

FrelTec GmbH

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Thin Film Chip Inductor SMD

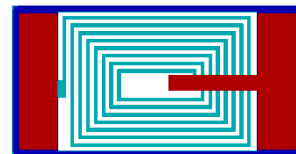
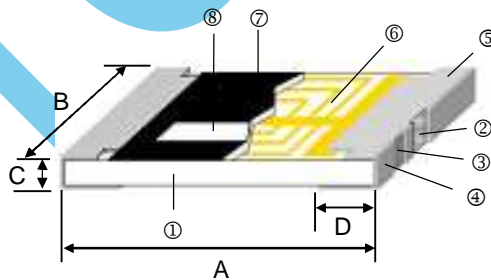
SPECIFICATION

Part Number

092	02*	101*	J*	T05*
Type	Size	Value	Tolerance	Packing
092 : SMD Thin Film Chip Inductor	01 : 0201	The value is given in nH and "N" indicates the decimal point. When higher than 100nH then the last digit is the multiplier	A : $\pm 0,05\text{nH}$	
	02 : 0402	which denotes the number of zero following	B : $\pm 0,1\text{nH}$	T10: Tape and reel; for 10k pc available for 0201 and 0402 (7" reel)
		Example:	C : $\pm 0,2\text{nH}$	
		3N3 : 3,3 nH	S : $\pm 0,3\text{nH}$	
		22N : 22 nH	F : $\pm 1\%$	
		101 : 100nH	G : $\pm 2\%$	
			H : $\pm 3\%$	
			J : $\pm 5\%$	* not all combination is possible

Dimensions and recommended PCB pattern for reflow soldering:

- 1) Alumina Substrate
- 2) Inner Electrode (Ni-Cr)
- 3) Barrier Layer (Ni)
- 4) External Electrode (Sn)
- 5) Edge Electrode
- 6) Cu Circuits
- 7) Overcoat
- 8) Marking



Size	A max.	B max.	C max.	D Ref.
0201	0,60 \pm 0,05	0,30 \pm 0,05	0,23 \pm 0,05	0,15 \pm 0,05
0402	1,0 \pm 0,05	0,5 \pm 0,05	0,32 \pm 0,05	0,2 \pm 0,10

unit: mm

SMD

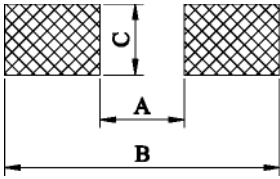
Standard Electrical Specifications

Chip Inductors / Standard Type

Size	Inductance (nH)	Inductance Tolerance (nH or %)	Quality Factor min.	SRF (GHz) min.	DCR (Ω) max.	IDC (mA) max.
0201	0,1	±0,1; 0,2; 0,3nH	8 / 500MHz	9	0,20	400
	0,2				0,20	400
	0,3				0,20	400
	0,4				0,25	350
	0,5				0,25	350
	0,6				0,25	350
	0,7				0,30	300
	0,8				0,30	300
	0,9				0,30	300
	1,0				0,30	300
	1,1				0,35	300
	1,2				0,35	300
	1,3			0,45	250	
	1,4			0,45	250	
	1,5			0,45	250	
	1,6			0,55	200	
	1,7			0,55	200	
	1,8			0,55	200	
	1,9			0,55	200	
	2,0			0,70	200	
	2,1			0,70	200	
	2,2			0,70	200	
	2,3			0,80	150	
	2,4			0,80	150	
	2,5	0,80	150			
	2,6	0,80	150			
	2,7	0,80	150			
	2,8	1,00	150			
	2,9	1,00	150			
	3,0	1,00	150			
	3,1	1,00	150			
	3,2	1,00	150			
	3,3	1,00	150			
	3,4	1,20	150			
	3,5	1,20	150			
	3,6	1,20	150			
3,7	1,20	150				
3,8	1,20	150				
3,9	1,20	150				
4,0	1,20	150				
4,4	1,30	140				
4,7	1,40	130				
4,9	1,60	130				
5,6	1,80	130				
6,1	2,00	120				
6,8	2,30	110				
7,4	2,80	110				
8,2	3,00	110				
9,1	3,25	100				
9,2	3,25	100				
10	3,50	80				

