

FrelTec GmbH

Mathildenstr. 10A
82319 Starnberg
Germany

Shielded SMD Power Inductors

FrelTec Shielded SMD Power Inductors

SMD

SPECIFICATION

Part Number

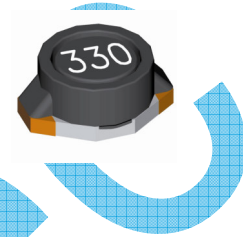
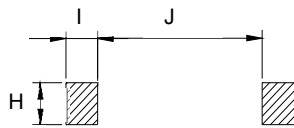
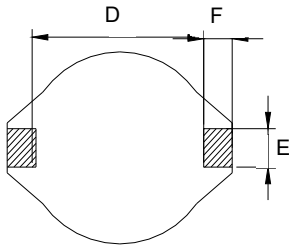
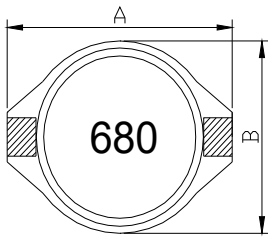
100	1608*	101*	M	E02**
Type	Size	Value	Tolerance	Packing
100 : Shielded SMD Power Inductor	1604 : 6,60x4,45x2,95	The value is given in μH and "u" indicates the decimal point. When higher than $100\mu\text{H}$ then the last digit is the multiplier	M : $\pm 20\%$	L02 : 2000pcs for 1604 (13" reel)
	3316 : 12,95x9,4x5,21	which denotes the number of zero following	K : $\pm 10\%$	L01 : 1000pcs for 3316 (13" reel)
	5022 : 18,54x15,24x7,62	Example:		L0B : 250pcs for 5022 size (13"reel)
		3U3 : $3,3 \mu\text{H}$		
		220 : $22 \mu\text{H}$		
		151 : $150 \mu\text{H}$		
				* not all combination is possible

All products according to RoHS (2015/863/EU)

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Dimensions and land pattern:



Type	A max.	B max.	C max.	D	E	F	H	I	J
1604	6,60	4,45	2,92	4,32	1,27	1,02	3,56	1,40	4,06
3316	12,95	9,40	5,21	7,62	2,54	2,54	2,79	2,92	7,37
5022	18,54	15,24	7,62	12,70	2,54	2,54	2,79	2,92	12,45

Inductance and rated current ranges

1604	1,0 ~ 10.000µH	1,4 ~ 0,02A
3316	1,0 ~ 1.000µH	5,6 ~ 0,32A
5022	1,0 ~ 1.000µH	20 ~ 0,80A

Electrical specifications at 25°C

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Electrical Characteristics

1604 Type

Code	L (μ H)	Tolerance	Test Condition		DCR (Ω) max.	SRF ref (MHz)	Q min.	IDC max.	
			L	Q				I sat (A)	I rms (A)
1U0	1,0	M	100KHz, 0,1V	200KHz, 0,1V	0,040	250	30	1,40	3,00
1U5	1,5				0,045	125		0,93	2,30
2U2	2,2				0,050	120		0,92	1,80
3U3	3,3				0,055	120		0,75	1,60
4U7	4,7				0,060	105		0,58	1,40
6U8	6,8				0,065	50		0,58	1,20
100	10				0,075	38	0,37	1,00	
150	15				0,090	33	0,31	0,80	
220	22				0,11	25	0,30	0,70	
330	33				0,19	20	0,24	0,60	
470	47				0,23	20	0,24	0,50	
680	68				0,29	15	0,17	0,40	
101	100				0,48	10	0,13	0,30	
151	150				0,59	9	0,10	0,26	
221	220		0,90	6	0,10	0,22			
331	330		1,40	5	0,07	0,20			
471	470		1,80	4	0,06	0,19			
681	680		2,20	3	0,06	0,18			
102	1000		3,40	2	0,05	0,15			
152	1500		4,20	2	0,04	0,12			
222	2200		8,50	2	0,03	0,10			
332	3300		11,0	1	0,02	0,08			
472	4700		13,9	1	0,02	0,06			
682	6800		25,0	1	0,02	0,04			
103	10000		32,8	0,8	0,02	0,02			

