Data Sheet

Customer:

Product: Thin Film Chip Inductor – SAL Series

Size : 0201/0402

Issued Date: 16-Apr-2016

Edition: Ver. 1

Record of change

Date	Ver.	Description	Page
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16-Apr.-2016	16-Apr.-2016	16-Apr.-2016	
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THIN FILM CHIP INDUCTOR SAL SERIES

■ Introductions

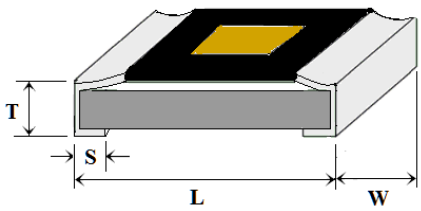
The SAL series is photo lithographically etched single layer ceramic chip inductors providing high SRF, excellent Q value and superior temperature stability, specially designed for critical tolerance required application.

■ Features

* Photo lithographically etched single layer ceramic chip
* High SRF controlled within 10%, excellent Q value and superior temperature stability.
* Stable inductance guaranteed in high frequency circuit.
* High stability for critical circuit design.

■ Chip Dimension

Unit (mm)



Size	Length (L)	Width (W)	Thickness (T)	Terminal (S)
SAL 0201	0.60 ± 0.03	0.30 ± 0.03	0.33 max	0.15 ± 0.05
SAL 0402	1.00 ± 0.10	0.50 ± 0.10	0.50 ± 0.10	0.20 ± 0.10

■ Part Numbering

SAL	0201	C	T	3N3	G	□□
SERIES	SIZE	TYPE	PACKAGE	INDUCTANCE	TOLERANCE	INTERNAL CODE
	0201	C = Standard	T= Tape&Reel	0N1= 0.1nH	B= ±0.1nH	
	0402	H=High Current		3N3= 3.3nH	C= ±0.2nH	
		Q= Hi-Q		33N= 33nH	S= ±0.3nH	
					F= ±1%	
					G= ±2%	
					H= ±3%	
					J= ±5%	

THIN FILM CHIP INDUCTOR SAL SERIES

Electrical Specification

Size 0201 Standard Type

Inductance (nH)	Tolerance (nH or %)	Q factor min Test Frequency	SRF (GHz) min	DCR (Ω) max	IDC (mA) max
0.1	B, C, S	8 / 500MHz	9	0.20	400
0.2	B, C, S	8 / 500MHz	9	0.20	400
0.3	B, C, S	8 / 500MHz	9	0.20	400
0.4	B, C, S	8 / 500MHz	9	0.25	350
0.5	B, C, S	8 / 500MHz	9	0.25	350
0.6	B, C, S	8 / 500MHz	9	0.25	350
0.7	B, C, S	8 / 500MHz	9	0.30	300
0.8	B, C, S	8 / 500MHz	9	0.30	300
0.9	B, C, S	8 / 500MHz	9	0.30	300
1.0	B, C, S	8 / 500MHz	9	0.30	300
1.1	B, C, S	8 / 500MHz	9	0.35	300
1.2	B, C, S	8 / 500MHz	9	0.35	300
1.3	B, C, S	8 / 500MHz	9	0.45	250
1.4	B, C, S	8 / 500MHz	9	0.45	250
1.5	B, C, S	8 / 500MHz	9	0.45	250
1.6	B, C, S	8 / 500MHz	9	0.55	200
1.7	B, C, S	8 / 500MHz	9	0.55	200
1.8	B, C, S	8 / 500MHz	9	0.55	200
1.9	B, C, S	8 / 500MHz	9	0.55	200
2.0	B, C, S	8 / 500MHz	8	0.70	200
2.1	B, C, S	8 / 500MHz	8	0.70	200
2.2	B, C, S	8 / 500MHz	8	0.70	200
2.3	B, C, S	8 / 500MHz	8	0.80	150
2.4	B, C, S	8 / 500MHz	8	0.80	150
2.5	B, C, S	8 / 500MHz	8	0.80	150
2.6	B, C, S	8 / 500MHz	8	0.80	150
2.7	B, C, S	8 / 500MHz	8	0.80	150
2.8	B, C, S	8 / 500MHz	6	1.00	150
2.9	B, C, S	8 / 500MHz	6	1.00	150
3.0	B, C, S	8 / 500MHz	6	1.00	150
3.1	B, C, S	8 / 500MHz	6	1.00	150
3.2	B, C, S	8 / 500MHz	6	1.00	150
3.3	B, C, S	8 / 500MHz	6	1.00	150
3.4	B, C, S	8 / 500MHz	6	1.20	150
3.5	B, C, S	8 / 500MHz	6	1.20	150
3.6	B, C, S	8 / 500MHz	6	1.20	150
3.7	B, C, S	8 / 500MHz	6	1.20	150
3.8	B, C, S	8 / 500MHz	6	1.20	150
3.9	B, C, S	8 / 500MHz	6	1.20	150
4.0	B, C, S	8 / 500MHz	6	1.20	150
4.4	B, C, S	8 / 500MHz	6	1.30	140
4.7	B, C, S	8 / 500MHz	6	1.40	130
4.9	B, C, S	8 / 500MHz	6	1.60	130
5.6	G, J	8 / 500MHz	4	1.80	130
6.1	G, J	8 / 500MHz	4	2.00	120
6.8	G, J	8 / 500MHz	4	2.30	110
7.4	G, J	8 / 500MHz	4	2.80	110
8.2	G, J	8 / 500MHz	3	3.00	110
9.1	G, J	8 / 500MHz	3	3.25	100
9.2	G, J	8 / 500MHz	3	3.25	100
10	G, J	8 / 500MHz	2	3.50	80

