

Data Sheet

Customer:

Product: SMD Wire Wound Chip Inductor

Part No.: WLM Series (Murata)

Sizes: 0402

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SMD Wire Wound Chip Inductor

■ Scope

- Ceramic body and wire wound construction provide highest SRFs available

■ Features

- AEC-Q200 Compliance
- Ceramic base provide high SRF
- Ultra-compact inductors provide high Q factors
- Low profile, high current are available
- Miniature SMD chip inductor for fully automated assembly
- Outstanding endurance from Pull-up force, mechanical shock and pressure
- Tighter tolerance down to $\pm 2\%$
- Smaller size of 0402 (1005)



■ Applications

RF Products:

- Cellular Phone (CDMA/GSM/PHS)
- Cordless Phone (DECT/CT1CT2)
- Remote Control, Security System
- Wireless PDA
- WLL, Wireless LAN / Mouse / Keyboard / Earphone
- VCO, RF Module & Other Wireless Products
- Base Station, Repeater
- GPS Receiver

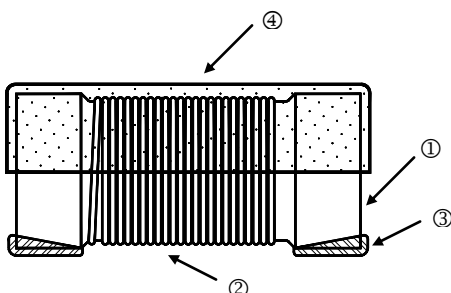
Broad Band Applications:

- CATV Filter, Tuner
- Cable Modem/ XDSL Tuner
- Set Top Box

IT Applications:

- USB 2.0
- IEEE 1394

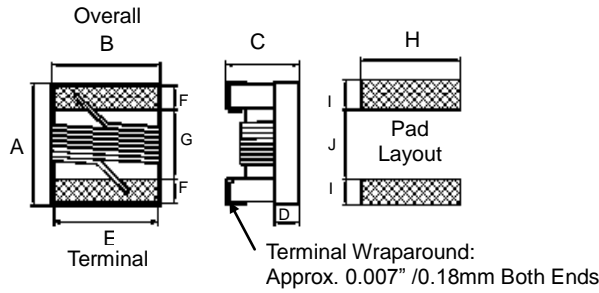
■ Construction



① Ceramic Core	③ Electrode
② Magnet Wire	④ UV Glue

SMD Wire Wound Chip Inductor

■ Dimensions

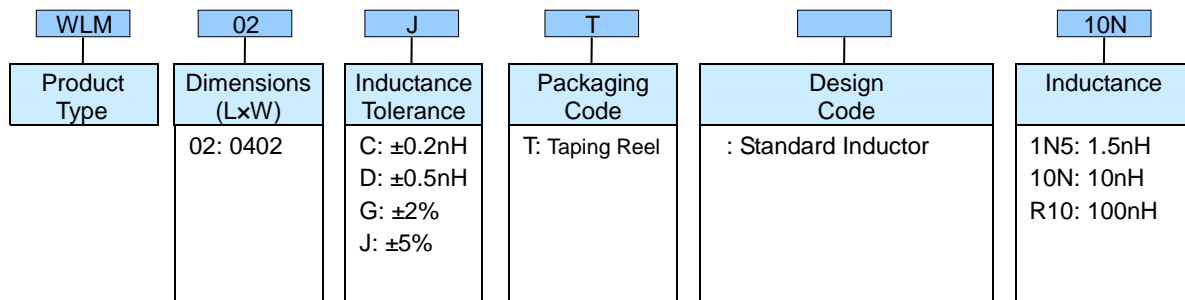


Standard

Unit: mm

Type	Size (Inch)	A max.	B max.	C max.	D Ref.	E	F	G	H	I	J	Weight (g) (1000pcs)
WLM02	0402	1.27	0.76	0.61	0.15	0.51	0.23	0.56	0.66	0.50	0.46	0.8

■ Part Numbering



■ Standard Electrical Specifications

WLM02 Wire Wound Chip Inductors / Standard Type (□:Tolerance):

