

Molded Signal Chip Inductor Wire Wound Ferrite Type

SIW-NLM Series

MERITEK

FEATURE

- Operating Temperature: -40°C ~ +105°C (Including self-heating temperature rise)
- Storage Temperature: 15~28°C; Humidity < 80%RH
- Lead-free materials is used for the plating on the terminals
- Uses metal terminals, which realize excellent connection reliability
- High resistance to heat, humidity, mechanical shocks, and presser
- Good heat durability that withstands lead-free compatible reflow soldering conditions.



PART NUMBERING SYSTEM

SIW 10 100 J 150 NLM
(1) (2) (3) (4) (5) (6)

No	item	Digit	Description	Series Reference
(1)	Meritek Series	SIW	Signal Chip Inductor	Molded Wire Wound Ferrite type
(2)	Size Code	10	10: 1210, 3.2x2.5mm	12:1812
(3)	Inductance	100	100: 10μH	First two digits: significant, Third: Multiplier
(4)	Tolerance	J	J: ±5%	K: ±10%, M:±20%
(5)	Rated Current	150	150: 150mA	1K0:1000mA, 065:65mA
(6)	Internal Code	NLM	Internal control	Internal control or project reference

ELECTRICAL CHARACTERISTICS

SIW10- Standard Type

Codes	Inductance (μH)	Tolerance (%)	Q min.	Test Freq. (MHz)	Min. SRF (MHz)	Max. DCR (Ω)	Max. IDC (mA)
R10	0.1	±10, ±20%	28	100	700	0.44	450
R12	0.12	±10, ±20%	30	25.2	500	0.22	450
R15	0.15	±10, ±20%	30	25.2	450	0.25	450
R18	0.18	±10, ±20%	30	25.2	400	0.28	450
R22	0.22	±10, ±20%	30	25.2	350	0.32	450
R27	0.27	±10, ±20%	30	25.2	320	0.36	450
R33	0.33	±10, ±20%	30	25.2	300	0.4	450
R39	0.39	±10, ±20%	30	25.2	250	0.45	450
R47	0.47	±10, ±20%	30	25.2	220	0.5	450
R56	0.56	±10, ±20%	30	25.2	180	0.55	450
R68	0.68	±10, ±20%	30	25.2	160	0.6	450
R82	0.82	±10, ±20%	30	25.2	140	0.65	450
1R0	1	±5, ±10%	30	7.96	120	0.7	400
1R2	1.2	±5, ±10%	30	7.96	100	0.75	390
1R5	1.5	±5, ±10%	30	7.96	85	0.85	370
1R8	1.8	±5, ±10%	30	7.96	80	0.9	350
2R2	2.2	±5, ±10%	30	7.96	75	1	320
2R7	2.7	±5, ±10%	30	7.96	70	1.1	290
3R3	3.3	±5, ±10%	30	7.96	60	1.2	260
3R9	3.9	±5, ±10%	30	7.96	55	1.3	250
4R7	4.7	±5, ±10%	30	7.96	50	1.5	220
5R6	5.6	±5, ±10%	30	7.96	45	1.6	200
6R8	6.8	±5, ±10%	30	7.96	40	1.8	180
8R2	8.2	±5, ±10%	30	7.96	35	2	170

Molded Signal Chip Inductor Wire Wound Ferrite Type

SIW-NLM Series

MERITEK

ELECTRICAL CHARACTERISTICS

SIW10- Standard Type

Codes	Inductance (μH)	Tolerance (%)	Q min.	Test Freq. (MHz)	Min. SRF (MHz)	Max. DCR (Ω)	Max. IDC (mA)
100	10	±5, ±10%	30	2.52	30	2.1	150
120	12	±5, ±10%	30	2.52	20	2.5	140
150	15	±5, ±10%	30	2.52	20	2.8	130
180	18	±5, ±10%	30	2.52	20	3.3	120
220	22	±5, ±10%	30	2.52	20	3.7	110
270	27	±5, ±10%	30	2.52	20	5	80
330	33	±5, ±10%	30	2.52	17	5.6	70
390	39	±5, ±10%	30	2.52	16	6.4	65
470	47	±5, ±10%	30	2.52	15	7	60
560	56	±5, ±10%	30	2.52	13	8	55
680	68	±5, ±10%	30	2.52	12	9	50
820	82	±5, ±10%	30	2.52	11	10	45
101	100	±5, ±10%	20	0.796	10	10	40
121	120	±5, ±10%	20	0.796	10	11	70
151	150	±5, ±10%	20	0.796	8	15	65
181	180	±5, ±10%	20	0.796	7	17	60
221	220	±5, ±10%	20	0.796	7	21	50

