

Wire Wound SMD Power Inductors – WPN Series

Operating Temp. : -40°C~+125°C (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

①

252012

②

H

③

2R2

④

M

⑤

T

⑥

□□□

⑦

① Type	
WPN	Wire Wound SMD Power Inductor

③ Material Code	
H	H Type Material

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

⑤ Inductance Tolerance	
M	±20%

② External Dimensions (L×W×H) [mm]	
201610	2.0×1.6×1.0
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

⑥ Packing	
T	Tape & Reel

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

SHAPE AND DIMENSIONS

Fig.1

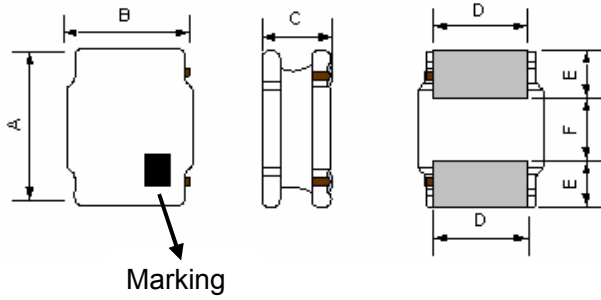


Fig.2

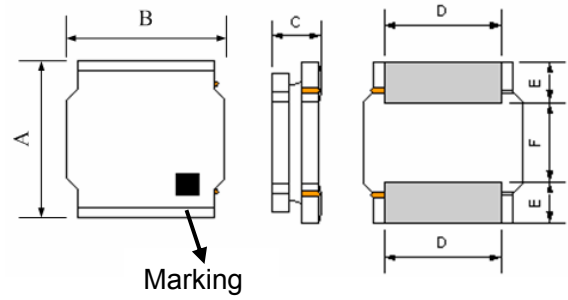
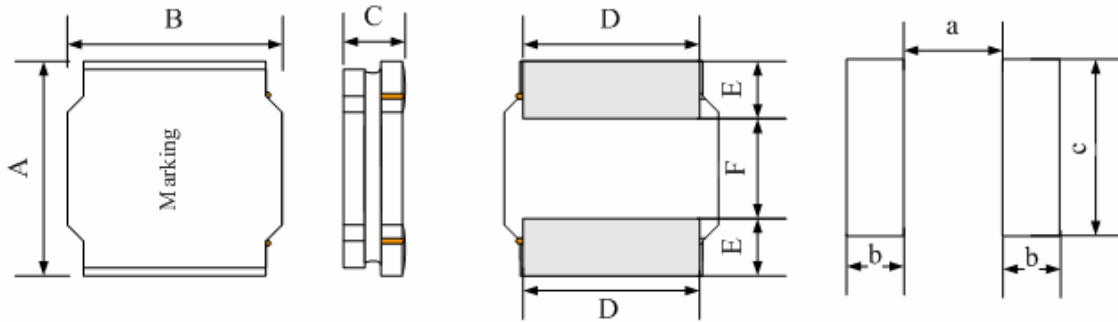


Fig.3



Recommended Land Pattern

Unit: mm

Series	Shape	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
WPN201610	Fig.1	2.0±0.2	1.6±0.2	1.0 Max.	1.2±0.2	0.60±0.2	0.80±0.2	0.70	0.70	1.7
WPN252010	Fig.1	2.5±0.2	2.0±0.2	1.0 Max.	1.5±0.2	0.80±0.2	0.80±0.2	0.80	0.85	2.0
WPN252012	Fig.1	2.5±0.2	2.0±0.2	1.2 Max.	1.5±0.2	0.80±0.2	0.80±0.2	0.80	0.85	2.0
WPN3012	Fig.2	3.0±0.2	2.0±0.2	1.2 Max.	2.5±0.2	0.75±0.2	1.5±0.2	1.5	0.8	2.7
WPN4012	Fig.3	4.0±0.2	4.0±0.2	1.2 Max.	3.3±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7
WPN4020	Fig.3	4.0±0.2	4.0±0.2	2.0 Max.	3.3±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7

SPECIFICATIONS

WPN201610H TYPE

Part Number	Inductance	DC Resistance		Self-resonant Frequency	Saturation Current		Heat Rating Current	
		Max.	Typ.		Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S,R,F	Isat		I _{rms}	
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
WPN201010H4R7MT	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