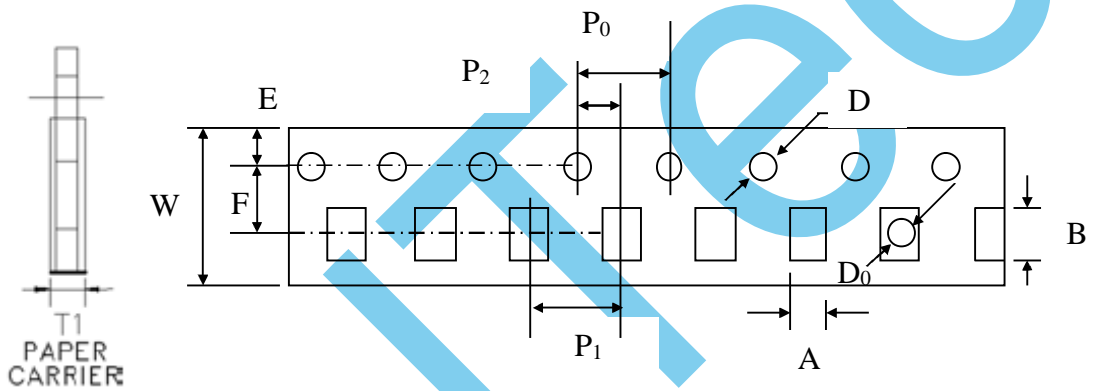
Size	Inductance (nH)	Inductance Tolerance (nH or %)	Quality Factor min.	SRF (GHz) min.	DCR (Ω) max.	IDC (mA) max.
0402	0,2	±0,1; 0,2; 0,3nH	13 / 500MHz	14	0,10	800
	0,3				0,10	800
	0,4				0,10	800
	0,5				0,15	700
	0,8				0,15	700
	0,9				0,15	700
	1,0				0,15	700
	1,1			12	0,15	700
	1,2				0,15	700
	1,3			10	0,25	700
	1,4				0,25	700
	1,5				0,25	700
	1,6			8	0,25	560
	1,7				0,25	560
	1,8				0,25	560
	1,9				0,35	560
	2,0				0,35	560
	2,1				0,35	440
	2,2				0,35	440
	2,3			6	0,35	440
	2,4				0,35	440
	2,5				0,35	440
	2,6				0,35	440
	2,7				0,35	440
	2,8				0,45	380
	2,9				0,45	380
	3,0			5,5	0,45	380
	3,1				0,45	380
	3,2				0,45	380
	3,3				0,45	380
	3,4				0,55	380
	3,5				0,55	380
	3,6				0,55	380
3,7	0,55	340				
3,8	0,55	340				
3,9	0,55	340				
4,3	4,5	0,65	320			
4,7		0,65	320			
5,4		0,85	280			
5,6		0,85	280			
5,9		0,85	280			
6,5		1,05	260			
6,8		1,05	260			
7,2	4,5	1,05	260			
8,0		1,25	220			
8,1		1,25	220			
8,2	3,7	1,25	220			
9,1		1,25	220			
10,0	3,3	±1%, ±2%, ±3%, ±5%	1,35	200		
10,8			1,35	200		
12,0	2,8	1,55	180			
13,8		1,75	180			
15,0	2,5	1,75	130			
17,0		1,95	100			
18,0	2,5	2,15	100			
20,8		2,55	90			
22,0	2,5	2,65	90			
27,0		3,25	75			
33,0	±5%	4,50	75			

SMD



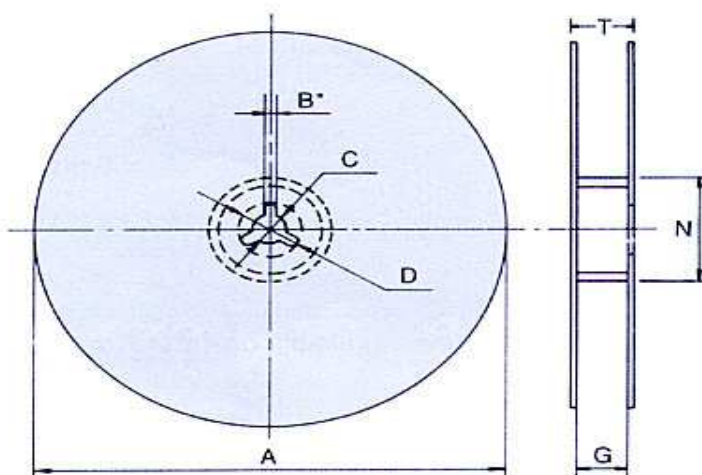
Size	A	B	C
0402	0,5	1,4	0,6±0,2
0201	0,30	0,9	0,30±0,2

Tape Dimensions



Type	A	B	E	F	P ₀	P ₁	P ₂	W	T ₁	D
0201	0,40±0,05	0,70±0,05	1,75±0,05	3,50±0,05	4,00±0,05	2,00±0,05	2,00±0,05	8,00±0,05	0,42±0,02	1,55±0,03
0402	0,70±0,05	1,16±0,05	1,75±0,05	3,50±0,05	4,00±0,05	2,00±0,05	2,00±0,05	8,00±0,05	0,40±0,03	1,55±0,03