* Tolerance: B=±0.1nH , C=±0.2nH , S=±0.3nH, G=±2%, J=±5%
* Operating Temperature: -40℃ to +85℃
* Unspecified values are available on request.
* Test Equipment: HP4287A+Agilent 16196C

THIN FILM CHIP INDUCTOR SAL SERIES

Electrical Specification

Size 0201 High Current Type

Inductance (nH)	Tolerance (nH or %)	Q factor min Test Frequency	SRF (GHz) min	DCR (Ω) max	IDC (mA) max
0.1	B, C, S	10 / 500MHz	6	0.05	600
0.2	B, C, S	10 / 500MHz	6	0.05	600
0.3	B, C, S	10 / 500MHz	6	0.05	600
0.4	B, C, S	10 / 500MHz	6	0.05	600
0.5	B, C, S	10 / 500MHz	6	0.10	600
0.6	B, C, S	10 / 500MHz	6	0.10	600
0.7	B, C, S	10 / 500MHz	6	0.10	600
0.8	B, C, S	10 / 500MHz	6	0.10	600
0.9	B, C, S	10 / 500MHz	6	0.10	600
1.0	B, C, S	10 / 500MHz	6	0.15	600
1.1	B, C, S	10 / 500MHz	6	0.15	600
1.2	B, C, S	10 / 500MHz	6	0.15	600
1.3	B, C, S	10 / 500MHz	6	0.20	600
1.4	B, C, S	10 / 500MHz	6	0.20	600
1.5	B, C, S	10 / 500MHz	6	0.25	600
1.6	B, C, S	10 / 500MHz	6	0.25	600
1.7	B, C, S	10 / 500MHz	6	0.30	500
1.8	B, C, S	10 / 500MHz	6	0.30	500
1.9	B, C, S	10 / 500MHz	6	0.30	500
2.0	B, C, S	10 / 500MHz	6	0.30	500
2.1	B, C, S	10 / 500MHz	6	0.30	500
2.2	B, C, S	10 / 500MHz	6	0.35	500
2.3	B, C, S	10 / 500MHz	6	0.35	500
2.4	B, C, S	10 / 500MHz	6	0.35	450
2.5	B, C, S	10 / 500MHz	6	0.35	450
2.6	B, C, S	10 / 500MHz	6	0.35	450
2.7	B, C, S	10 / 500MHz	6	0.35	450
2.8	B, C, S	10 / 500MHz	6	0.50	450
2.9	B, C, S	10 / 500MHz	6	0.50	450
3.0	B, C, S	10 / 500MHz	6	0.50	400
3.1	B, C, S	10 / 500MHz	6	0.50	400
3.2	B, C, S	10 / 500MHz	6	0.50	400
3.3	B, C, S	10 / 500MHz	6	0.50	400
3.4	B, C, S	10 / 500MHz	6	0.80	350
3.5	B, C, S	10 / 500MHz	6	0.80	350
3.6	B, C, S	10 / 500MHz	6	0.80	350
3.7	B, C, S	10 / 500MHz	6	0.80	350
3.8	B, C, S	10 / 500MHz	6	0.80	350
3.9	B, C, S	10 / 500MHz	6	0.80	350
4.0	B, C, S	10 / 500MHz	6	0.80	350
4.4	B, C, S	10 / 500MHz	6	0.50	300
4.7	B, C, S	10 / 500MHz	6	0.50	300
4.9	B, C, S	10 / 500MHz	6	0.60	300
5.6	G, J	10 / 500MHz	6	0.60	250
6.1	G, J	10 / 500MHz	5.5	0.70	250
6.8	G, J	10 / 500MHz	5	0.75	250
7.4	G, J	10 / 500MHz	5	0.80	200
8.2	G, J	10 / 500MHz	4.5	0.90	200
9.1	G, J	10 / 500MHz	4	1.05	175
9.2	G, J	10 / 500MHz	4	1.15	150
10	G, J	10 / 500MHz	3.5	1.30	150