SPECIFICATIONS

WPN252010H TYPE

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 TYPE

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
WPN252012H4R7MT	4.7±20%	0.260	0.225	23	1.60	1.90	1.25	1.45
WPN252012H100MT	10±20%	0.480	0.435	14	1.10	1.35	0.85	1.00

WPN3012H TYPE

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	
WPN3012H1R0MT	1.0±20%	0.054	0.045	37	4.20	5.40	2.70	3.10
WPN3012H4R7MT	4.7±20%	0.235	0.196	19	2.00	2.50	1.30	1.50

WPN4012H TYPE

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%	0.036	0.030	129	8.30	9.70	3.10	3.50
WPN4012H100MT	10±20%	0.345	0.290	12	1.50	1.85	1.30	1.50
WPN4012H220MT	22±20%	0.708	0.590	7	1.15	1.35	0.70	0.80

SPECIFICATIONS

WPN4020H TYPE

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	
WPN4020H1R0MT	1.0 \pm 20%	0.030	0.025	36	7.80	9.00	5.50	6.50
WPN4020H2R2MT	2.2 \pm 20%	0.048	0.040	24	5.60	6.80	4.20	5.00
WPN4020H3R3MT	3.3 \pm 20%	0.072	0.060	18	4.60	5.40	3.50	4.00

※1 : All test data is referenced to 20°C ambient;

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

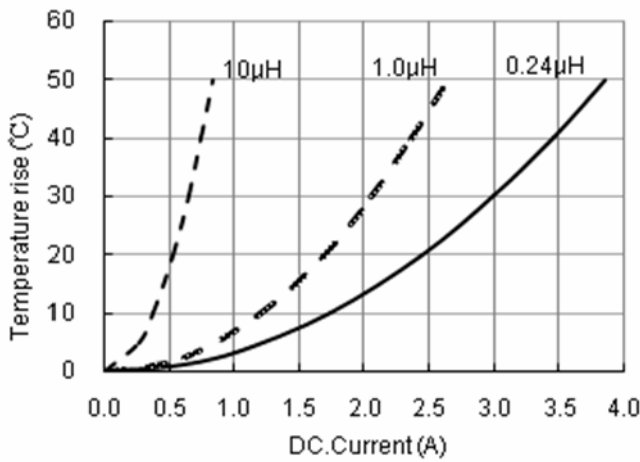
※Isat: DC current at which the inductance drops approximate 30% from its value without current;

