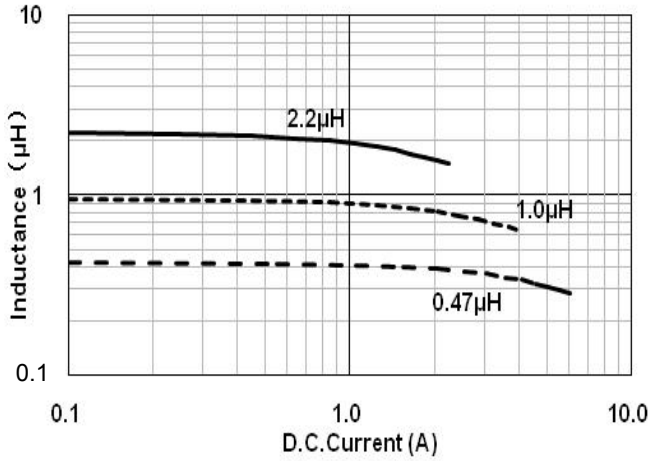
TYPICAL ELECTRICAL CHARACTERISTICS

WPN201610U Series

Temperature vs. DC Current Characteristics

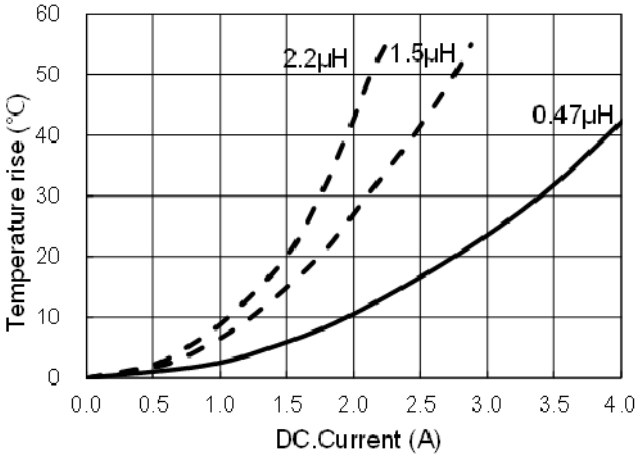


Inductance vs. DC Current Characteristics

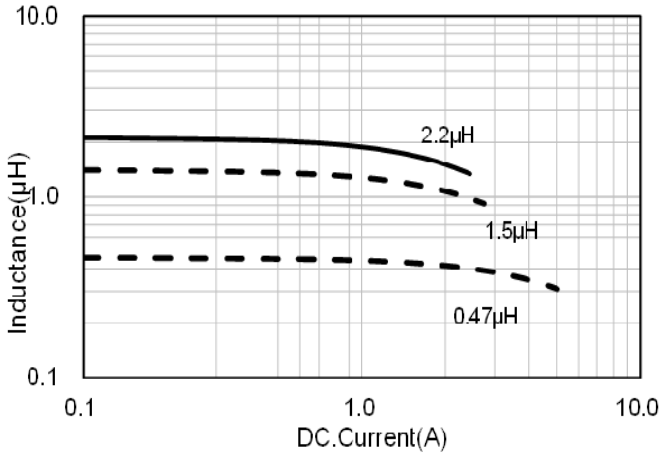


WPN201612H Series

Temperature vs. DC Current Characteristics

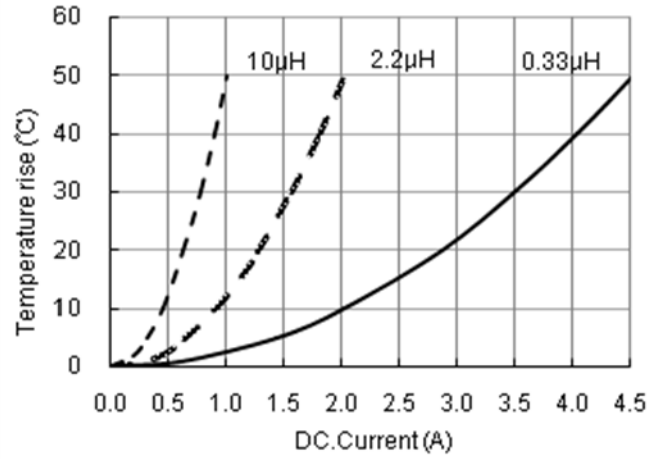


