Molded Power Inductor MWSA-S/MWLA-S Series

Overview

The MWSA-S/MWLA-S series of Sunlord molded power inductors covers dimensions from 4.4*4.2 mm to 17.15*17.15 mm and inductance from 0.1uH to 150uH.They are suitable for power supply of consumer electronics, such as TV, AR, VR, white goods, notebook, tablet and other consumer equipment as well as server, base station, instruments and apparatus, security and other industrial equipment.

Background

The appearance of molded inductors is attributed to the development of computer motherboards and power supply technology. The main frequency and power consumption of the CPU are getting higher and higher, which demands on the inductor for higher currents and lower losses. The magnet part of molded power inductor is made of alloy magnetic powder/carbonyl powder. In results, molded inductor has better saturation characteristics than inductor with traditional ferrite core. Meanwhile, lower DCR makes the loss smaller. These advantages make molded inductor ideally suited for high current applications such as power supply circuits of CPU. In addition, the fully magnetically shielded structure is adopted for smaller leakage flux and EMI optimization.

Features

- The core of MWSA-S series are made of alloy magnetic powders, which contributes to high saturation current.
- The core of MWLA-S series are made of carbonyl powders. Compared to MWSA-S series, the saturation characteristics of MWLA-S series are further improved.
- Low DCR, wide range of dimensions (4.4*4.2mm~17.15*17.15mm).
- Full magnetic shield structure, less leakage flux.
- Halogen free, RoHS compliant.

Applications

- TV, AR, VR, white goods, notebook, tablet and other consumer equipment.
- Server, base station, instruments and apparatus, security and other industrial equipment.

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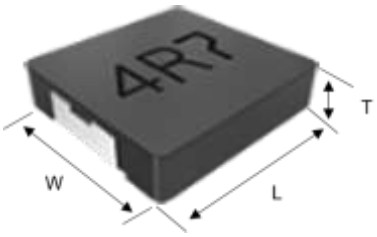
Specifications for MWSA-S series:

Dimensions

Unit: mm



Series	L	W	T
MWSA0412S	4.4 ±0.35	4.2 ±0.25	1.0 ±0.2
MWSA0402S	4.4 ±0.35	4.2 ±0.25	1.8 ±0.2
MWSA0518S	5.4 ±0.35	5.2 ±0.2	1.6 ±0.2
MWSA0503S	5.4 ±0.35	5.2 ±0.2	2.8 ±0.2
MWSA0615S	7.0 ±0.3	6.6 ±0.2	1.3 ±0.2
MWSA0618S	7.0 ±0.3	6.6 ±0.2	1.6 ±0.2
MWSA0602S	7.0 ±0.3	6.6 ±0.2	1.8 ±0.2
MWSA0624S	7.0 ±0.3	6.6 ±0.2	2.2 ±0.2
MWSA0603S	7.0 ±0.3	6.6 ±0.2	2.8 ±0.2
MWSA0604S	7.0 ±0.3	6.6 ±0.2	3.8 ±0.2
MWSA0605S	7.0 ±0.3	6.6 ±0.2	4.8 ±0.2
MWSA0804S	8.2 ±0.3	8.8 ±0.4	3.8 ±0.2
MWSA1003S	11.5 Max	10.0 ±0.3	2.8 ±0.2
MWSA1004S	11.0 ±0.5	10.0 ±0.3	3.8 ±0.2
MWSA1005S	11.5 Max	10.0 ±0.3	4.8 ±0.2
MWSA1204S	13.45 ±0.35	12.8 ±0.5	4.0 Max
MWSA1205S	13.45 ±0.35	12.6 ±0.3	4.8 ±0.2
MWSA1206S	13.45 ±0.35	12.6 ±0.3	5.8 ±0.2
MWSA1265S	13.45 ±0.35	12.6 ±0.3	6.5 Max
MWSA1707S	17.15 ±0.35	17.15 Max	6.7 ±0.3

Part Number

MWSA **0603S** **□□□** **□** **T**

① ② ③ ④ ⑤

①	Type
MWSA	Molded power inductor

②	(L×W×H) [mm]
0412S	4.4×4.2×1.0
0402S	4.4×4.2×1.8
0518S	5.4×5.2×1.6
0503S	5.4×5.2×2.8
0615S	7.0×6.6×1.3
0618S	7.0×6.6×1.6
0602S	7.0×6.6×1.8
0624S	7.0×6.6×2.2
0603S	7.0×6.6×2.8
0604S	7.0×6.6×3.8
0605S	7.0×6.6×4.8
0804S	8.2×8.8×3.8
1003S	11.5×10.0×2.8
1004S	11.0×10.0×3.8
1005S	11.5×10.0×4.8
1204S	13.45×12.8×4.0
1205S	13.45×12.6×4.8
1206S	13.45×12.6×5.8
1265S	13.45×12.6×6.5
1707S	17.15×17.15×6.7