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

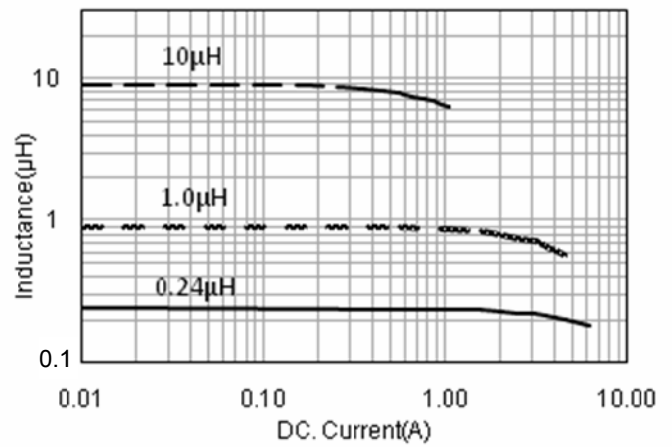
TYPICAL ELECTRICAL CHARACTERISTICS

WPN201610H Series

Temperature vs. DC Current Characteristics

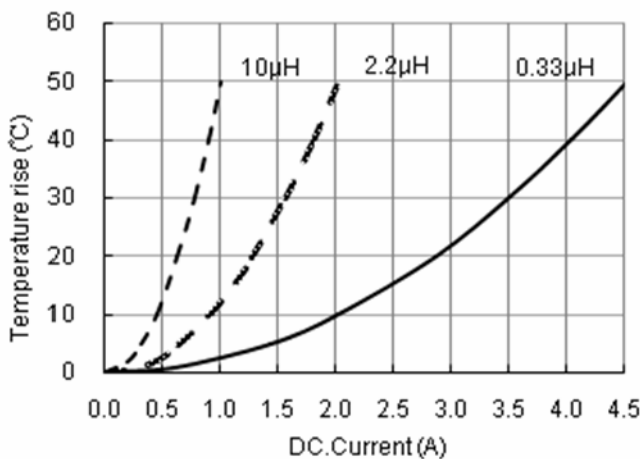


Inductance vs. DC Current Characteristics

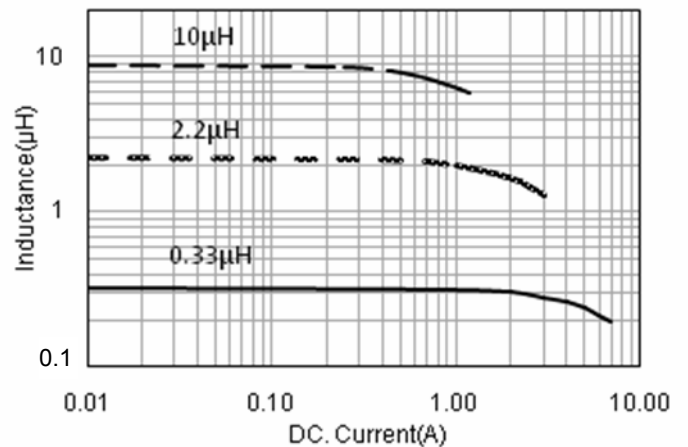


WPN252010H Series

Temperature vs. DC Current Characteristics



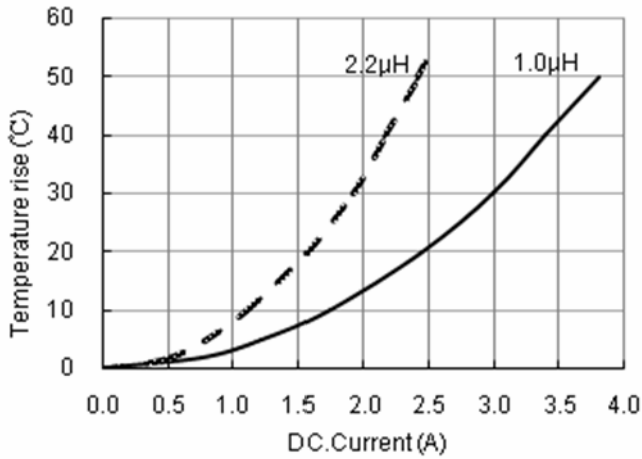
Inductance vs. DC Current Characteristics