SIW12- Standard Type

Codes	Inductance (μH)	Tolerance (%)	Q min.	Test Freq. (MHz)	Min. SRF (MHz)	Max. DCR (Ω)	Max. IDC (mA)
R10	0.1	±10, ±20%	35	25.2	300	0.18	800
R12	0.12	±10, ±20%	35	25.2	280	0.2	770
R15	0.15	±10, ±20%	35	25.2	250	0.22	730
R18	0.18	±10, ±20%	35	25.2	220	0.24	700
R22	0.22	±10, ±20%	40	25.2	200	0.25	665
R27	0.27	±10, ±20%	40	25.2	180	0.26	635
R33	0.33	±10, ±20%	40	25.2	165	0.28	605
R39	0.39	±10, ±20%	40	25.2	150	0.3	575
R47	0.47	±10, ±20%	40	25.2	145	0.32	545
R56	0.56	±10, ±20%	40	25.2	140	0.36	520
R68	0.68	±10, ±20%	40	25.2	135	0.4	500
R82	0.82	±10, ±20%	40	25.2	130	0.45	475
1R0	1	±10, ±20%	50	7.96	100	0.5	450
1R2	1.2	±10, ±20%	50	7.96	80	0.55	430
1R5	1.5	±10, ±20%	50	7.96	70	0.6	410
1R8	1.8	±10, ±20%	50	7.96	60	0.65	390
2R2	2.2	±10, ±20%	50	7.96	55	0.7	380
2R7	2.7	±10, ±20%	50	7.96	50	0.75	370
3R3	3.3	±10, ±20%	50	7.96	45	0.8	355
3R9	3.9	±10, ±20%	50	7.96	40	0.9	330
4R7	4.7	±10, ±20%	50	7.96	35	1	315
5R6	5.6	±10, ±20%	50	7.96	33	1.1	300
6R8	6.8	±10, ±20%	50	7.96	27	1.2	285
8R2	8.2	±5, ±10%	50	7.96	25	1.4	270
100	10	±5, ±10%	50	2.52	20	1.6	250
120	12	±5, ±10%	50	2.52	18	2	225
150	15	±5, ±10%	50	2.52	17	2.5	200
180	18	±5, ±10%	50	2.52	15	2.8	190
220	22	±5, ±10%	50	2.52	13	3.2	180
270	27	±5, ±10%	50	2.52	12	3.6	170
330	33	±5, ±10%	50	2.52	11	4	160

Molded Signal Chip Inductor Wire Wound Ferrite Type

SIW-NLM Series

MERITEK

ELECTRICAL CHARACTERISTICS

SIW12- Standard Type

Codes	Inductance (μH)	Tolerance (%)	Q min.	Test Freq. (MHz)	Min. SRF (MHz)	Max. DCR (Ω)	Max. IDC (mA)
390	39	±5, ±10%	50	2.52	10	4.5	150
470	47	±5, ±10%	50	2.52	10	5	140
560	56	±5, ±10%	50	2.52	9	5.5	135
680	68	±5, ±10%	50	2.52	9	6	130
820	82	±5, ±10%	50	2.52	8	7	120
101	100	±5, ±10%	40	0.796	8	8	110
121	120	±5, ±10%	40	0.796	6	8	110
151	150	±5, ±10%	40	0.796	5	9	105
181	180	±5, ±10%	40	0.796	5	9.5	102
221	220	±5, ±10%	40	0.796	4	10	100
271	270	±5, ±10%	40	0.796	4	12	92
331	330	±5, ±10%	40	0.796	3.5	14	85
391	390	±5, ±10%	40	0.796	3	18	80
471	470	±5, ±10%	40	0.796	3	26	62
561	560	±5, ±10%	30	0.796	3	30	50
681	680	±5, ±10%	30	0.796	3	30	50
821	820	±5, ±10%	30	0.796	2.5	35	30
102	1000	±5, ±10%	20	0.252	2.5	40	30

