

# Molded SMD Power Inductors – MWSA Series

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



## FEATURES

- Metal material for large current and low loss
- Closed magnetic circuit design reduces leakage flux
- Halogen free, RoHS compliant

## APPLICATIONS

- Server, desktop computer, notebook
- Graphics, memory
- Industrial equipment, telecom base station

## PRODUCT IDENTIFICATION

**MWSA**      **0603S**      =      **1R0**      **M**      **T**      □□□

①                      ②                                      ③                      ④                      ⑤                      ⑥

① Type	
MWSA	Molded SMD Power Inductor

② External dimensions(LxWxH) [mm]	
0412S	4.2x4.4x1.2
0402S	4.2*4.4*2.0
0518S	5.2*5.4*1.8
0503S	5.2*5.4*3.0
0618S	6.6*7.0*1.8
0624S	6.6*7.0*2.4
0603S	6.6*7.0*3.0
0604S	6.6*7.0*4.0
0605S	6.6*7.0*5.0
1004S	10.0*11.5*4.0
1205S	12.6*13.45*5.0

③ Nominal Inductance	
Example	Nominal Value
R82	0.82μH
1R0	1.0μH

④ Inductance Tolerance	
M	±20%

⑤ Packing	
T	Tape & Reel

⑥ Design Code	
□□□	Design Code
Standard Product is Blank	

## SHAPE AND DIMENSIONS



Unit: mm

Series	A	B	C	D	E	I Typ.	J Typ.	H Typ.
MWSA0412S	4.2±0.25	4.4±0.35	1.0±0.2	0.8±0.3	2.0±0.3	1.5	2.2	2.5
MWSA0402S	4.2±0.25	4.4±0.35	1.8±0.2	0.8±0.3	2.0±0.3	1.5	2.2	2.5
MWSA0518S	5.2±0.2	5.4±0.35	1.6±0.2	1.20±0.2	2.2±0.3	1.9	2.2	2.5
MWSA0503S	5.2±0.2	5.4±0.35	2.8±0.2	1.20±0.2	2.2±0.3	1.9	2.2	2.5
MWSA0618S	6.6±0.2	7.0±0.3	1.6±0.2	1.60±0.3	3.0±0.3	2.35	3.7	3.5
MWSA0624S	6.6±0.2	7.0±0.3	2.2±0.2	1.60±0.3	3.0±0.3	2.35	3.7	3.5
MWSA0603S	6.6±0.2	7.0±0.3	2.8±0.2	1.60±0.3	3.0±0.3	2.35	3.7	3.5
MWSA0604S	6.6±0.2	7.0±0.3	3.8±0.2	1.60±0.3	3.0±0.3	2.35	3.7	3.5
MWSA0605S	6.6±0.2	7.0±0.3	4.8±0.2	1.60±0.3	3.0±0.3	2.35	3.7	3.5
MWSA1004S	10.0±0.3	11.5Max	3.8±0.2	2.0±0.5	3.0±0.5	4.1	5.4	4.1
MWSA1205S	12.6±0.3	13.45±0.35	4.8±0.2	2.0±0.5	3.5±0.5	3.25	8.0	5.0

## SPECIFICATIONS

### MWSA0412S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0412S-R15MT	0.15±20%	9	15.00	7.50
MWSA0412S-R22MT	0.22±20%	11	11.00	7.00
MWSA0412S-R33MT	0.33±20%	19	8.40	6.50
MWSA0412S-R47MT	0.47±20%	21	6.80	6.00
MWSA0412S-R68MT	0.68±20%	36	6.00	4.70
MWSA0412S-1R0MT	1.0±20%	47	5.50	4.50
MWSA0412S-1R5MT	1.5±20%	75	4.00	3.25
MWSA0412S-2R2MT	2.2±20%	83.5	3.00	2.75
MWSA0412S-4R7MT	4.7±20%	195	2.20	1.80

## SPECIFICATIONS

### MWSA0402S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0402S-R10MT	0.10±20%	4	22.00	13.00
MWSA0402S-R22MT	0.22±20%	6.6	12.50	9.50
MWSA0402S-R33MT	0.33±20%	11	12.00	10.00
MWSA0402S-R47MT	0.47±20%	14	9.50	7.50
MWSA0402S-R56MT	0.56±20%	16	9.00	7.00
MWSA0402S-R68MT	0.68±20%	18	8.00	7.00
MWSA0402S-1R0MT	1.0±20%	27	7.00	6.00
MWSA0402S-1R2MT	1.2±20%	27	6.50	6.00
MWSA0402S-1R5MT	1.5±20%	46	5.50	5.00
MWSA0402S-2R2MT	2.2±20%	58	5.00	4.50
MWSA0402S-3R3MT	3.3±20%	87	3.50	3.30
MWSA0402S-4R7MT	4.7±20%	105	3.00	2.80
MWSA0402S-6R8MT	6.8±20%	175	2.50	2.40
MWSA0402S-100MT	10±20%	282	2.00	1.60