* Tolerance: B=±0.1nH , C=±0.2nH , S=±0.3nH, G=±2%, J=±5%
* Operating Temperature: -40℃ to +85℃
* Unspecified values are available on request.
* Test Equipment: HP4287A+Agilent 16196C

THIN FILM CHIP INDUCTOR SAL SERIES

Electrical Specification

Size 0201 Hi-Q Type

Inductance (nH)	Tolerance (nH or %)	Q factor min Test Frequency	SRF (GHz) min	DCR (Ω) max	IDC (mA) max
0.1	B, C, S	14 / 500MHz	10	0.05	850
0.2	B, C, S	14 / 500MHz	10	0.05	800
0.3	B, C, S	14 / 500MHz	10	0.05	800
0.4	B, C, S	14 / 500MHz	10	0.05	750
0.5	B, C, S	14 / 500MHz	10	0.10	750
0.6	B, C, S	14 / 500MHz	9	0.10	750
0.7	B, C, S	14 / 500MHz	9	0.10	600
0.8	B, C, S	14 / 500MHz	9	0.10	600
0.9	B, C, S	14 / 500MHz	9	0.10	600
1.0	B, C, S	14 / 500MHz	9	0.15	600
1.1	B, C, S	14 / 500MHz	8	0.15	600
1.2	B, C, S	14 / 500MHz	8	0.15	600
1.3	B, C, S	14 / 500MHz	8	0.15	600
1.4	B, C, S	14 / 500MHz	8	0.15	600
1.5	B, C, S	14 / 500MHz	8	0.15	600
1.6	B, C, S	14 / 500MHz	8	0.15	600
1.7	B, C, S	14 / 500MHz	8	0.20	500
1.8	B, C, S	14 / 500MHz	8	0.20	500
1.9	B, C, S	14 / 500MHz	8	0.20	500
2.0	B, C, S	14 / 500MHz	8	0.20	500
2.1	B, C, S	14 / 500MHz	7.5	0.20	500
2.2	B, C, S	14 / 500MHz	7.5	0.20	500
2.3	B, C, S	14 / 500MHz	7.5	0.20	500
2.4	B, C, S	14 / 500MHz	7.5	0.25	450
2.5	B, C, S	14 / 500MHz	7.5	0.25	450
2.6	B, C, S	14 / 500MHz	7.5	0.25	450
2.7	B, C, S	14 / 500MHz	7.5	0.25	450
2.8	B, C, S	14 / 500MHz	7.5	0.25	450
2.9	B, C, S	14 / 500MHz	7.5	0.25	450
3.0	B, C, S	14 / 500MHz	7.5	0.30	400
3.1	B, C, S	14 / 500MHz	7	0.30	400
3.2	B, C, S	14 / 500MHz	7	0.30	400
3.3	B, C, S	14 / 500MHz	7	0.30	400
3.4	B, C, S	14 / 500MHz	7	0.40	350
3.5	B, C, S	14 / 500MHz	7	0.40	350
3.6	B, C, S	14 / 500MHz	7	0.40	350
3.7	B, C, S	14 / 500MHz	7	0.40	350
3.8	B, C, S	14 / 500MHz	6.5	0.40	350
3.9	B, C, S	14 / 500MHz	6.5	0.40	350
4.0	B, C, S	14 / 500MHz	6.5	0.40	350
4.4	B, C, S	14 / 500MHz	6.5	0.50	300
4.7	B, C, S	14 / 500MHz	6	0.50	300
4.9	B, C, S	14 / 500MHz	6	0.60	300
5.6	G, J	14 / 500MHz	6	0.60	250
6.1	G, J	14 / 500MHz	5.5	0.70	250
6.8	G, J	14 / 500MHz	5	0.75	250
7.4	G, J	14 / 500MHz	5	0.80	200
8.2	G, J	14 / 500MHz	4.5	0.90	200
9.1	G, J	14 / 500MHz	4	1.05	175
9.2	G, J	14 / 500MHz	4	1.15	150
10	G, J	14 / 500MHz	3.5	1.30	150

