

# FrelTec GmbH

Mathildenstr. 10A  
82319 Starnberg  
Germany

## **Shielded SMD Power Inductors**

# FrelTec

## Shielded SMD Power Inductors

### SMD

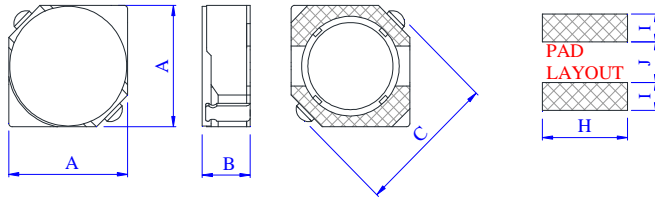
#### SPECIFICATION

### Part Number

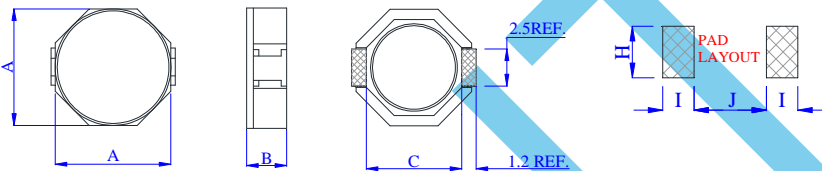
167	3D11*	101*	M	E02**
Type	Size	Value	Tolerance	Packing
167 : Shielded SMD Power Inductor	Refer to page 3	The value is given in $\mu\text{H}$ and "u" indicates the decimal point. When higher than $100\mu\text{H}$ then the last digit is the multiplier	N: $\pm 30\%$	L02 : Embossed tape and reel for 2k pcs (13"reel)
		which denotes the number of zero following	Q: $\pm 25\%$	L0X : Embossed tape and reel for 1,5k pcs (13"reel)
		Example:	M: $\pm 20\%$	L01 : Embossed tape and reel for 1k pcs (13"reel)
		3U3 : 3,3 $\mu\text{H}$	K: $\pm 10\%$	L0U : Embossed tape and reel for 750pcs (13"reel)
		220 : 22 $\mu\text{H}$		L0A : Embossed tape and reel for 500pcs (13"reel)
		151 : 150 $\mu\text{H}$		E01 : Embossed tape and reel for 1k pcs (7"reel)
				* not all combination is possible

### SMD

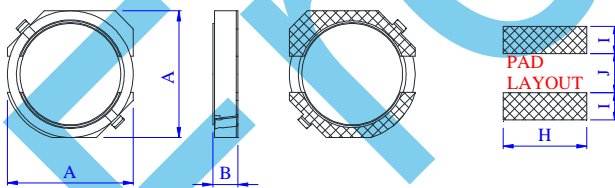
#### Dimensions and land pattern:



TYPE	A (mm)	B (mm)	C (mm)	H (Ref.)	I (Ref.)	J (Ref.)	Quantity per reel
1673D11	4,0 MAX	1,2±0,1	4,4 MAX	4,6	1,65	1,0	1.000
1673D16	4,0 MAX	2,0 MAX	5,2 MAX	4,6	1,65	1,0	1.000
1674D18	4,7±0,3	2,0 MAX	6,9 MAX	5,3	1,90	1,5	2.000
1674D28	4,7±0,3	3,0 MAX	6,9 MAX	5,3	1,90	1,5	2.000
1675D18	5,7±0,3	2,0 MAX	8,2 MAX	6,3	2,15	2,0	2.000
1675D28	5,7±0,3	3,0 MAX	8,2 MAX	6,3	2,15	2,0	2.000
1676D28	6,7±0,3	3,0 MAX	9,5 MAX	7,3	2,65	2,0	1.500
1676D38	6,7±0,3	4,0 MAX	9,5 MAX	7,3	2,65	2,0	1.000