Inductance vs. DC Current Characteristics

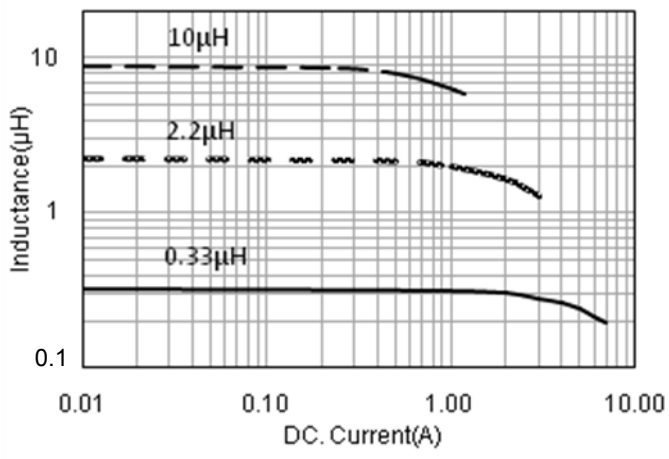


WPN252010H Series

Temperature vs. DC Current Characteristics



Inductance vs. DC Current Characteristics



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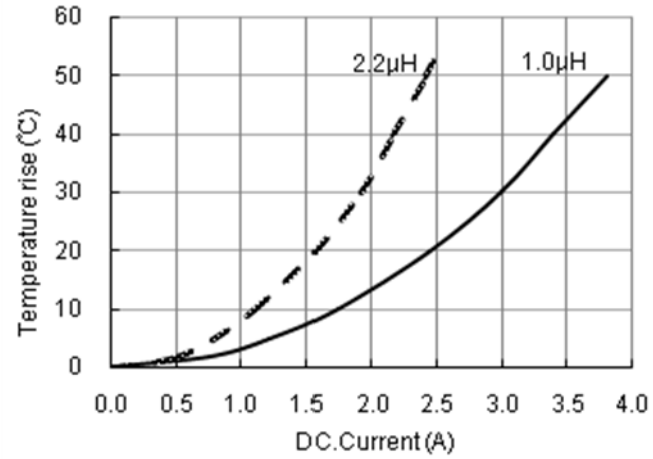
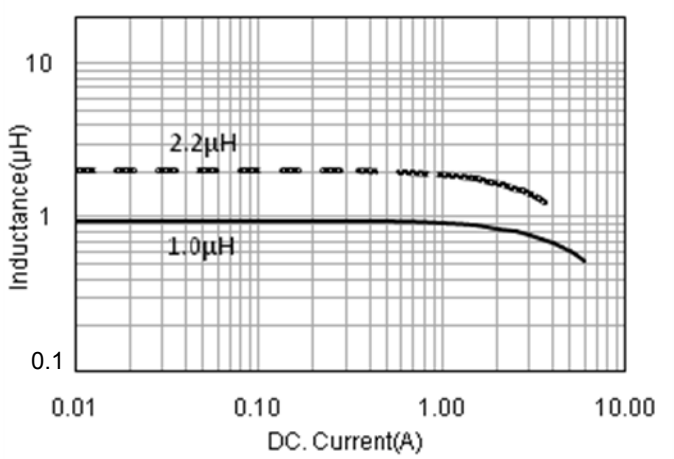
TYPICAL ELECTRICAL CHARACTERISTICS