* Tolerance: B=±0.1nH , C=±0.2nH , S=±0.3nH, G=±2%, J=±5%
* Operating Temperature: -40℃ to +85℃
* Unspecified values are available on request.
* Test Equipment: HP4287A+Agilent 16196B

THIN FILM CHIP INDUCTOR SAL SERIES

Electrical Specification

Size 0402 Standard Type

Inductance (nH)	Tolerance (nH or %)	Q factor min Test Frequency	SRF (GHz) min	DCR (Ω) max	IDC (mA) max
0.2	B, C, S	13 / 500MHz	14	0.10	800
0.3	B, C, S	13 / 500MHz	14	0.10	800
0.4	B, C, S	13 / 500MHz	14	0.10	800
0.5	B, C, S	13 / 500MHz	14	0.15	700
0.6	B, C, S	13 / 500MHz	14	0.15	700
0.8	B, C, S	13 / 500MHz	14	0.15	700
0.9	B, C, S	13 / 500MHz	14	0.15	700
1.0	B, C, S	13 / 500MHz	12	0.15	700
1.1	B, C, S	13 / 500MHz	12	0.15	700
1.2	B, C, S	13 / 500MHz	12	0.15	700
1.3	B, C, S	13 / 500MHz	10	0.25	700
1.4	B, C, S	13 / 500MHz	10	0.25	700
1.5	B, C, S	13 / 500MHz	10	0.25	700
1.6	B, C, S	13 / 500MHz	10	0.25	560
1.7	B, C, S	13 / 500MHz	10	0.25	560
1.8	B, C, S	13 / 500MHz	10	0.25	560
1.9	B, C, S	13 / 500MHz	8	0.35	560
2.0	B, C, S	13 / 500MHz	8	0.35	560
2.1	B, C, S	13 / 500MHz	8	0.35	440
2.2	B, C, S	13 / 500MHz	8	0.35	440
2.3	B, C, S	13 / 500MHz	8	0.35	440
2.4	B, C, S	13 / 500MHz	8	0.35	440
2.5	B, C, S	13 / 500MHz	8	0.35	440
2.6	B, C, S	13 / 500MHz	8	0.35	440
2.7	B, C, S	13 / 500MHz	8	0.35	440
2.8	B, C, S	13 / 500MHz	6	0.45	380
2.9	B, C, S	13 / 500MHz	6	0.45	380
3.0	B, C, S	13 / 500MHz	6	0.45	380
3.1	B, C, S	13 / 500MHz	6	0.45	380
3.2	B, C, S	13 / 500MHz	6	0.45	380
3.3	B, C, S	13 / 500MHz	6	0.45	380
3.4	B, C, S	13 / 500MHz	6	0.55	380
3.5	B, C, S	13 / 500MHz	6	0.55	380
3.6	B, C, S	13 / 500MHz	6	0.55	380
3.7	B, C, S	13 / 500MHz	6	0.55	340
3.8	B, C, S	13 / 500MHz	6	0.55	340
3.9	B, C, S	13 / 500MHz	6	0.55	340
4.3	B, C, S	13 / 500MHz	6	0.65	320
4.7	B, C, S	13 / 500MHz	6	0.65	320
5.4	B, C, S	13 / 500MHz	6	0.85	280
5.6	B, C, S	13 / 500MHz	6	0.85	280
5.9	B, C, S	13 / 500MHz	6	0.85	280
6.5	B, C, S	13 / 500MHz	6	1.05	260
6.8	B, C, S	13 / 500MHz	6	1.05	260
7.2	B, C, S	13 / 500MHz	6	1.05	260
8.0	B, C, S	13 / 500MHz	5.5	1.25	220
8.1	B, C, S	13 / 500MHz	5.5	1.25	220
8.2	B, C, S	13 / 500MHz	5.5	1.25	220
9.1	B, C, S	13 / 500MHz	5.5	1.25	220
10.0	F, G, H, J	13 / 500MHz	4.5	1.35	200
10.8	F, G, H, J	13 / 500MHz	4.5	1.35	200
12.0	F, G, H, J	13 / 500MHz	3.7	1.55	180
13.8	F, G, H, J	13 / 500MHz	3.7	1.75	180
15.0	F, G, H, J	13 / 500MHz	3.3	1.75	130
17.0	F, G, H, J	13 / 500MHz	3.1	1.95	100
18.0	F, G, H, J	13 / 500MHz	3.1	2.15	100
20.8	F, G, H, J	13 / 500MHz	2.8	2.55	90
22.0	F, G, H, J	13 / 500MHz	2.8	2.65	90
27.0	F, G, H, J	13 / 500MHz	2.5	3.25	75
33.0	J	13 / 500MHz	2.5	4.50	75