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SMD 3316 Type

Code	L (μ H)	Tolerance	Test Condition	DCR (Ω) max.	0,140IDC (A) max.
1U0	1,0	M	100KHz, 0,1V	0,021	5,60
1U5	1,5			0,022	5,20
2U2	2,2			0,032	5,00
3U3	3,3			0,039	3,90
4U7	4,7			0,054	3,20
6U8	6,8			0,075	2,80
100	10			0,101	2,40
120	12			0,140	2,10
150	15			0,150	2,00
180	18			0,200	1,70
220	22			0,207	1,60
290	29			0,300	1,50
330	33			0,334	1,40
390	39			0,460	1,10
470	47			0,472	1,00
680	68			0,660	0,90
101	100			1,110	0,80
121	120			1,300	0,62
151	150			1,550	0,60
221	220			M, K	2,000
271	270	M	4,600	0,42	
331	330		5,600	0,35	
391	390		6,600	0,34	
471	470		7,600	0,33	
681	680	M, K	9,000	0,31	
102	1000	M	8,300	0,32	

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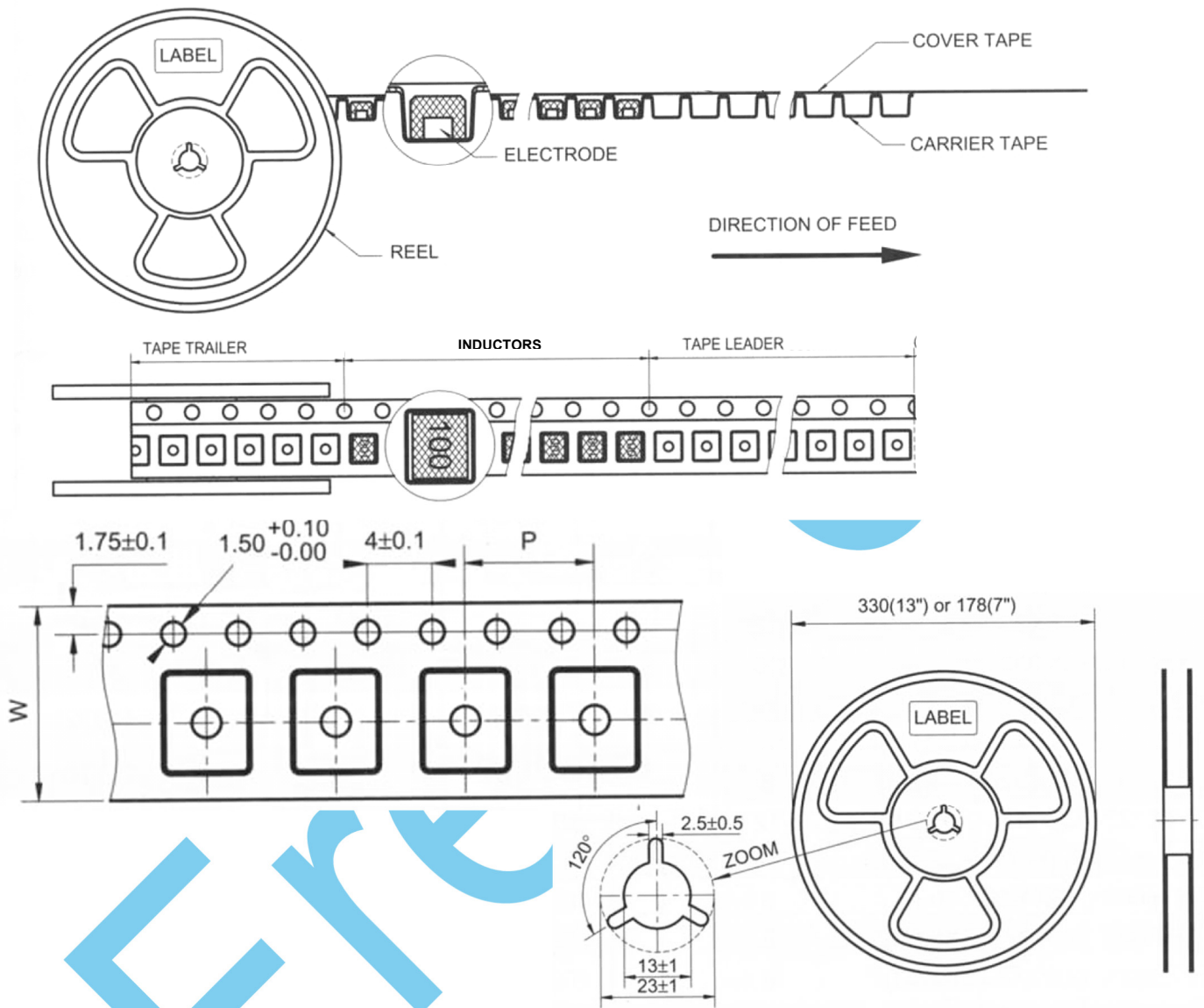
SMD 5022 Type