Viking MURATA series P/N	Inductance (nH)	Tolerance	L Freq. (MHz)	Quality Factor min.	Q Test Freq. (MHz)	SRF (GHz) min.	DCR (Ω) max.	IDC (mA) max.
WLM02□T1N5	1.5	±0.2nH,±0.5nH	100	10	250	18	0.03	1000
WLM02□T2N4	2.4	±0.2nH,±0.5nH	100	20	250	15	0.05	850
WLM02□T2N5	2.5	±0.2nH,±0.5nH	100	20	250	15	0.05	850
WLM02□T2N7	2.7	±0.2nH,±0.5nH	100	20	250	15	0.05	850
WLM02□T2N9	2.9	±0.2nH,±0.5nH	100	20	250	15	0.07	750
WLM02□T3N9	3.9	±0.2nH,±0.5nH	100	25	250	10	0.07	750
WLM02□T4N1	4.1	±0.2nH,±0.5nH	100	25	250	10	0.07	750
WLM02□T4N3	4.3	±0.2nH,±0.5nH	100	25	250	10	0.07	750
WLM02□T4N7	4.7	±0.2nH,±0.5nH	100	25	250	8	0.07	750
WLM02□T5N1	5.1	±0.2nH,±0.5nH	100	25	250	8	0.12	600
WLM02□T5N8	5.8	±0.2nH,±0.5nH	100	25	250	8	0.12	700
WLM02□T6N2	6.2	±0.2nH,±0.5nH	100	25	250	8	0.09	700
WLM02□T6N8	6.8	±5%	100	25	250	6	0.09	700
WLM02□T7N3	7.3	±5%	100	25	250	6	0.13	570
WLM02□T7N5	7.5	±5%	100	25	250	6	0.13	570
WLM02□T8N2	8.2	±5%	100	25	250	5.5	0.14	540
WLM02□T8N7	8.7	±5%	100	25	250	5.5	0.14	540
WLM02□T9N1	9.1	±5%	100	25	250	5.5	0.14	540

Standard Electrical Specifications

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WLM02□T9N5	9.5	±5%	100	25	250	5.5	0.14	540
WLM02□T10N	10	±2%, ±5%	100	25	250	5.5	0.17	500
WLM02□T11N	11	±2%, ±5%	100	30	250	5.5	0.14	500
WLM02□T12N	12	±2%, ±5%	100	30	250	5.5	0.14	500
WLM02□T13N	13	±2%, ±5%	100	25	250	5.0	0.21	430
WLM02□T15N	15	±2%, ±5%	100	30	250	5.0	0.16	460
WLM02□T16N	16	±2%, ±5%	100	25	250	4.5	0.24	370
WLM02□T18N	18	±2%, ±5%	100	25	250	4.5	0.27	370
WLM02□T19N	19	±2%, ±5%	100	25	250	4.5	0.27	370
WLM02□T20N	20	±2%, ±5%	100	25	250	4.0	0.27	370
WLM02□T22N	22	±2%, ±5%	100	25	250	4.0	0.30	310
WLM02□T23N	23	±2%, ±5%	100	25	250	3.8	0.30	310
WLM02□T24N	24	±2%, ±5%	100	25	250	3.5	0.52	280
WLM02□T27N	27	±2%, ±5%	100	25	250	3.5	0.52	280
WLM02□T30N	30	±2%, ±5%	100	25	250	3.3	0.58	270
WLM02□T33N	33	±2%, ±5%	100	25	250	3.2	0.63	260
WLM02□T36N	36	±2%, ±5%	100	25	250	3.1	0.63	260
WLM02□T39N	39	±2%, ±5%	100	25	250	3.0	0.70	250
WLM02□T40N	40	±2%, ±5%	100	25	250	3.0	0.70	250
WLM02□T43N	43	±2%, ±5%	100	25	250	3.0	0.70	250
WLM02□T47N	47	±2%, ±5%	100	25	200	2.9	1.08	210
WLM02□T51N	51	±2%, ±5%	100	25	200	2.85	1.08	210
WLM02□T56N	56	±2%, ±5%	100	25	200	2.8	1.17	200
WLM02□T62N	62	±2%, ±5%	100	20	200	2.6	1.92	145
WLM02□T68N	68	±2%, ±5%	100	20	200	2.5	1.96	140
WLM02□T72N	72	±2%, ±5%	100	20	150	2.5	2.10	135
WLM02□T75N	75	±2%, ±5%	100	20	150	2.4	2.10	135
WLM02□T82N	82	±2%, ±5%	100	20	150	2.3	2.24	130
WLM02□T91N	91	±2%, ±5%	100	20	150	2.1	2.38	125
WLM02□TR10	100	±5%	100	20	150	1.5	2.52	120
WLM02□TR12	120	±5%	100	20	150	1.0	2.66	110

■ Environmental Characteristics

Electrical Performance Test

Item	Requirement	Test Method
Inductance	Refer to standard electrical characteristic spec.	HP4286/E4982A
Q		HP4286/E4982A
SRF		N5230A
DC Resistance RDC		Micro-Ohm meter (Gom-801G)/E4982A
Rated Current IDC		Applied the current to coils, the temperature of coil increases $\Delta T15^{\circ}\text{C}$ ($T_a=25^{\circ}\text{C}$).
Over Load	Inductors shall have no evidence of electrical and mechanical damage	Applied 2 times of rated allowed DC current to inductor for a period of 5 minutes
Withstanding Voltage	Inductors shall be no evidence of electrical and mechanical damage.	AC voltage of 500 VAC applied between inductors terminal and case for 1 min.
Insulation Resistance	1000M ohm min.	100 V _{DC} applied between inductor terminal and case