* Tolerance: B=±0.1nH , C=±0.2nH , S=±0.3nH, G=±2%, J=±5%
* Operating Temperature: -40℃ to +85℃
* Unspecified values are available on request.
* Test Equipment: HP4287A+Agilent 16196B

THIN FILM CHIP INDUCTOR SAL SERIES

Electrical Specification

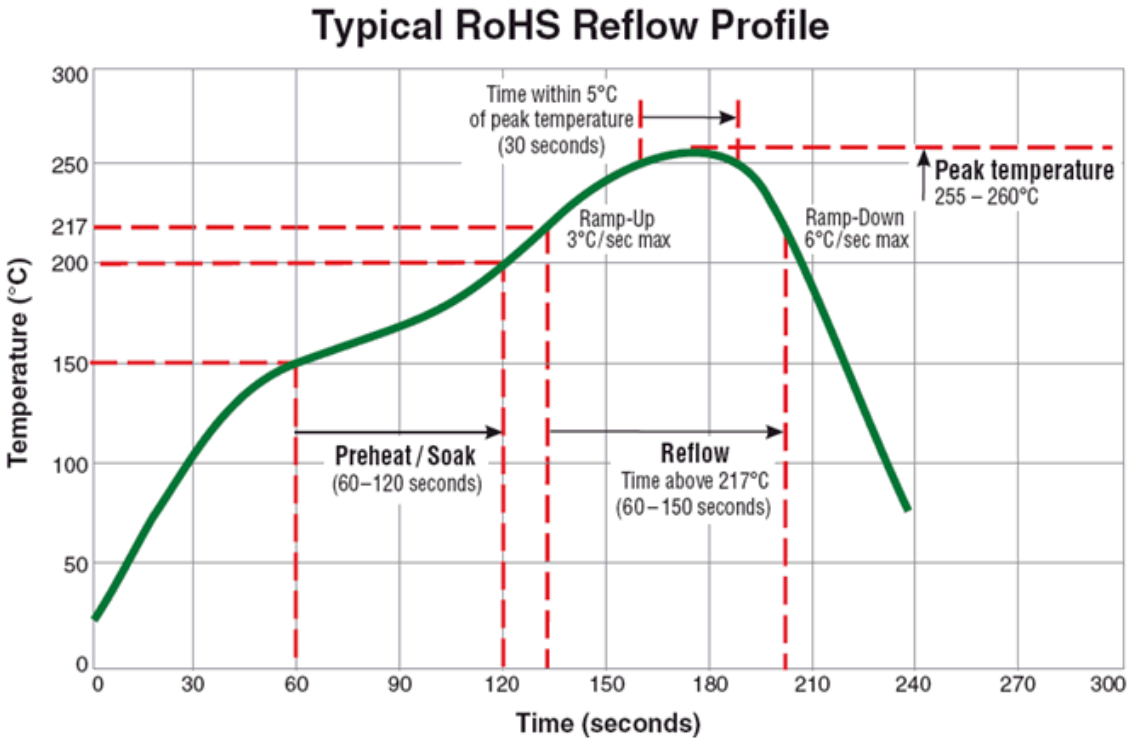
Size 0402 Hi-Q Type

Inductance (nH)	Tolerance (nH or %)	Q factor min Test Frequency	SRF (GHz) min	DCR (Ω) max	IDC (mA) max
0.2	B, C, S	16 / 500MHz	14	0.10	1000
0.3	B, C, S	16 / 500MHz	14	0.10	1000
0.4	B, C, S	16 / 500MHz	14	0.10	1000
0.5	B, C, S	16 / 500MHz	14	0.12	850
0.6	B, C, S	16 / 500MHz	14	0.12	850
0.7	B, C, S	16 / 500MHz	14	0.12	850
0.8	B, C, S	16 / 500MHz	14	0.12	850
0.9	B, C, S	16 / 500MHz	14	0.12	850
1.0	B, C, S	16 / 500MHz	12	0.12	850
1.1	B, C, S	16 / 500MHz	12	0.12	850
1.2	B, C, S	16 / 500MHz	12	0.12	850
1.3	B, C, S	16 / 500MHz	10	0.20	850
1.4	B, C, S	16 / 500MHz	10	0.20	850
1.5	B, C, S	16 / 500MHz	10	0.20	850
1.6	B, C, S	16 / 500MHz	10	0.20	675
1.7	B, C, S	16 / 500MHz	10	0.20	675
1.8	B, C, S	16 / 500MHz	10	0.20	675
1.9	B, C, S	16 / 500MHz	8	0.28	675
2.0	B, C, S	16 / 500MHz	8	0.28	675
2.1	B, C, S	16 / 500MHz	8	0.28	530
2.2	B, C, S	16 / 500MHz	8	0.28	530
2.3	B, C, S	16 / 500MHz	8	0.28	530