Code	L (μ H)	Tolerance	Test Condition	DCR (Ω) max.	IDC (A) max.
1U0	1,0	M	100KHz, 0,1V	0,024	20,00
2U2	2,2			0,026	11,00
3U3	3,3			0,029	10,00
3U9	3,9			0,030	8,50
4U7	4,7			0,032	8,40
5U6	5,6			0,034	8,30
6U8	6,8			0,036	8,20
8U2	8,2			0,038	8,10
100	10			0,040	8,00
120	12			0,046	7,10
150	15			0,048	7,00
180	18			0,056	6,10
220	22			0,059	6,00
270	27			0,066	5,10
330	33			0,075	5,00
390	39			0,092	4,10
470	47			0,097	4,00
560	56			0,132	3,10
680	68			0,138	3,00
820	82			0,202	2,50
101	100			0,207	2,40
121	120			0,286	2,20
151	150			0,293	2,10
181	180			0,420	1,91
221	220			0,470	1,90
271	270			0,720	1,12
331	330			0,780	1,10
391	390			1,020	1,10
471	470			1,080	1,10
561	560			1,320	0,97
681	680			1,400	0,96
821	820			1,960	0,81
102	1000			2,010	0,80

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Tape and Reel Dimensions



Type	Tape size	
	W	P
1604	16	8
3316	24	12
5022	32	20

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Stock period

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

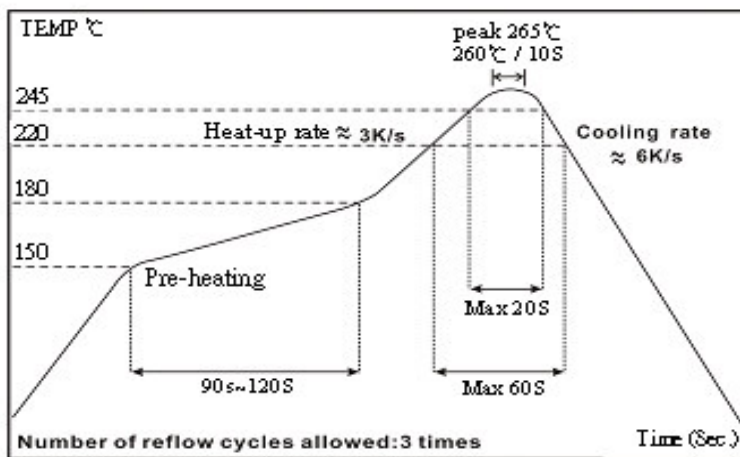
Characteristics

Operating temperature range: -40°C to $+125^{\circ}\text{C}$

Saturation Rated Current ($I_{\text{sat}}/I_{\text{DC}}$): The DC current when the inductance becomes 10% (1604 become 305) lower than its initial value. ($T_a=25^{\circ}\text{C}$)

Temperature Rise Current (I_{rms}): The actual current when temperature of coil becomes $\Delta 40^{\circ}\text{C}$. ($T_a=25^{\circ}\text{C}$)

Lead Free Reflow Soldering Profile



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Environmental Test

Test Items	Specifications	Test Conditions / Test Methods
High temperature Storage test	No case deformation or change in appearance. $\Delta L/L \leq 10\%$	Temperature $85 \pm 2^\circ\text{C}$, Time: 48 ± 2 hours, Tested after 1hour at room temperature.
Low temperature Storage test		Temperature $-25 \pm 2^\circ\text{C}$, Time: 48 ± 2 hours, Tested after 1hour at room temperature.
Humidity test		Temperature $40 \pm 2^\circ\text{C}$, 90~95% relative humidity Time: 96 ± 2 hours Tested after 1hour at room temperature.
Thermal shock test		First -25°C 30minutes then 25°C 10 minutes last 85°C 30 minutes, as 1 cycle. Go through 5 cycles. Tested after 1 hour at room temperature.

Mechanical Test

Test Items	Specifications	Test Conditions / Test Methods
Solderability test	Terminal area must have 90% minimum solder coverage.	Product with Lead-free terminal: Dip pads in flux then dip in solder pot at $245 \pm 5^\circ\text{C}$ for 3 seconds.
Resistance to Soldering Heat	No case deformation or change in appearance.	Flux should cover the whole of the sample before heating, then be preheated for about 2 minutes over temperature of $130 \sim 150^\circ\text{C}$. Immersing to $260 \pm 5^\circ\text{C}$ for 10 seconds.
Vibration test	No case deformation or change in appearance. $\Delta L/L \leq 10\%$	Apply frequency 10~55Hz. 1.5mm amplitude in each of perpendicular direction for 2 hours.
Shock resistance		Drop down with 981m/s^2 (100G) shock attitude upon a rubber block method shock testing machine, for 1 time. In each of three orientations.

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