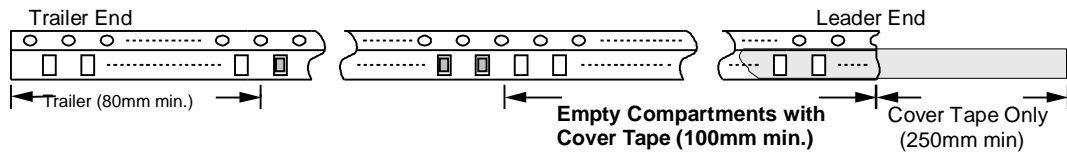
Reel Dimensions



Symbol	A	N	C	G	T
Dimension	178±1,0	60,0±1,0	13,5±0,7	9,5±1,0	11,5±1,0

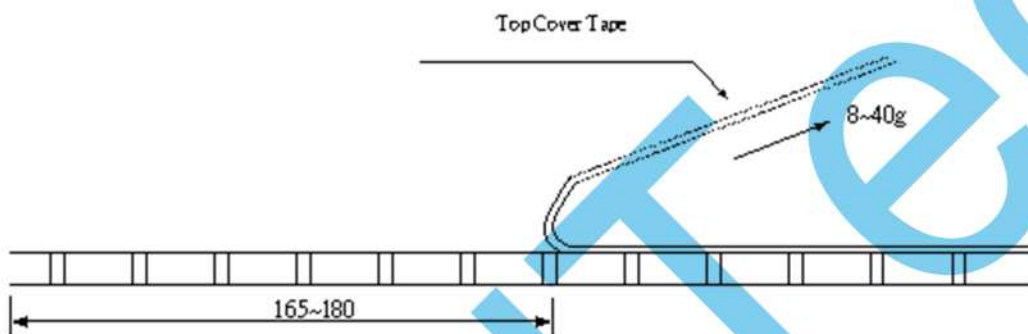
SMD

Lead Dimensions:

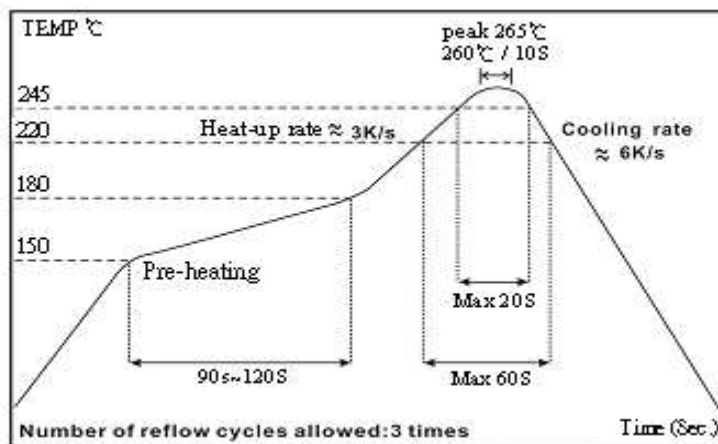


Cover Tape Peel off Strength

Peel force of top cover tape. The peel speed shall be about 300mm/min \pm 5%. The peel force of top cover tape shall be between 8g to 40g



Lead Free Reflow Soldering Profile



Stock period

The performance of these products, including the solderability, is guaranteed for 12 month, provided that they remain packed as they were when delivered and stored at a temperature of 25°C \pm 3°C and a relative humidity less than 80%RH

Environmental Characteristics

Item	Requirement	Test Method
Inductance	As Spec.	Measuring equipment and fixture: 0201: HP4287+Agilent 16196C 0402: HP4287+Agilent 16196B
Insulation Resistance	>1000MΩ	MIL-STD-202F Method 302 Apply 100V _{DC} for 1minute
Damp Heat with Load	$\Delta L \leq 10\%$	MIL-STD-202F Method 103B 40±2°C, 90~95% R.H. Max. working voltage for 1000 hrs with 1,5 hrs "ON" and 0,5 hrs "OFF"
Bending Strength	As Spec.	JIS-C-5201-1 6.1.4 Bending Amplitude 3mm for 10 seconds
Solderability	95% min. coverage	MIL-STD-202F Method 208H 245±5°C for 3 seconds
Resistance to Soldering Heat	$\Delta L \leq 10\%$	MIL-STD-202F Method 210E 260±5°C for 10 seconds
Dielectric Withstand Voltage	>100V	MIL-STD-202F Method 301 Apply 100VA (rms) for 1minute
High Temperature Exposure	$\Delta L \leq 10\%$	JIS-C-5201-1 7.2 85±2°C, 1000 +48/-0 hours
Low Temperature Storage	$\Delta L \leq 10\%$	JIS-C-5201-1 7.1 -40±3°C, 1000 +48/-0 hours
Temperature Cycle	$\Delta L \leq 10\%$	JIS-C-5201-1 7.4 -40/RT/85/RT, 10 cycles

For this part: It does not use the materials that include the substances specified in RoHS, the detail refer to the part of prohibition or exclusion items in RoHS (2002/95/EC).

Cadmium and cadmium compounds (permissive content < 100 ppm)

Lead and lead compounds (permissive content < 1000 ppm)

Exceptions specified:

Lead contained in the glass of cathode ray tubes, electronic components and fluorescent tubes.

The glass material used in the electronic components, which includes resistor elements, conductive pastes (silver or copper ones), adhesives, glass frit and sealing materials.

Mercury and its mercury compounds (permissive content < 1000 ppm)

Hexavalent chromium compounds (permissive content < 1000 ppm)

Polybrominated biphenyls (PBB) (permissive content < 1000 ppm)

Polybrominated diphenylethers (PBDE) (permissive content < 1000 ppm)

FrelTec

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