③	Nominal Inductance [μH]
Example	Nominal Value [μH]
R47	0.47μH
1R0	1.0μH

④	Nominal Inductance [μH]
M	±20%

⑤	Packing
T	Tape & Reel

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Electrical Characteristic

Part Number Series	Inductance Range	L Test Condition	Max. DCR Range	Typ. Saturation Current Range	Typ. Heat Rating Current Range
Units	μH(±20%)	Hz, V	mΩ	A	A
Symbol	L	-	DCR	I_{sat}	I_{rms}
MWSA0412S	0.15~4.7	100KHz, 1V	9~195	2.2~15	1.8~7.5
MWSA0402S	0.10~22		4~363	1.4~22	1.2~13
MWSA0518S	0.47~10		9~155	2.5~12	2.5~10.5
MWSA0503S	0.1~15		3~170	2.2~30	1.8~25
MWSA0615S	0.47~22		8.5~510	2.5~16	1.32~10
MWSA0618S	0.1~22		2.3~350	2.3~38	1.8~25
MWSA0602S	1.5~10		18~145	4.0~12	2.8~8
MWSA0624S	0.22~22		3~230	2.5~30	2~21
MWSA0603S	0.22~47		3~385	2~34	1.5~24
MWSA0604S	0.68~47		4.8~320	2.5~19	1.8~17
MWSA0605S	0.47~47		3.9~230	2.6~21	2~20
MWSA0804S	0.22~47		1.8~225	3.1~60	2.9~36
MWSA1003S	0.22~33		1.2~160	4~50	2.6~33
MWSA1004S	0.13~100		0.55~340	2.3~92	2~72
MWSA1005S	0.22~100		0.8~290	2.8~65	2.1~37
MWSA1204S	0.22~22		0.9~51	6~50	4.5~42
MWSA1205S	0.22~47		0.7~130	5~75	3~50
MWSA1206S	1.5~150		2.9~350	2.7~30	1.5~27
MWSA1265S	4.7~100		8.5~170	4~24	3.5~16
MWSA1707S	2.2~100		2.5~130	5~34	3.7~29

Production

- Mass production

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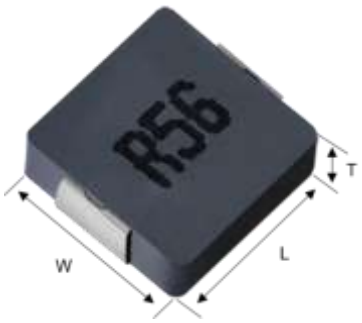
Specifications for MWLA-S series:

Dimensions

Unit: mm



Series	L	W	T
MWLA0415S	4.4 ±0.35	4.2 ±0.25	1.3 ±0.2
MWLA0402S	4.4 ±0.35	4.2 ±0.25	1.8 ±0.2
MWLA0502S	5.7 ±0.30	5.2 ±0.20	1.8 ±0.2
MWLA0503S	5.7 ±0.30	5.2 ±0.20	2.8 ±0.2
MWLA0618S	7.3 ±0.30	6.6 ±0.30	1.6 ±0.2
MWLA0624S	7.3 ±0.30	6.6 ±0.30	2.2 ±0.2
MWLA0603S	7.3 ±0.30	6.6 ±0.30	2.8 ±0.2
MWLA0803S	8.6 ±0.30	8.2 ±0.30	2.8 ±0.2
MWLA0804S	8.6 ±0.30	8.2 ±0.30	3.8 ±0.2
MWLA1004S	11.0 ±0.50	10.0 ±0.3	3.8 ±0.2
MWLA1235S	13.5 ±0.5	12.6 ±0.30	3.3 ±0.2
MWLA1250S	13.5 ±0.5	12.6 ±0.30	4.7 ±0.3
MWLA1206S	13.5 ±0.5	12.6 ±0.30	5.7 ±0.3
MWLA1265S	13.5 ±0.5	12.6 ±0.30	6.2 ±0.3
MWLA1707S	17.5 ±0.5	17.0 ±0.30	7.0Max

Part Number

MWLA ① **0603S** ② □□□ ③ □ ④ **T** ⑤

①	Type
MWLA	Molded Power Inductor

③	Nominal Inductance [μH]
Example	Nominal Value [μH]
R47	0.47μH
1R0	1.0μH

⑤	Packing
T	Tape & Reel

④	Inductance Tolerance
M	±20%
N	±30%

②	External Dimensions (L×W×H) [mm]
0415S	4.4×4.2×1.3
0402S	4.4×4.2×1.8
0502S	5.7×5.2×1.8
0503S	5.4×5.2×2.8
0618S	7.3×6.6×1.6
0624S	7.3×6.6×2.2
0603S	7.3×6.6×2.8
0803S	8.6×8.2×2.8
0804S	8.6×8.2×3.8
1004S	11.0×10.0×3.8
1235S	13.5×12.6×3.3
1250S	13.5×12.6×4.7
1206S	13.5×12.6×5.7
1265S	13.5×12.6×6.2
1707S	17.5×17.0×7.0

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Electrical Characteristics

Part Number Series	Inductance Range	L Test Condition	Max. DCR Range	Typ. Saturation Current Range	Typ. Heat Rating Current Range
Units	μH(±20%)	Hz, V	mΩ	A	A
Symbol	L	-	DCR	I_{sat}	I_{rms}
MWLA0415S	10	100KHz, 1V	400	1.9	1.5
MWLA0402S	0.22~22		7.3~500	1.4~24	1.2~13
MWLA0502S	0.22~22		5.5~390	1.8~25	1.5~15
MWLA0503S	0.22~10		4.4~120	4~21	3.5~15.5
MWLA0618S	0.22~10		3~160	3.5~26	2.3~16
MWLA0624S	0.22~10		3.2~101	5~34	3.2~21
MWLA0603S	0.1~47		1.7~363	2~60	1.75~32.5
MWLA0803S	0.22~10		1.71~71.2	8.2~43	4.7~32
MWLA0804S	0.22~10		1.68~59.9	9~45	5.2~30.7
MWLA1004S	0.22~47		1~167	4.5~60	3~35
MWLA1235S	0.33~4.7		1.5~18	22~62	9~36.5
MWLA1250S	0.33~33		0.9~88	8~80	5~42
MWLA1206S	0.47~150		1.3~350	6~64	3~38
MWLA1265S	0.47~68		1.2~130	7.8~63	4.8~41
MWLA1707S	1~100		2.0~118	6.5~60	5.3~52

Production

- Mass production

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