TYPE	A (mm)	B (mm)	C (mm)	H (Ref.)	I (Ref.)	J (Ref.)	Quantity per reel
1678D43	8,3 MAX	4,5 MAX	6,3 REF	2,8	2,00	6,1	500



TYPE	A (mm)	B (mm)	H (Ref.)	I (Ref.)	J (Ref.)	Quantity per reel
1675012	5,3 MAX	1,2 MAX	5,5	2,00	1,5	1.000
1676012	6,0±0,3	1,2 MAX	6,5	2,25	2,0	1.000
1677D15	7,0±0,3	1,5 MAX	7,4	2,75	1,9	1.000
1677D18	7,0±0,3	1,8 MAX	7,4	2,75	1,9	1.000
1677D25	7,0±0,3	2,5 MAX	7,4	2,75	1,9	1.000
1677D28	7,0±0,3	2,8 MAX	7,4	2,75	1,9	1.000
16710D15	10,4 MAX	1,5 MAX	10,5	3,75	3,00	750
16710D25	10,4 MAX	2,5 MAX	10,5	3,75	3,00	1.000

## SMD

## Electrical Characteristics

1673D11 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1673D112R2	2,2 u	100 K	87,3m	0,80
1673D113R3	3,3 u	100 K	118m	0,68
1673D114R7	4,7 u	100 K	123m	0,50
1673D116R8	6,8 u	100 K	180m	0,34
1673D11100	10 u	100 K	240m	0,28
1673D11220	22 u	100 K	540m	0,19
1673D11330	33 u	100 K	822m	0,15
1673D11101	100 u	100 K	3,2	0,12
1673D11221	220 u	100 K	5,5	0,08
1673D11331	330 u	100 K	9,0	0,065
1673D16 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1673D161R5	1,5 u	100 K	52 m	1,55
1673D162R2	2,2 u	100 K	72 m	1,20
1673D163R3	3,3 u	100 K	85 m	1,10
1673D164R7	4,7 u	100 K	105 m	0,90
1673D166R8	6,8 u	100 K	170 m	0,73
1673D16100	10 u	100 K	210 m	0,55
1673D16150	15 u	100 K	295 m	0,45
1673D16220	22 u	100 K	430 m	0,40
1673D16330	33 u	100 K	675 m	0,32
1674D18 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1674D181R0	1,0 u	100 K	45 m	1,72
1674D182R2	2,2 u	100 K	75 m	1,32
1674D182R7	2,7 u	100 K	105 m	1,28
1674D183R3	3,3 u	100 K	110 m	1,04
1674D183R9	3,9u	100 K	155 m	0,88
1674D184R7	4,7 u	100 K	162 m	0,84
1674D185R6	5,6 u	100 K	170 m	0,80
1674D186R8	6,8 u	100 K	180 m	0,76
1674D188R2	8,2 u	100 K	190 m	0,68
1674D18100	10 u	100 K	200 m	0,61
1674D18120	12 u	100 K	210 m	0,56
1674D18150	15 u	100 K	240 m	0,50
1674D18180	18 u	100 K	338 m	0,48
1674D18220	22 u	100 K	397 m	0,41
1674D18270	27 u	100 K	441 m	0,35
1674D18330	33 u	100 K	694 m	0,32
1674D18390	39 u	100 K	709 m	0,30