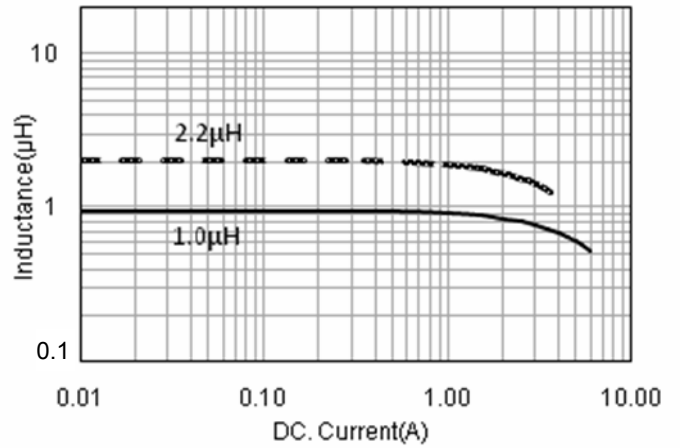
TYPICAL ELECTRICAL CHARACTERISTICS

WPN252012H Series

Temperature vs. DC Current Characteristics

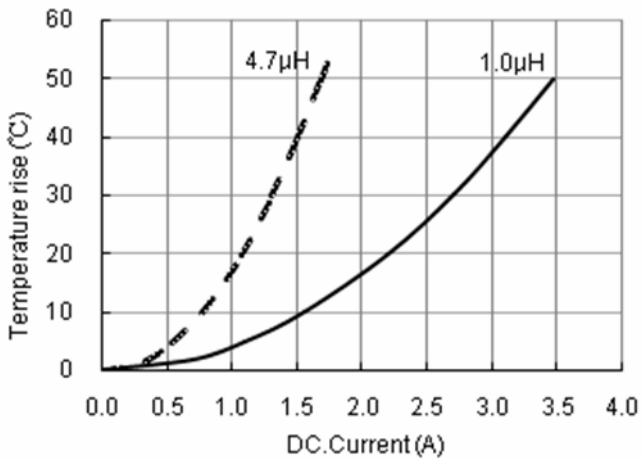


Inductance vs. DC Current Characteristics

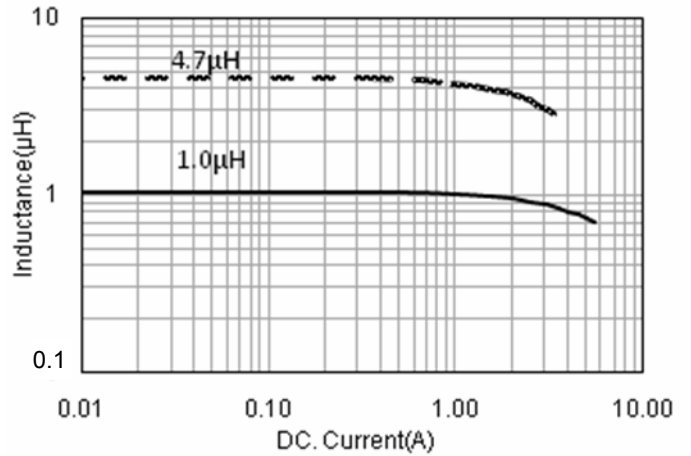


WPN3012H Series

Temperature vs. DC Current Characteristics

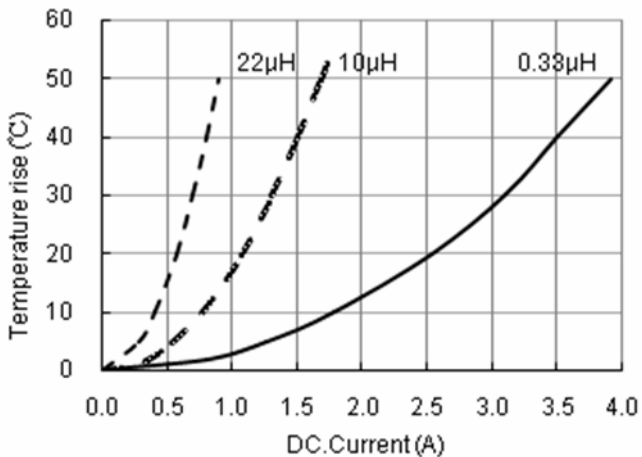


Inductance vs. DC Current Characteristics

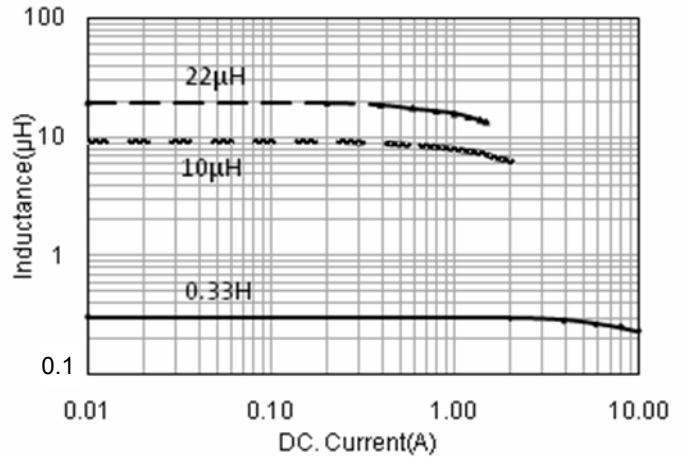


WPN4012H Series

Temperature vs. DC Current Characteristics



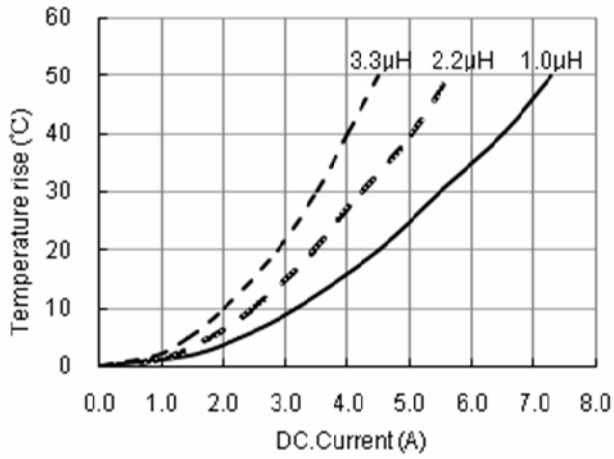
Inductance vs. DC Current Characteristics



TYPICAL ELECTRICAL CHARACTERISTICS

WPN4020H Series

Temperature vs. DC Current Characteristics



Inductance vs. DC Current Characteristics