### MWSA0518S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0518S-R47MT	0.47±20%	9	12.00	10.50
MWSA0518S-R56MT	0.56±20%	10	11.00	9.50
MWSA0518S-1R0MT	1.0±20%	17	9.00	8.00
MWSA0518S-1R5MT	1.5±20%	26	8.00	7.50
MWSA0518S-2R2MT	2.2±20%	35	6.00	5.00
MWSA0518S-3R3MT	3.3±20%	58	4.80	4.50
MWSA0518S-4R7MT	4.7±20%	85	4.00	3.50
MWSA0518S-6R8MT	6.8±20%	120	3.40	2.80
MWSA0518S-100MT	10±20%	155	2.50	2.50

## SPECIFICATIONS

### MWSA0503S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0503S-R10MT	0.10±20%	3.0	30.00	25.00
MWSA0503S-R20MT	0.20±20%	3.9	20.00	14.00
MWSA0503S-R33MT	0.33±20%	5.5	18.00	14.00
MWSA0503S-R47MT	0.47±20%	8.5	15.00	11.00
MWSA0503S-R68MT	0.68±20%	12	11.50	9.00
MWSA0503S-1R0MT	1.0±20%	14	10.00	8.50
MWSA0503S-1R2MT	1.2±20%	16	9.50	8.50
MWSA0503S-1R5MT	1.5±20%	25	9.00	8.20
MWSA0503S-2R2MT	2.2±20%	29	7.00	7.00
MWSA0503S-3R3MT	3.3±20%	38	6.00	5.50
MWSA0503S-4R7MT	4.7±20%	60	4.60	4.50
MWSA0503S-6R8MT	6.8±20%	90	3.60	3.50
MWSA0503S-100MT	10±20%	125	3.50	3.20

### MWSA0618S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0618S-R10MT	0.10±20%	2.3	38.00	25.00
MWSA0618S-R22MT	0.22±20%	3.5	24.00	22.00
MWSA0618S-R47MT	0.47±20%	8.4	18.00	11.50
MWSA0618S-R68MT	0.68±20%	12	16.50	9.50
MWSA0618S-1R0MT	1.0±20%	16	12.00	8.50
MWSA0618S-1R5MT	1.5±20%	26	9.20	8.00
MWSA0618S-2R2MT	2.2±20%	35	8.00	7.00
MWSA0618S-3R3MT	3.3±20%	50	6.00	4.50
MWSA0618S-4R7MT	4.7±20%	62	5.00	4.00
MWSA0618S-6R8MT	6.8±20%	110	4.50	3.00
MWSA0618S-100MT	10±20%	155	4.00	2.30

## SPECIFICATIONS

### MWSA0624S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0624S-R22MT	0.22±20%	3	30.00	21.00
MWSA0624S-R33MT	0.33±20%	4.1	24.50	18.00
MWSA0624S-R47MT	0.47±20%	5.1	20.00	15.00
MWSA0624S-R56MT	0.56±20%	6.5	17.00	13.00
MWSA0624S-R68MT	0.68±20%	7	16.00	12.00
MWSA0624S-1R0MT	1.0±20%	13.5	15.00	9.00
MWSA0624S-1R5MT	1.5±20%	20	13.50	8.20
MWSA0624S-2R2MT	2.2±20%	28	10.00	7.00
MWSA0624S-3R3MT	3.3±20%	39	8.00	5.50
MWSA0624S-4R7MT	4.7±20%	50	6.50	5.00
MWSA0624S-6R8MT	6.8±20%	70	6.00	4.00
MWSA0624S-100MT	10±20%	101	4.00	3.10
MWSA0624S-150MT	15±20%	160	3.30	2.50
MWSA0624S-220MT	22±20%	230	2.50	2.00

### MWSA0603S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0603S-R22MT	0.22±20%	3	34.00	24.00
MWSA0603S-R33MT	0.33±20%	3.5	25.00	21.00
MWSA0603S-R47MT	0.47±20%	4.1	20.00	18.00
MWSA0603S-R56MT	0.56±20%	4.5	18.00	16.50
MWSA0603S-R68MT	0.68±20%	5.3	17.00	16.00
MWSA0603S-R82MT	0.82±20%	6.0	16.00	14.00
MWSA0603S-1R0MT	1.0±20%	7.4	15.00	12.00
MWSA0603S-1R5MT	1.5±20%	12.1	12.00	12.00
MWSA0603S-2R2MT	2.2±20%	15	10.00	9.50
MWSA0603S-3R3MT	3.3±20%	22	9.50	8.50
MWSA0603S-4R7MT	4.7±20%	33	9.00	6.00
MWSA0603S-5R6MT	5.6±20%	42	6.50	6.00
MWSA0603S-6R8MT	6.8±20%	48	6.00	5.00
MWSA0603S-8R2MT	8.2±20%	60	5.50	5.00
MWSA0603S-100MT	10±20%	68	5.20	4.50
MWSA0603S-150MT	15±20%	113	4.00	3.00
MWSA0603S-220MT	22±20%	170	3.00	2.50
MWSA0603S-330MT	33±20%	270	2.50	2.00
MWSA0603S-470MT	47±20%	385	2.00	1.50