SIW10- Large Current Type

Codes	Inductance (μH)	Tolerance (%)	Q min.	Test Freq. (MHz)	Min. SRF (MHz)	Max. DCR (Ω)	Max. IDC (mA)
1R0	1	±20%	10	7.96	100	0.156	770
1R5	1.5	±20%	10	7.96	80	0.195	580
2R2	2.2	±20%	10	7.96	65	0.26	480
3R3	3.3	±20%	10	7.96	55	0.325	400
4R7	4.7	±20%	10	7.96	45	0.52	320
6R8	6.8	±20%	10	7.96	35	0.65	280
100	10	±10%	15	2.52	28	1.105	220
150	15	±10%	15	2.52	25	1.69	180
220	22	±10%	15	2.52	20	2.6	145
330	33	±10%	15	2.52	15	3.64	115
390	39	±10%	15	2.52	14	4.5	110
470	47	±10%	20	2.52	13	5.46	105
680	68	±10%	20	2.52	10	8.45	85
820	82	±10%	20	2.52	9	8.71	80
101	100	±10%	20	0.796	8	10.14	75

SIW12- Large Current Type

Codes	Inductance (μH)	Tolerance (%)	Q min.	Test Freq. (MHz)	Min. SRF (MHz)	Max. DCR (Ω)	Max. IDC (mA)
1R0	1	±10%	10	7.96	180	0.11	1050
1R2	1.2	±10%	10	7.96	160	0.12	1000
1R5	1.5	±10%	10	7.96	130	0.15	950
1R8	1.8	±10%	10	7.96	100	0.16	900
2R2	2.2	±10%	10	7.96	80	0.18	850
2R7	2.7	±10%	10	7.96	60	0.2	800
3R3	3.3	±10%	10	7.96	45	0.22	750
3R9	3.9	±10%	10	7.96	40	0.24	700
4R7	4.7	±10%	10	7.96	35	0.27	650
5R6	5.6	±10%	10	7.96	30	0.3	650
6R8	6.8	±10%	10	7.96	28	0.35	600
8R2	8.2	±10%	10	7.96	25	0.4	600

Molded Signal Chip Inductor Wire Wound Ferrite Type

SIW-NLM Series

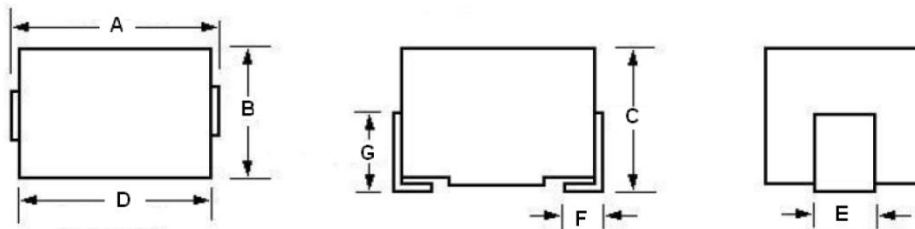
MERITEK

ELECTRICAL CHARACTERISTICS

SIW12- Large Current Type

Codes	Inductance (μH)	Tolerance (%)	Q min.	Test Freq. (MHz)	Min. SRF (MHz)	Max. DCR (Ω)	Max. IDC (mA)
100	10	±10%	10	2.52	22	0.5	550
120	12	±10%	10	2.52	21	0.6	500
150	15	±10%	10	2.52	20	0.7	450
180	18	±10%	10	2.52	19	0.8	400
220	22	±10%	10	2.52	18	0.9	370
270	27	±10%	10	2.52	16	1.2	330
330	33	±10%	10	2.52	14	1.4	300
390	39	±10%	10	2.52	12	1.6	280
470	47	±10%	10	2.52	11.5	1.9	260
560	56	±10%	10	2.52	11	2.2	240
680	68	±10%	10	2.52	10	2.6	220
820	82	±10%	10	2.52	9	3.5	200
101	100	±10%	20	0.796	8	4	180
121	120	±10%	20	0.796	7.5	4.5	160
151	150	±10%	20	0.796	7	6.5	140
181	180	±10%	20	0.796	6.5	7.5	120
221	220	±10%	20	0.796	5.5	9	120
271	270	±10%	20	0.796	5	11	100
331	330	±10%	20	0.796	4	13	90

