

# FrelTec GmbH

Mathildenstr. 10A  
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Germany

## **Shielded SMD Power Inductors**

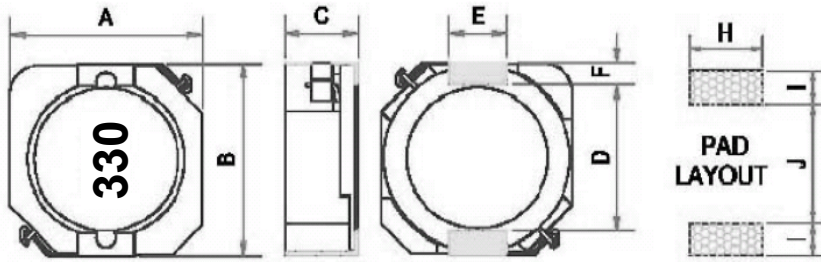
## SMD

## SPECIFICATION

## Part Number

115	10A3*	101*	M	L01**	0**
Type	Size	Value	Tolerance	Packing	Optional
115 : Shielded SMD Power Inductor	5028: 6,2×6,3×3,0	The value is given in $\mu\text{H}$ and "u" indicates the decimal point. When higher than $100\mu\text{H}$ then the last digit is the multiplier	N: $\pm 30\%$	L02 : 2000pcs for 5028 (13" reel)	0 for optional
	10A3: 10,3×10,4×3,1	which denotes the number of zero following	M: $\pm 20\%$	L01 : 1000pcs for 1003 (13" reel)	
	10A4: 10,3×10,4×4,0	Example:		L0U : 750pcs for 1004 and 1005 (13" reel)	
	10A5: 10,3×10,4×5,0	3U3 : $3,3 \mu\text{H}$			
		220 : $22 \mu\text{H}$			
		101 : $100 \mu\text{H}$			
				* not all combination is possible	

Dimensions and recommended PCB pattern for reflow soldering:



Type	A Max.	B Max.	C Max.	D	E	F	H	I	J
5028	6,2	6,3	3,0	4,7	2,0	0,6	2,6	1,0	4,6
10A3	10,3	10,4	3,1	7,7	3,0	1,2	3,2	1,6	7,3
10A4	10,3	10,4	4,0	7,7	3,0	1,2	3,2	1,6	7,3
10A5	10,3	10,4	5,0	7,7	3,0	1,2	3,2	1,6	7,3

unit: mm

### Inductance and rated current ranges

5028	1~100 $\mu$ H	2,90~0,40A
10A3	0,56~1000 $\mu$ H	6,20~0,23A
10A4	0,56~1000 $\mu$ H	10,0~0,32A
10A5	1,5~1000 $\mu$ H	10,5~0,35A

Electrical specifications at 25°C

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### SMD

#### Electrical Characteristics

#### 5028

Part No	L ( $\mu$ H)	Tolerance	Test Condition	DCR (m $\Omega$ ) max.	IDC (A) max.
50281U0	1,0	N	100KHz, 0,1V	15,0	2,90
50281U5	1,5		100KHz, 0,1V	16,0	2,80
50282U2	2,2		100KHz, 0,1V	17,0	2,70
50282U5	2,5		100KHz, 0,1V	17,6	2,60
50283U3	3,3		100KHz, 0,1V	20,3	2,30
50284U0	4,0		100KHz, 0,1V	27,0	2,10
50284U7	4,7		100KHz, 0,1V	29,0	2,00
50285U0	5,0		100KHz, 0,1V	31,1	1,85
50286U0	6,0		100KHz, 0,1V	41,9	1,70
50286U20	6,2		M	100KHz, 0,25V	74
50288U0	8,0	N	100KHz, 0,1V	49,9	1,50
50288U20	8,2	M	100KHz, 0,25V	102	1,25
5028100	10	N	100KHz, 0,1V	54,0	1,30
50281000	10	M	100KHz, 0,25V	118	1,22
5028120	12	N	100KHz, 0,1V	71,6	1,20
5028150	15		100KHz, 0,1V	82,4	1,10
50281500	15	M	100KHz, 0,25V	179	0,94
5028180	18	N	100KHz, 0,1V	101,5	1,05
5028220	22		100KHz, 0,1V	119,0	0,95
50282200	22	M	100KHz, 0,25V	253	0,80
5028270	27	N	100KHz, 0,1V	146,0	0,85
5028330	33		100KHz, 0,1V	182,5	0,76
50283300	33	M	100KHz, 0,25V	368	0,63
5028390	39	N	100KHz, 0,1V	209,5	0,68
5028470	47		100KHz, 0,1V	229,5	0,60
50284700	47	M	100KHz, 0,25V	542	0,50
5028560	56	N	100KHz, 0,1V	305,0	0,55
5028680	68		100KHz, 0,1V	351,0	0,48
5028820	82		100KHz, 0,1V	418,5	0,45
5028101	100		100KHz, 0,1V	520,0	0,40

