WSPA8040S Series

Wire Wound SMD Power Inductors

FEATURES

- Magnetic-resin shielded construction reduces buzz noise to ultra-low levels
- 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)
- 30% higher current rating than conventional inductors of equal size
- Takes up less PCB real estate and save more power

APPLICATIONS

- LED Lighting
- Flat-screen TVs, blue-ray disc recorders, set top box, movie cameras,smart phone
- Notebooks, desktop computers, servers, graphic cards cards
- Portable gaming devices, personal navigation systems, personal multimedia devices
- Telecomm base stations
- VR, AR

PRODUCT IDENTIFICATION

WSPA	3012	S	1R0	N	T	□□□
①	②	③	④	⑤	⑥	⑦

① Type	
WSPA	Wire Wound SMD Power Inductor

③ Feature Type	
S	Standard

④ Nominal Inductance	
Example	Nominal Value
1R0	1.0μH
100	10μH

⑤ Inductance Tolerance	
K	±10%
M	±20%
N	±30%

⑥ Packing	
T	Tape Carrier Package

⑦ Design Code	
□□□	Standard product is blank

② (L×W×H) [mm] External Dimensions (L×W×H) [mm]	
252010	2.5×2.0×1.0
252012	2.5×2.0×1.2
3010	3.0×3.0×1.0
3012	3.0×3.0×1.2
3015	3.0×3.0×1.5
4010	4.0×4.0×1.0
4012	4.0×4.0×1.2
4018	4.0×4.0×1.8
4020	4.0×4.0×2.0
4026	4.0×4.0×2.6
4030	4.0×4.0×3.0
5012	5.0×5.0×1.2
5020	5.0×5.0×2.0
5040	5.0×5.0×4.0
6020	6.0×6.0×2.0
6028	6.0×6.0×2.8
6040	6.0×6.0×4.0
6045	6.0×6.0×4.5
8040	8.0×8.0×4.0
8050	8.0×8.0×5.0
8065	8.0×8.0×6.5

SHAPE AND DIMENSIONS

Fig.1

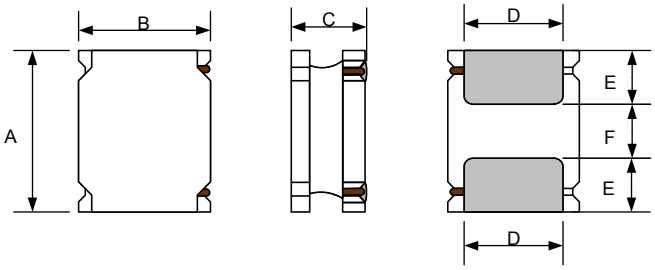


Fig.2

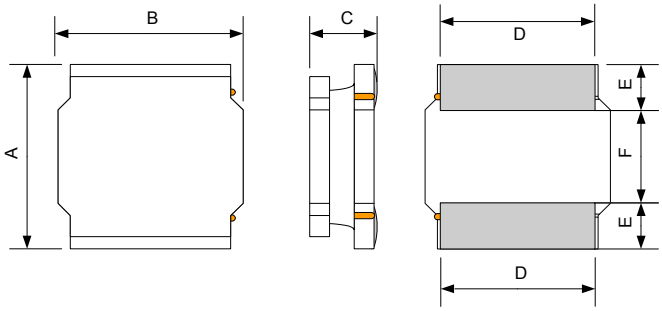
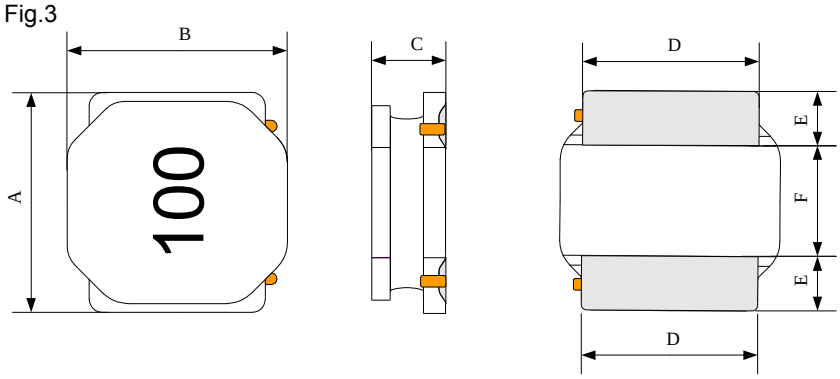
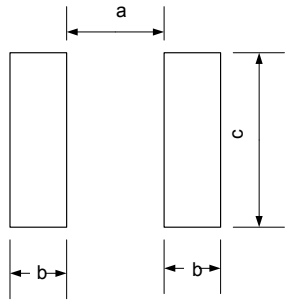