DIMENSION



Unit: mm

Size	A	B	C	D	E	F	G
1210	3.2±0.4	2.5±0.2	2.2±0.2	2.9±0.3	1.0±0.2	0.6±0.2	1.2±0.2
1812	4.5±0.3	3.2±0.2	3.2±0.2	4.2±0.3	1.1±0.2	1.0±0.2	-

RELIABILITY TEST CONDITON AND REQUIREMENT

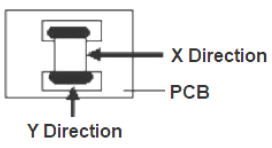
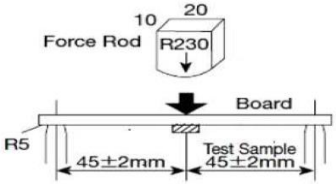
Item	Test Conditions / Equipment	Requirement
Inductance	HP4285A+16034E or Equivalent	Refer to spec
Q	HP4285A+16034E or Equivalent	Refer to spec
SRF	HP8753C Network Analyzer or Equivalent	Refer to spec
DC Resistance	AX-111A Digital milliohm meter or Equivalent	Refer to spec
Rated DC Current	Value obtained when current flows and the temperature has risen to 20°C or when DC current flows and the initial value of inductance has fallen by 10%, whichever is smaller	Refer to spec
Solderability	Solder Temperature: 245±5°C, Time: 5±0.5 seconds All sides of mounting terminal shall be immerse	The electrodes shall be at least 95% covered with new solder coating

Molded Signal Chip Inductor Wire Wound Ferrite Type

SIW-NLM Series

MERITEK

RELIABILITY TEST CONDITON AND REQUIREMENT

Item	Test Conditions / Equipment		Requirement															
Resistance to Solvent Heat	Method1: Immerse in the solder of 350±10°C for 4±1 sec, load in room temperature 2 hours Method 2: The test sample shall be exposed to reflow with peak temperature at 260±5°C for 20 to 40 seconds, 2 times. Load in room temperature 30 mins. (Per MIL-STD-202F)		Appearance: No damage L Change: within ±10%															
Vibration	Test device shall be soldered to the test board by the reflow. Then it shall be submitted to below conditions. Frequency Range: 10 ~ 55Hz; Total Amplitude: 1.5mm (May not exceed acceleration 196m/s ²), Sweeping Method: 10→55→10Hz for 1min Time: For 2hrs on each X, Y, and Z axis.		Appearance: No damage L change: within ±10%															
Adhesion of Terminal Electrode	The test sample shall be soldered to the test board by the reflow.		Appearance: No damage L change: within ±10%															
Resistance to Flexure of Substrate	The test piece was welded to the test printed circuit board as shown in printed board in the direction of the arrow applied to the load, so that bending 2mm so far.		Appearance: No damage L change: within ±10%															
Dropping	Packing ok product, Dropping 1m over the ground of concrete or cement, 3 times		Appearance: No damage L change: within ±10%															
Thermal Shock	One cycle: <table border="1" data-bbox="351 1153 1189 1310"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±3</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>20±2</td> <td>3</td> </tr> <tr> <td>3</td> <td>85±2</td> <td>30±3</td> </tr> <tr> <td>4</td> <td>20±2</td> <td>3</td> </tr> </tbody> </table> Total: 10 cycles		Step	Temperature (°C)	Time (min.)	1	-40±3	30±3	2	20±2	3	3	85±2	30±3	4	20±2	3	Appearance: No damage L change: within ±10%
Step	Temperature (°C)	Time (min.)																
1	-40±3	30±3																
2	20±2	3																
3	85±2	30±3																
4	20±2	3																
High Temperature Life Test	Temperature: 85±3°C, Time: 1000±6hrs		Appearance: No damage L change: within ±10%															
Low Temperature Life Test	Temperature: -25±2°C, Time: 1000±6hrs		Appearance: No damage L change: within ±10%															
Damp Heat	Temperature: 40±2°C, Humidity: 90~95% RH Time: 1000±6hrs		Appearance: No damage L change: within ±10%															
Temperature Characteristic	Measurement of inductance shall be taken at temperature range within -25°C~85°C.,With reference to inductance value at 20°C, change rate shall be calculated. Change of maximum inductance deviation in step 1 to 5: <table border="1" data-bbox="351 1646 1189 1825"> <thead> <tr> <th>Step</th> <th>Temperature</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>20°C</td> </tr> <tr> <td>2</td> <td>Minimum operating temperature</td> </tr> <tr> <td>3</td> <td>20°C (Standard temperature)</td> </tr> <tr> <td>4</td> <td>Maximum operating temperature</td> </tr> <tr> <td>5</td> <td>20°C</td> </tr> </tbody> </table>		Step	Temperature	1	20°C	2	Minimum operating temperature	3	20°C (Standard temperature)	4	Maximum operating temperature	5	20°C	Appearance: No damage L change: within ±20%			
Step	Temperature																	
1	20°C																	
2	Minimum operating temperature																	
3	20°C (Standard temperature)																	
4	Maximum operating temperature																	
5	20°C																	