## SPECIFICATIONS

### MWSA0604S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0604S-2R2MT	2.2±20%	18	12.00	8.00

### MWSA0605S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA0605S-100MT	10±20%	60	5.30	4.50
MWSA0605S-150MT	15±20%	90	4.00	3.10
MWSA0605S-220MT	22±20%	140	3.50	2.60
MWSA0605S-330MT	33±20%	190	3.00	2.30

### MWSA1004S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA1004S-R22MT	0.22±20%	1	60.00	35.00
MWSA1004S-R30MT	0.30±20%	1.1	45.00	35.00
MWSA1004S-R36MT	0.36±20%	1.2	45.00	30.00
MWSA1004S-R47MT	0.47±20%	1.7	40.00	30.00
MWSA1004S-R56MT	0.56±20%	1.8	33.00	25.00
MWSA1004S-R68MT	0.68±20%	2.4	30.00	23.00
MWSA1004S-R80MT	0.80±20%	2.7	29.00	23.00
MWSA1004S-1R0MT	1.0±20%	3.3	28.00	19.00
MWSA1004S-1R5MT	1.5±20%	4.2	24.00	16.00
MWSA1004S-2R2MT	2.2±20%	7	16.50	12.00
MWSA1004S-3R3MT	3.3±20%	11.8	16.00	11.00
MWSA1004S-4R7MT	4.7±20%	20	13.00	9.00
MWSA1004S-6R8MT	6.8±20%	25	12.00	8.50
MWSA1004S-8R2MT	8.2±20%	27	9.00	8.00
MWSA1004S-100MT	10±20%	30	8.50	7.80
MWSA1004S-150MT	15±20%	45	7.00	6.50
MWSA1004S-220MT	22±20%	66	5.50	5.00
MWSA1004S-330MT	33±20%	92	4.80	4.40
MWSA1004S-470MT	47±20%	145	3.50	3.30
MWSA1004S-680MT	68±20%	195	3.00	2.50

## SPECIFICATIONS

### MWSA1205S Series

Part Number	Inductance	DC Resistance	Saturation Current <sup>*3</sup>	Heat Rating Current <sup>*4</sup>
	@100KH,1V	Max.	Typ.	Typ.
Units	μH	mΩ	A	A
Symbol	L	DCR	Isat	Irms
MWSA1205S-R36MT	0.36±20%	0.85	50.00	42.00
MWSA1205S-R50MT	0.50±20%	1.15	48.00	38.00
MWSA1205S-R68MT	0.68±20%	1.55	46.00	33.00
MWSA1205S-R82MT	0.82±20%	1.67	39.00	30.00
MWSA1205S-R36MT	0.36±20%	0.85	50.00	42.00
MWSA1205S-R50MT	0.50±20%	1.15	48.00	38.00
MWSA1205S-R68MT	0.68±20%	1.55	46.00	33.00
MWSA1205S-R82MT	0.82±20%	1.67	39.00	30.00
MWSA1205S-1R0MT	1.0±20%	2.2	35.00	26.00
MWSA1205S-1R5MT	1.5±20%	3.2	33.00	23.00
MWSA1205S-2R2MT	2.2±20%	5.0	24.00	15.00
MWSA1205S-3R3MT	3.3±20%	7	22.00	14.00
MWSA1205S-4R7MT	4.7±20%	9	20.00	13.00
MWSA1205S-6R8MT	6.8±20%	18	16.00	12.00
MWSA1205S-100MT	10±20%	22	12.00	9.00
MWSA1205S-150MT	15±20%	30	10.00	8.00
MWSA1205S-220MT	22±20%	58	6.50	4.50
MWSA1205S-330MT	33±20%	84	6.00	3.50
MWSA1205S-470MT	47±20%	130	5.00	3.00

※1: All test data is referenced to 25°C ambient;

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

※\*3: Isat: DC current at which the inductance drops approximate 30% from its value without current;

※\*4: Irms: DC current that causes the temperature rise ( $\Delta T = 40^\circ\text{C}$ ) from 20°C ambient.

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