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## Shielded SMD Power Inductors

### SMD 10A3

Part No	L ( $\mu$ H)	Tolerance	Test Condition	DCR (m $\Omega$ ) max.	IDC (A) max.
10A3U56	0,56	N	100KHz, 0,1V	20	6,20
10A31U0	1,0		100KHz, 0,1V	20	6,20
10A31U2	1,2		100KHz, 0,1V	20	6,20
10A31U3	1,3		100KHz, 0,1V	20	6,20
10A31U5	1,5		100KHz, 0,1V	20	6,20
10A31U8	1,8		100KHz, 0,1V	23	5,60
10A32U2	2,2		100KHz, 0,1V	23	5,60
10A32U5	2,5		100KHz, 0,1V	23	5,60
10A32U7	2,7		100KHz, 0,1V	23	5,60
10A33U3	3,3		100KHz, 0,1V	29	5,00
10A33U8	3,8		100KHz, 0,1V	29	5,00
10A34U0	4,0		100KHz, 0,1V	33	4,80
10A34U7	4,7		100KHz, 0,1V	35	4,83
10A35U0	5,0		100KHz, 0,1V	35	4,83
10A35U2	5,2		100KHz, 0,1V	43	4,83
10A38U2	8,2		100KHz, 0,1V	50	3,54
10A3100	10		100KHz, 0,1V	58	2,70
10A3120	12		100KHz, 0,1V	72	2,25
10A3150	15		100KHz, 0,1V	86	2,22
10A3180	18		100KHz, 0,1V	116	1,90
10A3220	22		100KHz, 0,1V	145	1,78
10A3270	27		100KHz, 0,1V	176	1,63
10A3330	33		100KHz, 0,1V	213	1,46
10A3390	39		100KHz, 0,1V	270	1,32
10A3470	47	100KHz, 0,1V	299	1,18	
10A3560	56	100KHz, 0,1V	335	1,10	
10A3680	68	100KHz, 0,1V	451	1,04	
10A3820	82	100KHz, 0,1V	513	0,94	
10A3101	100	M, N	100KHz, 0,1V	700	0,84
10A3121	120	100KHz, 0,1V	765	0,76	
10A3151	150	100KHz, 0,1V	876	0,70	
10A3181	180	100KHz, 0,1V	1000	0,60	
10A3221	220	100KHz, 0,1V	1050	0,58	
10A3271	270	100KHz, 0,1V	1500	0,56	
10A3331	330	100KHz, 0,1V	1800	0,52	
10A3391	390	100KHz, 0,1V	2000	0,50	
10A3471	470	100KHz, 0,1V	2170	0,48	
10A3561	560	100KHz, 0,1V	2750	0,35	
10A3681	680	100KHz, 0,1V	3200	0,29	
10A3821	820	100KHz, 0,1V	3800	0,28	
10A3102	1000	100KHz, 0,1V	5000	0,23	

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### SMD 10A4

Part No	L ( $\mu$ H)	Tolerance	Test Condition	DCR (m $\Omega$ ) max.	IDC (A) max.
10A4U56	0,56	N	100KHz, 0,1V	8	10,0
10A41U0	1,0		8	10,0	
10A41U2	1,2		8	10,0	
10A41U3	1,3		8	10,0	
10A41U5	1,5		8	10,0	
10A41U8	1,8		10	9,5	
10A42U2	2,2		11	8,00	
10A42U5	2,5		12	7,50	
10A42U7	2,7		12	7,50	
10A43U3	3,3		13	6,50	
10A43U8	3,8		17	6,00	
10A44U7	4,7		21	5,70	
10A45U0	5,0		22	5,60	
10A45U2	5,2		22	5,50	
10A45U6	5,6		25	5,20	
10A46U8	6,8		26	4,90	
10A47U0	7,0		27	4,80	
10A48U2	8,2		33	4,60	
10A4100	10		35	4,40	
10A4120	12		46	3,92	
10A4150	15		50	3,60	
10A4180	18		70	3,00	
10A4220	22		73	2,90	
10A4270	27		83	2,80	
10A4330	33		93	2,30	
10A4390	39		120	2,20	
10A4470	47		128	2,10	
10A4560	56		171	1,80	
10A4680	68		213	1,50	
10A4820	82		250	1,40	
10A4101	100		304	1,35	
10A4121	120		400	1,20	
10A4151	150		506	1,15	
10A4181	180	631	1,03		
10A4221	220	756	0,92		
10A4271	270	853	0,84		
10A4331	330	1090	0,70		
10A4391	390	1450	0,62		
10A4471	470	1520	0,54		
10A4561	560	2500	0,50		
10A4681	680	2800	0,45		
10A4821	820	3000	0,40		
10A4102	1000	3250	0,32		