Fig.3



Recommended Land Pattern



Unit: mm

Series	Shape	A	B	C	D	E	F	a Typ.	b Typ.	c Typ.
WSPA252010S	Fig.1	2.5±0.1	2.0±0.1	1.0 Max.	2.0±0.2	0.80±0.2	0.80±0.2	0.80	0.85	2.0
WSPA252012S	Fig.1	2.5±0.1	2.0±0.1	1.2 Max.	2.0±0.2	0.80±0.2	0.80±0.2	0.80	0.85	2.0
WSPA3010S	Fig.2	3.0±0.2	3.0±0.2	1.0 Max.	2.5±0.2	0.75±0.2	1.5±0.2	1.5	0.8	2.7
WSPA3012S	Fig.2	3.0±0.2	3.0±0.2	1.2 Max.	2.5±0.2	0.75±0.2	1.5±0.2	1.5	0.8	2.7
WSPA3015S	Fig.2	3.0±0.2	3.0±0.2	1.5 Max.	2.5±0.2	0.75±0.2	1.5±0.2	1.5	0.8	2.7
WSPA4010S	Fig.2	4.0±0.2	4.0±0.2	1.0 Max.	3.3±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7
WSPA4012S	Fig.2	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
WSPA4018S	Fig.2	4.0±0.2	4.0±0.2	1.8 Max.	3.3±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7
WSPA4020S	Fig.2	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
WSPA4026S	Fig.2	4.0±0.2	4.0±0.2	2.6 Max.	3.3±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7
WSPA4030S	Fig.2	4.0±0.2	4.0±0.2	3.0 Max.	3.3±0.2	0.95±0.2	2.1±0.2	1.9	1.1	3.7
WSPA5012S	Fig.3	5.0±0.2	5.0±0.2	1.2 Max.	4.0±0.2	1.25±0.2	2.5±0.2	2.3	1.4	4.2
WSPA5020S	Fig.3	5.0±0.2	5.0±0.2	2.0 Max.	4.0±0.2	1.25±0.2	2.5±0.2	2.3	1.4	4.2
WSPA5040S	Fig.3	5.0±0.2	5.0±0.2	4.0 Max.	4.0±0.2	1.25±0.2	2.5±0.2	2.3	1.4	4.2
WSPA6020S	Fig.2	6.0±0.3	6.0±0.3	2.0 Max.	4.9±0.3	1.55±0.3	2.9±0.3	2.8	1.7	5.7
WSPA6028S	Fig.2	6.0±0.3	6.0±0.3	2.8 Max.	4.9±0.3	1.55±0.3	2.9±0.3	2.8	1.7	5.7
WSPA6040S	Fig.2	6.0±0.3	6.0±0.3	4.0 Max.	4.9±0.3	1.55±0.3	2.9±0.3	2.8	1.7	5.7
WSPA6045S	Fig.2	6.0±0.3	6.0±0.3	4.5 Max.	4.9±0.3	1.55±0.3	2.9±0.3	2.8	1.7	5.7
WSPA8040S	Fig.2	8.0±0.3	8.0±0.3	4.2 Max.	6.3±0.3	2.00±0.3	4.0±0.3	3.8	2.2	7.5
WSPA8050S	Fig.3	8.0±0.3	8.0±0.3	5.0 Max.	6.3±0.3	2.00±0.3	4.0±0.3	3.8	2.2	7.5
WSPA8065S	Fig.3	8.0±0.3	8.0±0.3	6.5 Max.	6.3±0.3	2.00±0.3	4.0±0.3	3.8	2.2	7.5

※*1: All products are printed with Marking except the 252010S, 252012S, 3010S, 3012S and 3015S series.