2.4	B, C, S	16 / 500MHz	8	0.28	530
2.5	B, C, S	16 / 500MHz	8	0.28	530
2.6	B, C, S	16 / 500MHz	8	0.28	530
2.7	B, C, S	16 / 500MHz	8	0.28	530
2.8	B, C, S	16 / 500MHz	6	0.35	460
2.9	B, C, S	16 / 500MHz	6	0.35	460
3.0	B, C, S	16 / 500MHz	6	0.35	460
3.1	B, C, S	16 / 500MHz	6	0.35	460
3.2	B, C, S	16 / 500MHz	6	0.35	460
3.3	B, C, S	16 / 500MHz	6	0.35	460
3.4	B, C, S	16 / 500MHz	6	0.45	460
3.5	B, C, S	16 / 500MHz	6	0.45	460
3.6	B, C, S	16 / 500MHz	6	0.45	460
3.7	B, C, S	16 / 500MHz	6	0.45	410
3.8	B, C, S	16 / 500MHz	6	0.45	410
3.9	B, C, S	16 / 500MHz	6	0.45	410
4.3	B, C, S	16 / 500MHz	6	0.45	350
4.7	B, C, S	16 / 500MHz	6	0.55	350
5.4	B, C, S	16 / 500MHz	6	0.55	310
5.6	B, C, S	16 / 500MHz	6	0.70	310
5.9	B, C, S	16 / 500MHz	6	0.70	310
6.5	B, C, S	16 / 500MHz	6	0.90	290
6.8	B, C, S	16 / 500MHz	6	0.90	290
7.2	B, C, S	16 / 500MHz	6	0.90	290
8.0	B, C, S	16 / 500MHz	5.5	1.00	245
8.1	B, C, S	16 / 500MHz	5.5	1.00	245
8.2	B, C, S	16 / 500MHz	5.5	1.00	245
9.1	B, C, S	16 / 500MHz	5.5	1.00	245
10.0	F, G, H, J	16 / 500MHz	4.5	1.10	220

* Tolerance: B=±0.1nH , C=±0.2nH , S=±0.3nH, G=±2%, J=±5%
* Operating Temperature: -40℃ to +85℃
* Unspecified values are available on request.
* Test Equipment: HP4287A+Agilent 16196B