WPN252012H Series

Temperature vs. DC Current Characteristics

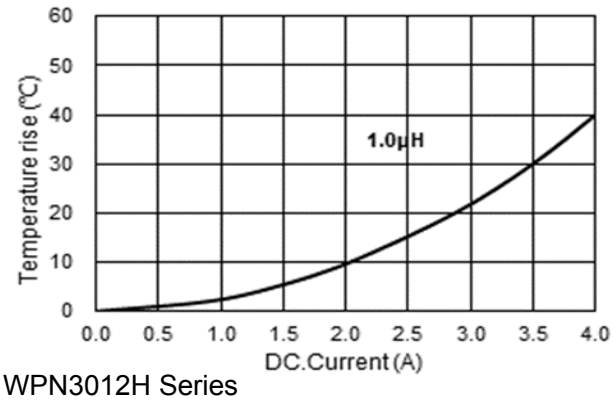


Inductance vs. DC Current Characteristics

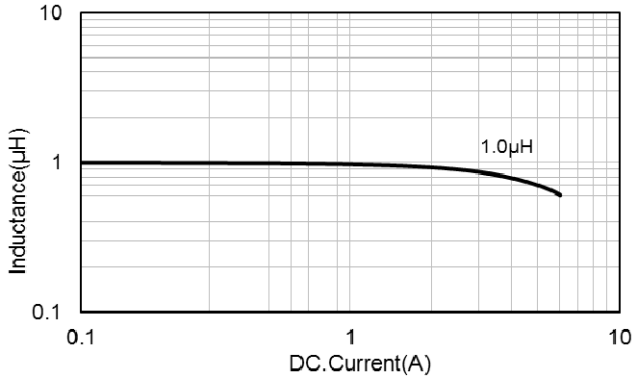


WPN252012E Series

Temperature vs. DC Current Characteristics

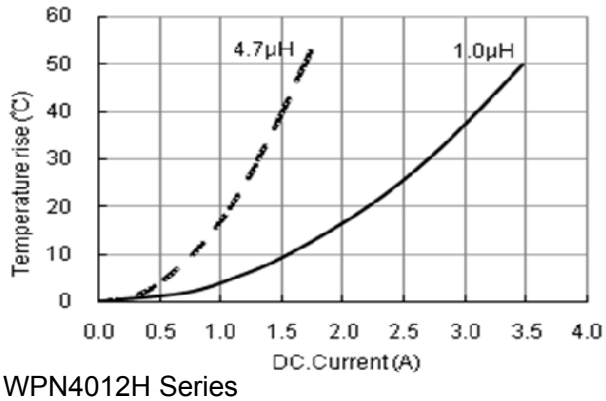


Inductance vs. DC Current Characteristics

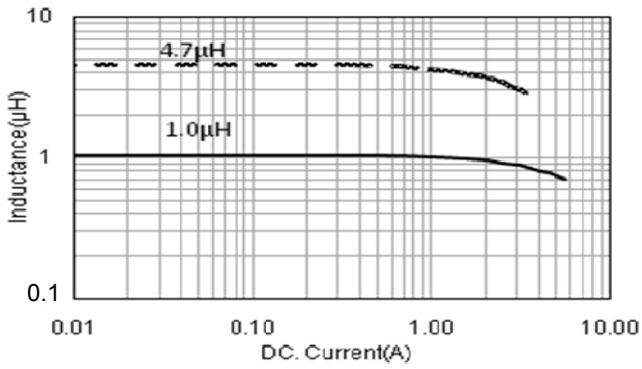


WPN3012H Series

Temperature vs. DC Current Characteristics

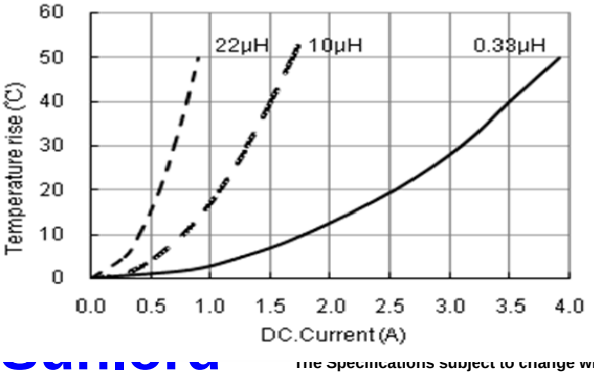


Inductance vs. DC Current Characteristics

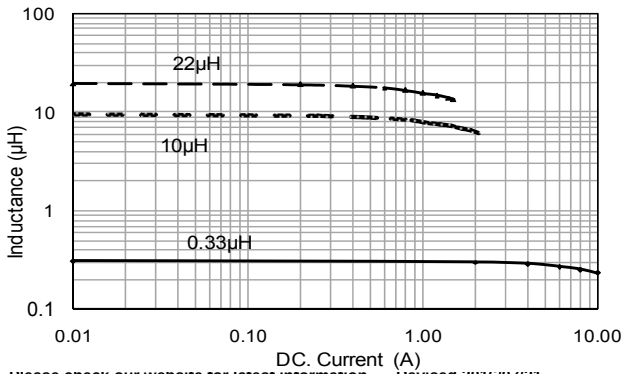


WPN4012H Series

Temperature vs. DC Current Characteristics



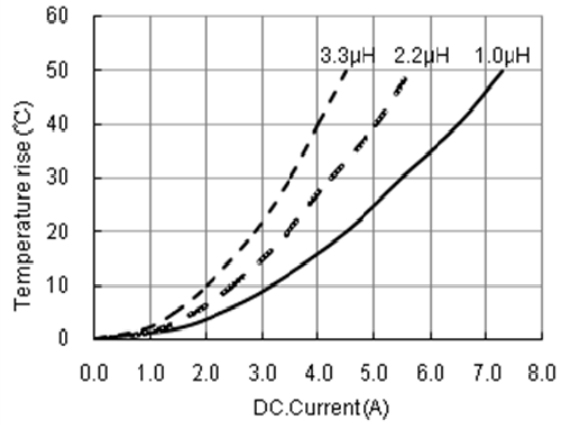
Inductance vs. DC Current Characteristics



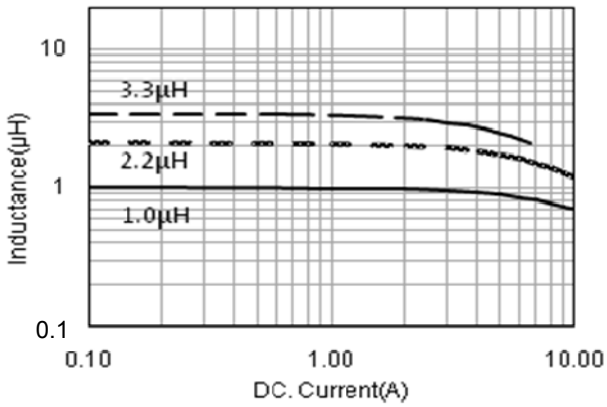
TYPICAL ELECTRICAL CHARACTERISTICS

WPN4020H Series

Temperature vs. DC Current Characteristics



Inductance vs. DC Current Characteristics



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