SPECIFICATIONS

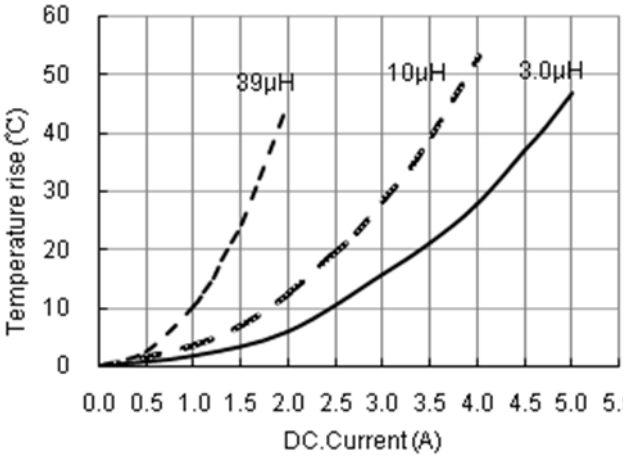
Part Number	Inductance	DC Resistance (±30%)		Self-resonant Frequency	Saturation Current*3		Heat Rating Current*4	
	@100kHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WSPA8040SR82NT	0.82±30%	0.010	0.008	94	13.80	16.00	6.30	6.90
WSPA8040S1R0NT	1.0±30%	0.010	0.008	89	9.85	14.00	6.30	6.90
WSPA8040S1R2NT	1.2±30%	0.013	0.010	59	10.00	14.00	5.65	6.20
WSPA8040S1R5NT	1.5±30%	0.013	0.010	67	8.15	11.00	5.65	6.20
WSPA8040S2R0NT	2.0±30%	0.016	0.012	43	9.25	10.00	5.15	5.60
WSPA8040S2R2NT	2.2±30%	0.016	0.012	41	7.10	8.00	5.15	5.60
WSPA8040S3R0NT	3.0±30%	0.018	0.014	32	6.10	7.00	4.70	5.20
WSPA8040S3R3NT	3.3±30%	0.022	0.017	27	6.50	7.00	4.40	4.80
WSPA8040S3R6NT	3.6±30%	0.022	0.017	30	7.52	8.50	4.35	4.80
WSPA8040S3R9NT	3.9±30%	0.022	0.017	26	5.75	6.50	4.35	4.80
WSPA8040S4R7NT	4.7±30%	0.025	0.019	24	5.90	6.50	4.10	4.50
WSPA8040S5R1NT	5.1±30%	0.025	0.019	22	4.70	5.40	4.05	4.40
WSPA8040S5R6NT	5.6±30%	0.027	0.021	24	6.00	6.90	3.85	4.20
WSPA8040S6R2NT	6.2±30%	0.027	0.021	20	4.45	5.10	3.85	4.20
WSPA8040S6R8MT	6.8±20%	0.031	0.024	20	4.55	5.20	3.60	4.00
WSPA8040S8R2MT	8.2±20%	0.034	0.026	17	4.20	4.80	3.45	3.80
WSPA8040S100MT	10±20%	0.038	0.029	15	3.60	4.10	3.30	3.60
WSPA8040S120MT	12±20%	0.053	0.041	13	3.50	4.00	2.80	3.00