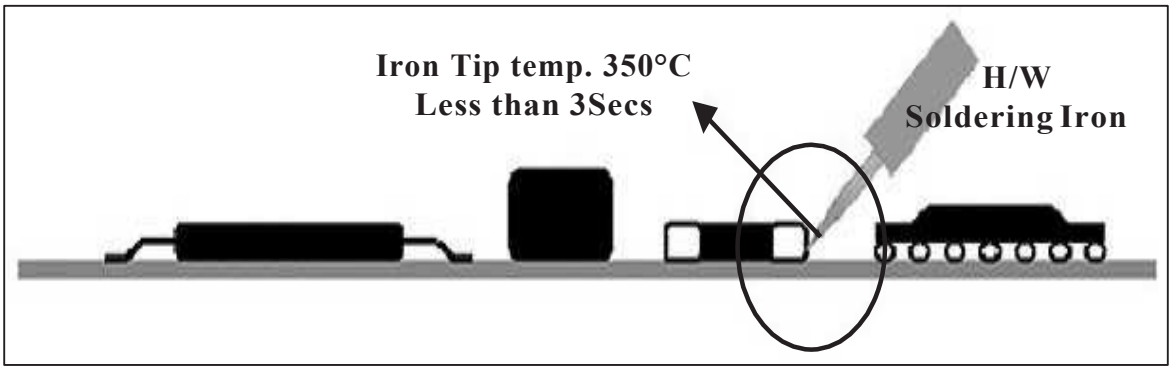
■ Soldering Profile

Reflow Soldering



Manual Soldering

Soldering iron tip temperature: 350°C max / within 3 seconds.



THIN FILM CHIP INDUCTOR SAL SERIES

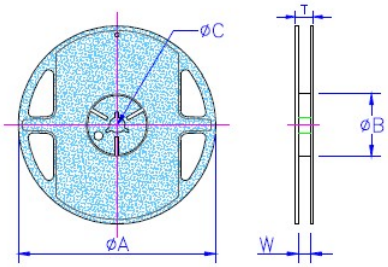
■ Specification & Test Method

Item	Requirement	Test Condition
Inductance	As specification	Temperature: 25±1°C Relative Humidity: 45 to 85%RH Atmospheric Pressure: 86 to 106kpa Measuring equipment and fixture: 0201: HP4287+Agilent16196C 0402: HP4287+Agilent16193B
Insulation Resistance	＞1000MΩ	MIL-STD-202 Method 302 Apply 100Vdc for 60 sec.
Damp Heat with Load	ΔL≦10%	MIL-STD-202 Method 103B 40±2℃, 90-95% R.H. Max W.V for 1000hrs With 1.5 hours "ON" and o.5 hour "OFF"
Bending Strength	No mechanical damage shall be observed	JIS-C-5201-1 6.1.4 Bending amplitude 3mm for 10 seconds
Solderability	More than 95% of the terminal electrode part shall be covered with fresh solder	MIL-STD-202 Method 208H 245±5℃ for 3 seconds
Resistance to Soldering Heat	ΔL≦10%	MIL-STD-202 Method 210E 260±5℃ for 10 seconds
Dielectric Withstand Voltage	＞100V	MIL-STD-202 Method 301 Apply 100VA(rms) for 60 seconds
High Temperature Test	ΔL≦10%	JIS-C-5201-1 7.2 85±2℃ for 1000 +48/-0 hrs
Low Temperature Test	ΔL≦10%	JIS-C-5201-1 7.1 -40±3℃ for 1000 +48/-0 hrs
Temperature Cycle	ΔL≦10%	JIS-C-5201-1 7.4 -40/RT/85/RT for 10 cycles

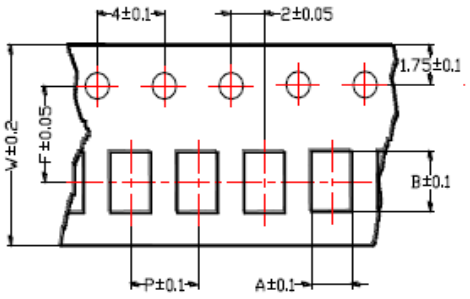
■ Packaging

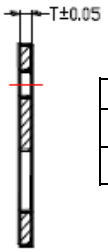
Packaging Quantity & Reel Specifications

Type	ΦA	ΦB	ΦC	W	T	Quantity (EA)
SAL0201	178±2.0	60±0.5	13±0.3	9±0.3	12±1.0	15000
SAL0402	178±2.0	60±0.5	13±0.3	9±0.3	12±1.0	10000



Taping Specifications





Type	A	B	T	W	P	F
SAL0201	0.38	0.68	0.42	8	2	3.5
SAL0402	0.65	1.12	0.60	8	2	3.5

Unit: mm