1674D28 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1674D281R2	1,2 u	100 K	24 m	2,56
1674D281R8	1,8 u	100 K	28 m	2,20
1674D282R2	2,2 u	100 K	31 m	2,04
1674D282R7	2,7 u	100 K	43 m	1,60
1674D283R3	3,3 u	100 K	49 m	1,57
1674D283R9	3,9 u	100 K	65 m	1,44
1674D284R7	4,7 u	100 K	72 m	1,32
1674D285R6	5,6 u	100 K	101 m	1,17
1674D286R8	6,8 u	100 K	109 m	1,12
1674D288R2	8,2 u	100 K	117 m	1,04
1674D28100	10 u	100 K	128 m	1,00
1674D28120	12 u	100 K	132 m	0,84
1674D28150	15 u	100 K	149 m	0,76
1674D28180	18 u	100 K	166 m	0,72
1674D28220	22 u	100 K	235 m	0,70
1674D28270	27 u	100 K	261 m	0,58
1674D28330	33 u	100 K	331 m	0,56
1674D28390	39 u	100 K	384 m	0,50
1674D28470	47 u	100 K	587 m	0,48
1674D28560	56 u	100 K	624 m	0,41
1674D28680	68 u	100 K	699 m	0,35
1674D28820	82 u	100 K	915 m	0,32
1674D28101	100 u	100 K	1,02	0,29
1674D28121	120 u	100 K	1,27	0,27
1674D28151	150 u	100 K	1,35	0,24
1674D28181	180 u	100 K	1,54	0,22
1675D18 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1675D184R1	4,1 u	100 K	57 m	1,95
1675D185R4	5,4 u	100 K	76 m	1,60
1675D186R2	6,2 u	100 K	96 m	1,40
1675D188R9	8,9 u	100 K	116 m	1,25
1675D18100	10 u	100 K	124 m	1,20
1675D18120	12 u	100 K	153 m	1,10
1675D18150	15 u	100 K	196 m	0,97
1675D18180	18 u	100 K	210 m	0,85
1675D18220	22 u	100 K	290 m	0,80
1675D18270	27 u	100 K	330 m	0,75
1675D18330	33 u	100 K	385 m	0,65
1675D18390	39 u	100 K	520 m	0,57
1675D18470	47 u	100 K	595 m	0,54
1675D18560	56 u	100 K	665 m	0,50
1675D18680	68 u	100 K	840 m	0,43
1675D18820	82 u	100 K	978 m	0,41
1675D18101	100 u	100 K	1,2	0,36

1675D28 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1675D282R5	2,5 u	100 K	18 m	2,60
1675D283R0	3,0 u	100 K	24 m	2,40
1675D284R2	4,2 u	100 K	31 m	2,20
1675D285R3	5,3 u	100 K	38 m	1,90
1675D286R2	6,2 u	100 K	45 m	1,80
1675D288R2	8,2 u	100 K	53 m	1,60
1675D28100	10 u	100 K	65 m	1,30
1675D28120	12 u	100 K	76 m	1,20
1675D28150	15 u	100 K	103 m	1,10
1675D28180	18 u	100 K	110 m	1,00
1675D28220	22 u	100 K	122 m	0,90
1675D28270	27 u	100 K	175 m	0,85
1675D28330	33 u	100 K	189 m	0,75
1675D28390	39 u	100 K	212 m	0,70
1675D28470	47 u	100 K	250 m	0,62
1675D28560	56 u	100 K	305 m	0,58
1675D28680	68 u	100 K	355 m	0,52
1675D28820	82 u	100 K	463 m	0,46
1675D28101	100 u	100 K	520 m	0,42
1676D28 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1676D283R0	3,0 u	100 K	24 m	3,00
1676D283R9	3,9 u	100 K	27 m	2,60
1676D285R0	5,0 u	100 K	31 m	2,40
1676D286R0	6,0 u	100 K	35 m	2,25
1676D287R3	7,3 u	100 K	54 m	2,10
1676D288R6	8,6 u	100 K	58 m	1,85
1676D28100	10 u	100 K	65 m	1,70
1676D28120	12 u	100 K	70 m	1,55
1676D28150	15 u	100 K	84 m	1,40
1676D28180	18 u	100 K	95 m	1,32
1676D28220	22 u	100 K	128 m	1,20
1676D28270	27 u	100 K	142 m	1,05
1676D28330	33 u	100 K	165 m	0,97
1676D28390	39 u	100 K	210 m	0,86
1676D28470	47 u	100 K	238 m	0,80
1676D28560	56 u	100 K	277 m	0,73
1676D28680	68 u	100 K	304 m	0,65
1676D28820	82 u	100 K	390 m	0,60
1676D28101	100 u	100 K	535 m	0,54