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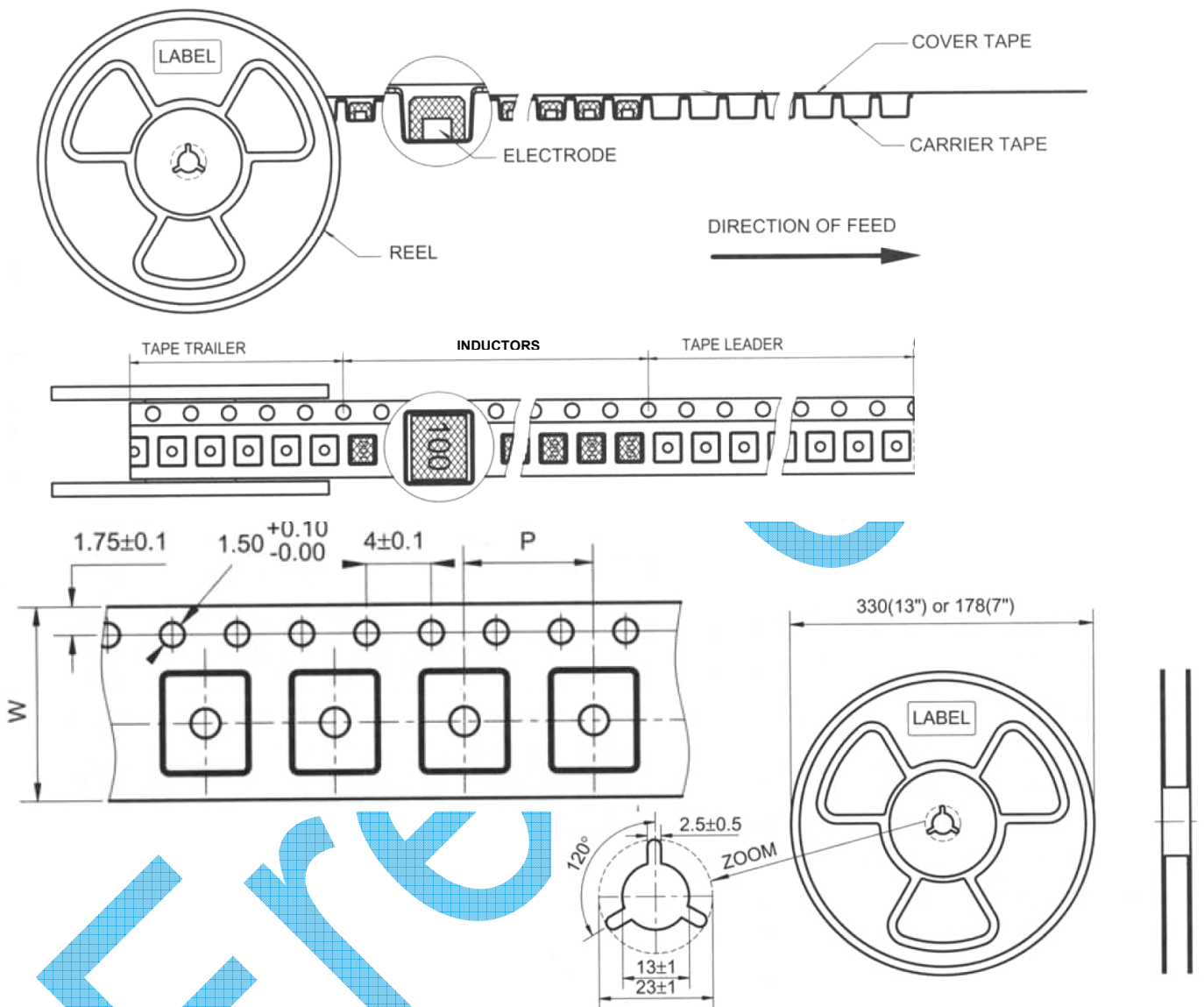
### SMD 10A5