Mechanical Performance Test

Item	Requirement	Test Method
Vibration	Appearance: No damage L change: within $\pm 5\%$ Q change: within $\pm 10\%$	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1 min. Amplitude: 1.5 mm Time: 2 hrs for each axis (X, Y & Z), total 6 hrs
Resistance to Soldering Heat		Solder Temperature: $260\pm 5^{\circ}\text{C}$ Immersion Time: 10 ± 2 seconds
Component Adhesion (Push Test)	1 lbs. For 0402 2 lbs. For 0603 3 lbs. For the rest	The device should be soldered (260 ± 5 for 10 seconds) to a tinned copper subs rate. A dynamiter force gauge should be applied to the side of the component. The device must with stand a minimum force of 2 or 4 pounds without a failure of adhesion on termination
Drop	No damage	Dropping chip by each side and each corner. Drop 10 times in total Drop height: 100 cm Drop weight: 125 g
Solderability	90% covered with solder	Inductor shall be dipped in a melted solder bath at 245 ± 5 for 3 seconds
Resistance to Solvent	No damage on appearance and marking	MIL-STD-202G, Method 215K

Climatic Test

Item	Requirement	Item
Temperature Characteristic	Appearance: No damage L change: within $\pm 10\%$ Q change: within $\pm 20\%$	-40~+125 $^{\circ}\text{C}$
Humidity		Temperature: $40\pm 2^{\circ}\text{C}$ Relative Humidity: 90~95% Time: 96 ± 2 hrs Measured after exposure in the room condition for 2 hrs
Low Temperature Storage		Temperature: $-40\pm 2^{\circ}\text{C}$ Time: 96 ± 2 hrs Inductors are tested after 1 hour at room temperature

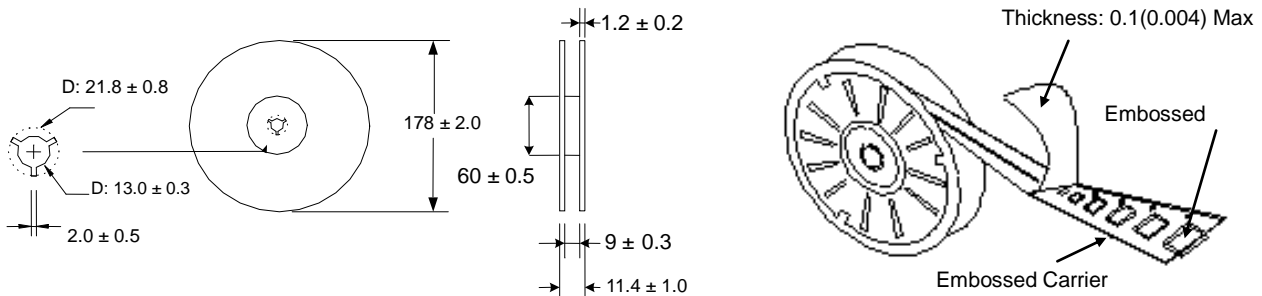
Climatic Test

Item	Requirement	Item															
Thermal Shock	Appearance: No damage L change: within $\pm 10\%$ Q change: within $\pm 20\%$	One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature ($^{\circ}\text{C}$)</th> <th>Time (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25 ± 3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25 ± 2</td> <td>15</td> </tr> <tr> <td>3</td> <td>125 ± 3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25 ± 2</td> <td>15</td> </tr> </tbody> </table> Total: 5 cycles	Step	Temperature ($^{\circ}\text{C}$)	Time (min.)	1	-25 ± 3	30	2	25 ± 2	15	3	125 ± 3	30	4	25 ± 2	15
Step		Temperature ($^{\circ}\text{C}$)	Time (min.)														
1		-25 ± 3	30														
2		25 ± 2	15														
3	125 ± 3	30															
4	25 ± 2	15															
High Temperature Storage	Temperature: $125\pm 2^{\circ}\text{C}$ Time: 96 ± 2 hrs Measured after exposure in the room condition for 1hour																
High Temperature Load Life	Temperature: $85\pm 2^{\circ}\text{C}$ Time: 1000 ± 12 hrs Load: allowed DC current																
Damp Heat with Load	Temperature: $40\pm 2^{\circ}\text{C}$ Relative Humidity: 90~95% Time: 1000 ± 12 hrs Load: allowed DC current																

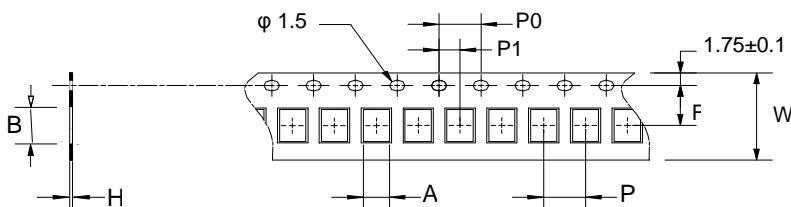
■ Storage Temperature: $15\sim 28^{\circ}\text{C}$; Humidity < 80%RH

■ Packaging

Reel Dimensions & Packaging Quantity



Paper Tape specification and Packaging Quantity



Unit: mm

Type	A	B	H	F	P	P_0	P_1	W	Reel (EA)
WLM02	0.81	1.23	0.60	3.50	2.00	4.00	2.00	8.00	10,000