1676D38 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1676D383R3	3,3 u	100 K	20 m	3,50
1676D385R0	5,0 u	100 K	24 m	2,90
1676D386R2	6,2 u	100 K	27 m	2,50
1676D387R4	7,4 u	100 K	31 m	2,30
1676D388R7	8,7 u	100 K	34 m	2,20
1676D38100	10 u	100 K	38 m	2,00
1676D38120	12 u	100 K	53 m	1,70
1676D38150	15 u	100 K	57 m	1,60
1676D38180	18 u	100 K	92 m	1,50
1676D38220	22 u	100 K	96 m	1,30
1676D38270	27 u	100 K	109 m	1,20
1676D38330	33 u	100 K	124 m	1,10
1676D38390	39 u	100 K	138 m	1,00
1676D38470	47 u	100 K	155 m	0,95
1676D38560	56 u	100 K	202 m	0,85
1676D38680	68 u	100 K	234 m	0,75
1676D38820	82 u	100 K	324 m	0,70
1676D38101	100 u	100 K	358 m	0,65

1678D43 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1678D433R3	3,3 u	100 K	22 m	5,80
1678D434R7	4,7 u	100 K	22 m	5,60
1678D436R8	6,8 u	100 K	38 m	4,20
1678D43100	10 u	100 K	45 m	3,70
1678D43150	15 u	100 K	53 m	2,90
1678D43220	22 u	100 K	75 m	2,10

1675012 Series Specification					
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
16750123R3	3,3 u	100 K	264m	1,60	1,25
16750124R7	4,7 u	100 K	310m	1,50	1,20
16750126R8	6,8 u	100 K	360m	1,30	1,10
16750128R2	8,2 u	100 K	480m	1,12	0,95
1675012100	10 u	100 K	530m	1,05	0,90
1675012120	12 u	100 K	600m	0,92	0,85

1676012 Series Specification					
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
16760123R0	3,0 u	100 K	120 m	1,90	2,00
16760124R7	4,7 u	100 K	180 m	1,80	1,90
16760126R8	6,8 u	100 K	210 m	1,60	1,80
16760128R2	8,2 u	100 K	280 m	1,30	1,60
1676012100	10 u	100 K	310 m	1,10	1,50
1676012120	12 u	100 K	450 m	1,00	1,20
1676012150	15 u	100 K	480 m	0,95	1,10

1677D15 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1677D153R3	3,3 u	100 K	65 m	2,80
1677D154R7	4,7 u	100 K	70 m	2,50
1677D156R8	6,8 u	100 K	106 m	2,10
1677D15100	10 u	100 K	150 m	1,40
1677D15150	15 u	100 K	195 m	1,10
1677D15220	22 u	100 K	300 m	0,90

1677D18 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1677D182R2	2,2 u	100 K	60 m	3,80
1677D183R3	3,3 u	100 K	67 m	3,20
1677D184R7	4,7 u	100 K	96 m	2,80
1677D185R6	5,6 u	100 K	102 m	2,60
1677D186R8	6,8 u	100 K	142 m	2,20
1677D188R0	8,0 u	100 K	146 m	2,00
1677D18100	10 u	100 K	148 m	1,70
1677D18120	12 u	100 K	221 m	1,60
1677D18150	15 u	100 K	276 m	1,30
1677D18180	18 u	100 K	350 m	1,40
1677D18220	22 u	100 K	400 m	1,10

1677D25 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1677D252R7	2,7 u	100 K	47 m	4,00
1677D254R7	4,7 u	100 K	70 m	3,20
1677D256R8	6,8 u	100 K	77 m	2,80
1677D258R2	8,2 u	100 K	92 m	2,60
1677D25100	10 u	100 K	120 m	2,40
1677D25120	12 u	100 K	130 m	2,00
1677D25150	15 u	100 K	147 m	1,70
1677D25180	18 u	100 K	193 m	1,60
1677D25220	22 u	100 K	216 m	1,50