Notes:

- Storage Temperature: 15 ~28°C; Humidity<80%RH
- Operating Temperature Range: -40~105°C (Including self-heating temperature rise)

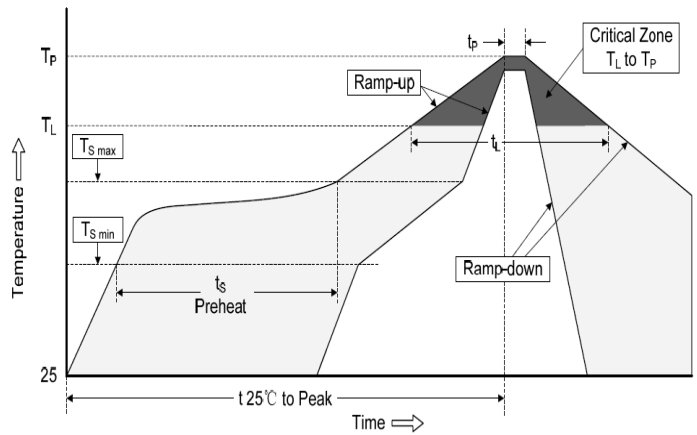
Molded Signal Chip Inductor Wire Wound Ferrite Type

SIW-NLM Series

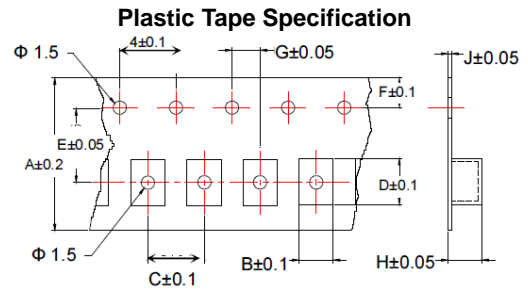
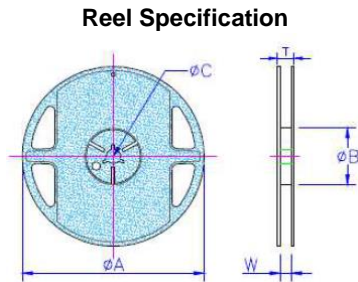
MERITEK

RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	150°C
	Temp. Max $T_{s(max)}$	180°C
	Time (min. to max.) (t_s)	120sec Max
Average ramp up rate (T_L) to peak		-
$T_{s(max)}$ to T_L (Ramp-up rate)		-
Reflow	Temp. (T_L)	220°C
	Time (min. to max.) (t_L)	30sec
Peak Temperature (T_P)		245°C
Time of T_P (t_p)		10s Max
Ramp-down Rate		-



PACKAGING DIMENSION



Size	Reel Dimension (mm)					Quantity (EA)
	ØA	ØB	ØC	W	T	Plastic 7"
1210	178.0±2.0	50 Min	13±0.3	10 Max	14.4 Max	2,000
1812	178.0±2.0	50 Min	13±0.3	14 Max	18.4 Max	500

Size	Tape Dimensions (mm)								
	A	B	C	D	E	F	G	H	J
1210	8	2.88	4	3.65	3.5	1.75	2	2.50	0.26
1812	12	3.31	8	4.95	5.5	1.75	2	3.50	0.35

*Specifications subject to change without notice.