Part No	L ( $\mu$ H)	Tolerance	Test Condition	DCR (m $\Omega$ ) max.	IDC (A) max.	
10A51U5	1,5	N	100KHz, 0,1V	6	10,5	
10A52U2	2,2		100KHz, 0,1V	7	9,25	
10A53U3	3,3		100KHz, 0,1V	10	7,80	
10A54U7	4,7		100KHz, 0,1V	12	6,40	
10A56U8	6,8		100KHz, 0,1V	18	5,40	
10A58U2	8,2		100KHz, 0,1V	20	4,85	
10A5100	10		M, N	100KHz, 0,1V	26	3,45
10A5120	12	100KHz, 0,1V		33	3,40	
10A5150	15	100KHz, 0,1V		41	2,83	
10A5180	18	100KHz, 0,1V		46	2,62	
10A5220	22	100KHz, 0,1V		61	2,44	
10A5270	27	100KHz, 0,1V		69	2,24	
10A5330	33	100KHz, 0,1V		84	1,88	
10A5390	39	100KHz, 0,1V		106	1,70	
10A5470	47	100KHz, 0,1V		130	1,56	
10A5560	56	100KHz, 0,1V		149	1,39	
10A5680	68	100KHz, 0,1V		201	1,36	
10A5820	82	100KHz, 0,1V		227	1,20	
10A5101	100	M		100KHz, 0,1V	253	1,09
10A51010	100			100KHz, 0,1V	253	1,35
10A5121	120			100KHz, 0,1V	303	1,00
10A5151	150			100KHz, 0,1V	370	0,91
10A5181	180			100KHz, 0,1V	419	0,84
10A5221	220		100KHz, 0,1V	500	0,75	
10A5271	270		100KHz, 0,1V	672	0,68	
10A5331	330		M, N	100KHz, 0,1V	812	0,60
10A5391	390			100KHz, 0,1V	953	0,57
10A5471	470			100KHz, 0,1V	1289	0,50
10A5561	560	100KHz, 0,1V		1430	0,47	
10A5681	680	100KHz, 0,1V		1599	0,43	
10A5821	820	100KHz, 0,1V		1768	0,39	
10A5102	1000	100KHz, 0,1V		1989	0,35	

# FrelTec Shielded SMD Power Inductors

## SMD

### Tape and Reel Dimensions



Type	Tape size	
	W	P
5028	12	8
1003	24	16
1004	24	16
1005	24	16

unit: mm



### SMD

Storage Temperature:  $25 \pm 3^\circ\text{C}$

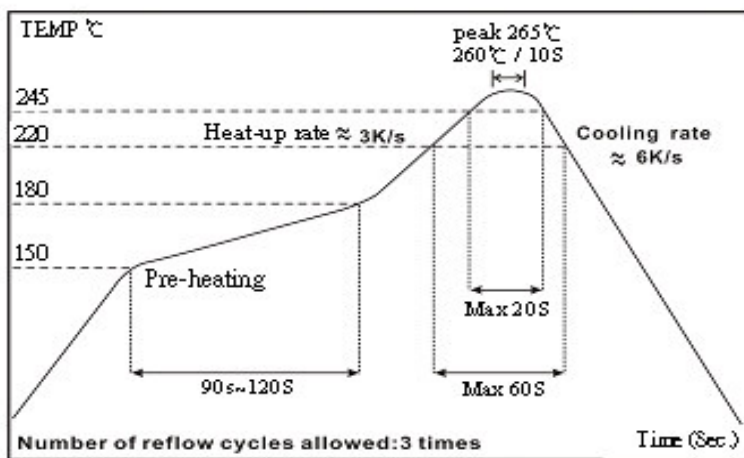
Humidity < 80%RH

#### Characteristics

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

Rated DC current: The current when the inductance becomes 35% lower than its initial value or the actual current when the temperature of coil increases to  $\Delta T = 40^\circ\text{C}$ . The smaller one is defined as Rated DC Current. ( $T_a = 25^\circ\text{C}$ )

#### Lead Free Reflow Soldering Profile



#### Stock period

The performance of these products, including the solderability, is guaranteed for 6 month after production date code, 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

## SMD

## 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: $48 \pm 2$ hours, Tested after 1 hour at room temperature.
Low temperature Storage test		Temperature $-40 \pm 2^\circ\text{C}$ , Time: $48 \pm 2$ hours, Tested after 1 hour at room temperature.
Humidity test		Temperature $40 \pm 2^\circ\text{C}$ , 90~95% relative humidity Time: $96 \pm 2$ hours Tested after 1 hour at room temperature.
Thermal shock test		First $-25^\circ\text{C}$ 30 minutes then $25^\circ\text{C}$ 10 minutes last $85^\circ\text{C}$ 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.	Apply frequency $10 \sim 55\text{Hz}$ . 1,5mm amplitude in each of perpendicular direction for 2 hours.
Shock resistance	$\Delta L/L \leq 10\%$	Drop down with $981\text{m/s}^2$ (100G) shock attitude upon a rubber block method shock testing machine, for 1 time. In each of three orientations.

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