1677D28 Series Specification				
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.
1677D281R8	1,8 u	100 K	27 m	4,50
1677D282R7	2,7 u	100 K	33 m	4,00
1677D283R3	3,3 u	100 K	36 m	3,50
1677D284R3	4,3 u	100 K	48 m	3,20
1677D285R0	5,0 u	100 K	49 m	3,00
1677D286R2	6,2 u	100 K	56 m	2,80
1677D288R7	8,7 u	100 K	70 m	2,60
1677D28100	10 u	100 K	77 m	2,40
1677D28120	12 u	100 K	91 m	2,20
1677D28150	15 u	100 K	104 m	1,90
1677D28180	18 u	100 K	135 m	1,80

16710D15 Series Specification					
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
16710D153R3	3,3 u	100 K	70 m	3,40	2,90
16710D154R7	4,7 u	1M	84 m	3,6(Ref.)	2,65
16710D156R8	6,8 u	100 K	115 m	2,60	2,25
16710D15100	10 u	100 K	170 m	2,30	1,75
16710D15120	12 u	100 K	185 m	2,10	1,70
16710D15150	15 u	100 K	220 m	1,65	1,50
16710D15180	18 u	100 K	230 m	1,55	1,35
16710D15220	22 u	100 K	320 m	1,45	1,25
16710D15270	27 u	100 K	340 m	1,40	1,15
16710D15330	33 u	100 K	410 m	1,20	1,00
16710D15390	39 u	100 K	530 m	0,95	0,90
16710D15470	47 u	100 K	580 m	0,80	0,75

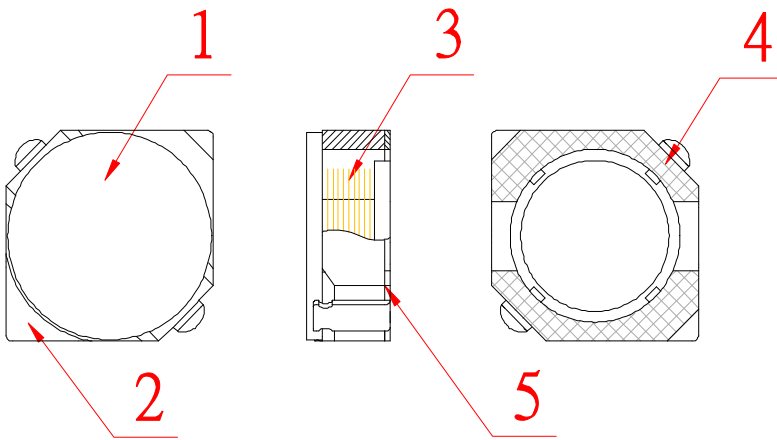
16710D25 Series Specification					
Part Number	Inductance (H)	Test Freq. (Hz)	DCR ( $\Omega$ ) Max.	Saturation Current (A) Max.	Temp. Rise current (A) Max.
16710D253R3	3,3 u	100 K	46 m	5,20	4,00
16710D254R7	4,7 u	100 K	54 m	4,20	3,70
16710D256R8	6,8 u	100 K	56 m	3,80	3,50
16710D25100	10 u	100 K	85 m	3,00	2,70
16710D25120	12 u	100 K	116 m	2,80	2,25
16710D25150	15u	100 K	123 m	2,40	2,15
16710D25180	18 u	100 K	143 m	2,35	2,00
16710D25220	22 u	100 K	180 m	2,30	1,75
16710D25270	27 u	100 K	204 m	2,00	1,60
16710D25330	33 u	100 K	263 m	1,60	1,40
16710D25390	39 u	100 K	292 m	1,50	1,30
16710D25470	47 u	100 K	360 m	1,30	1,20
16710D25560	56 u	100 K	452 m	1,20	1,05
16710D25680	68 u	100 K	509 m	1,10	1,00