SPECIFICATIONS

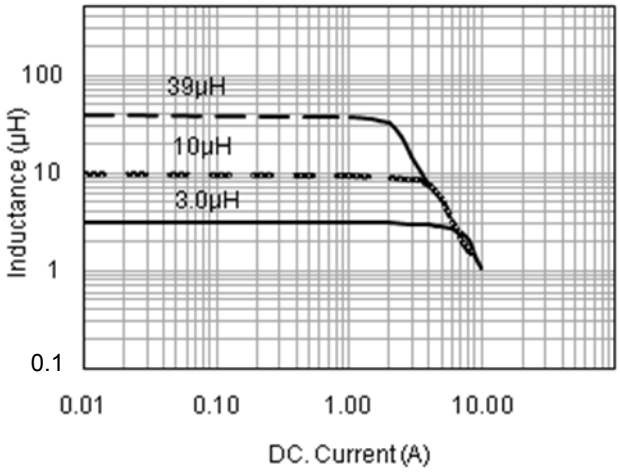
Part Number	Inductance	DC Resistance (±30%)		Self-resonant Frequency	Saturation Current*3		Heat Rating Current*4	
	@100kHz,1V	Max.	Typ.	Min.	Max.	Typ.	Max.	Typ.
Units	μH	Ω		MHz	A		A	
Symbol	L	DCR		S.R.F	Isat		Irms	
WSPA8040S150MT	15±20%	0.061	0.047	12	2.95	3.40	2.60	2.80
WSPA8040S180MT	18±20%	0.069	0.053	11	2.70	3.10	2.40	2.60
WSPA8040S220MT	22±20%	0.090	0.069	9.5	2.40	2.70	2.10	2.30
WSPA8040S270MT	27±20%	0.101	0.078	9.2	2.15	2.50	2.00	2.20
WSPA8040S330MT	33±20%	0.126	0.097	7.8	2.05	2.40	1.80	2.00
WSPA8040S360MT	36±20%	0.133	0.102	7.8	2.00	2.30	1.75	1.90
WSPA8040S390MT	39±20%	0.139	0.107	7.8	1.95	2.20	1.70	1.90
WSPA8040S430MT	43±20%	0.147	0.113	7.8	1.90	2.20	1.65	1.80
WSPA8040S470MT	47±20%	0.177	0.136	6.4	1.75	2.00	1.55	1.70
WSPA8040S510MT	51±20%	0.185	0.142	6.4	1.70	1.90	1.50	1.60
WSPA8040S560MT	56±20%	0.192	0.148	6.4	1.55	1.70	1.45	1.60
WSPA8040S620MT	62±20%	0.237	0.182	6.4	1.50	1.60	1.30	1.40
WSPA8040S680MT	68±20%	0.255	0.196	4.9	1.45	1.60	1.25	1.40
WSPA8040S750MT	75±20%	0.274	0.211	4.9	1.35	1.50	1.20	1.30
WSPA8040S820MT	82±20%	0.293	0.225	5.9	1.30	1.40	1.15	1.20
WSPA8040S910MT	91±20%	0.354	0.272	4.9	1.20	1.30	1.05	1.10
WSPA8040S101MT	100±20%	0.377	0.290	4.2	1.15	1.30	1.00	1.10
WSPA8040S121MT	120±20%	0.434	0.334	3.5	1.05	1.10	0.95	1.00
WSPA8040S151MT	150±20%	0.533	0.410	3.5	1.10	1.20	0.85	0.94
WSPA8040S181MT	180±20%	0.676	0.520	3.5	0.95	1.15	0.83	0.92
WSPA8040S221MT	220±20%	0.779	0.599	3.5	0.85	0.94	0.80	0.88
WSPA8040S331MT	330±20%	1.156	0.889	2.8	0.68	0.75	0.64	0.70
WSPA8040S471MT	470±20%	1.625	1.260	2.1	0.60	0.70	0.50	0.60
WSPA8040S681MT	680±20%	2.652	2.040	1.7	0.50	0.60	0.45	0.50
WSPA8040S102MT	1000±20%	3.640	2.800	1.4	0.40	0.50	0.35	0.40
WSPA8040S152MT	1500±20%	6.500	5.000	1.0	0.32	0.38	0.26	0.27

TYPICAL ELECTRICAL CHARACTERISTICS

Temperature vs. DC Current Characteristics



Inductance vs. DC Current Characteristics



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