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## SMD

### Material list

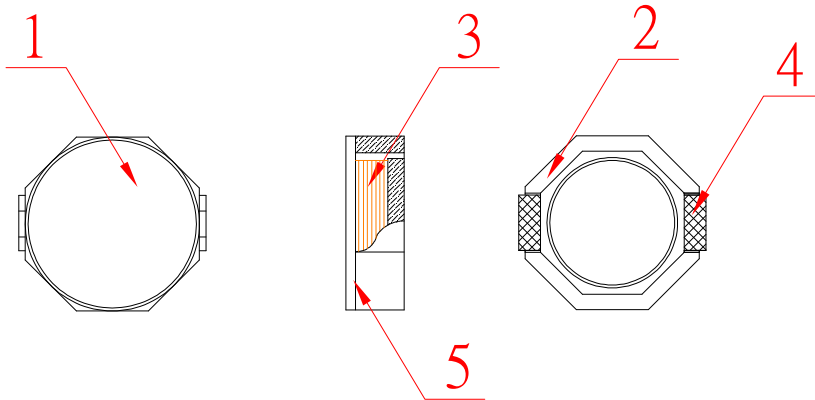
167 3D11, 3D16, 4D18, 4D28, 5D18, 5D28, 6D28, 6D38



NO.	ITEM	MATREIAL
1	Drum core	Ni-Zn Ferrite
2	Ring core	Ni-Zn Ferrite
3	Wire	Copper Wire
4	Electrode	Cu-Ni-Sn
	Electrode (top surface solder coating)	Sn-Cu
5	Adhesive	Epoxy resin

# FrelTec Shielded SMD Power Inductors

**SMD**  
**167 8D43**



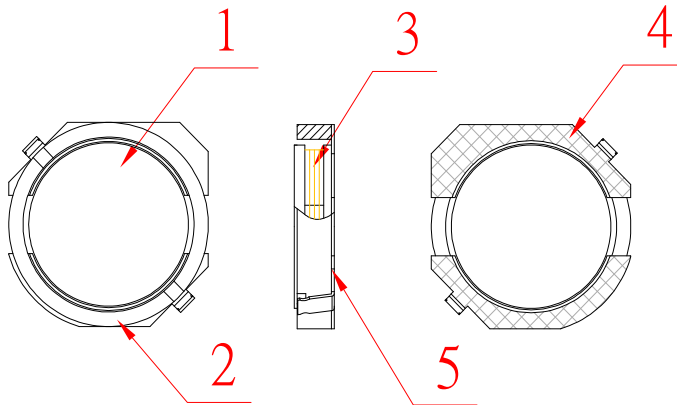
NO.	ITEM	MATREIAL
1	Drum core	Ni-Zn Ferrite
2	Ring core	Ni-Zn Ferrite
3	Wire	Copper Wire
4	Electrode	Cu-Ni-Sn
	Electrode (top surface solder coating)	Sn-Cu
5	Adhesive	Epoxy resin

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## Shielded SMD Power Inductors

### SMD

167 5012, 6012, 7D15, 7D18, 7D25, 7D28, 10D15, 10D25



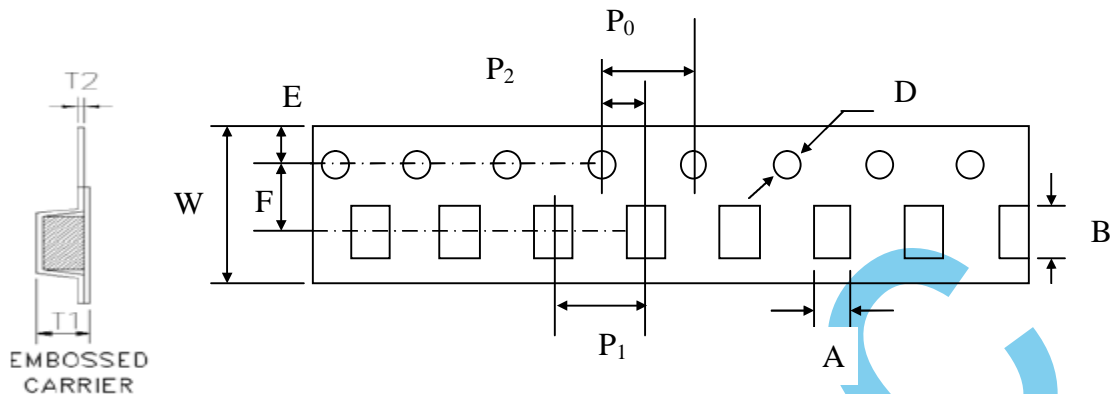
NO.	ITEM	MATREIAL
1	Drum core	Ni-Zn Ferrite
2	Ring core	Ni-Zn Ferrite
3	Wire	Copper Wire
4	Electrode	Cu-Ni-Sn
	Electrode (top surface solder coating)	Sn-Cu
5	Adhesive	Epoxy resin

# FrelTec Shielded SMD Power Inductors

## SMD

### SPECIFICATION

#### *Tape And Reel Package*



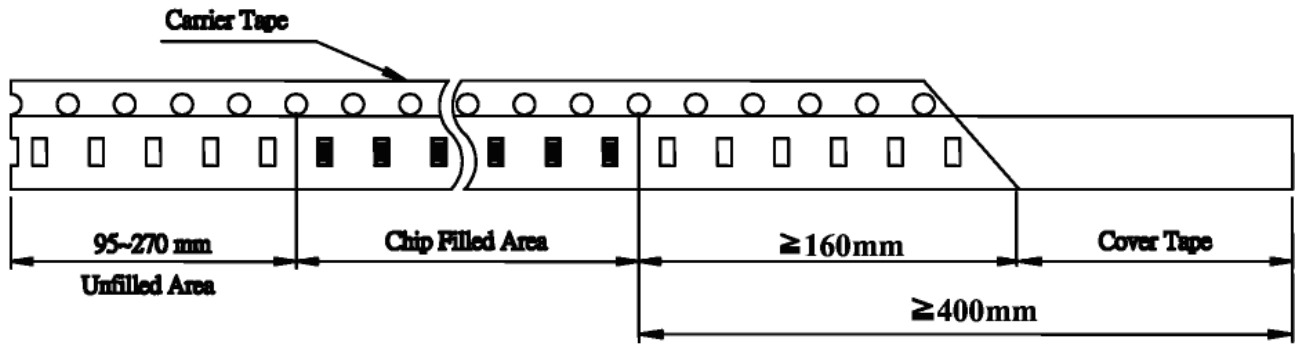
In Accordance with EIA 481-1

Size	A	B	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D	T <sub>1</sub>	T <sub>2</sub>
3D11	4,15±0,1	4,15±0,1	12,0±0,3	5,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	2,1±0,1	0,3±0,05
3D16	4,15±0,1	4,15±0,1	12,0±0,3	5,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	2,1±0,1	0,3±0,05
4D18	5,3±0,1	5,3±0,1	12,0±0,3	5,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	2,4±0,1	0,35±0,05
4D28	5,3±0,1	5,3±0,1	12,0±0,3	5,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	3,4±0,1	0,35±0,05
5D18	6,20±0,1	6,20±0,1	16,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	2,20±0,1	0,3±0,05
5D28	6,20±0,1	6,20±0,1	16,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	3,2±0,1	0,35±0,05
6D28	7,2±0,1	7,2±0,1	16,0±0,3	7,5±0,1	1,75±0,10	12,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	3,2±0,1	0,35±0,05
6D38	7,3±0,1	7,3±0,1	16,0±0,3	7,5±0,1	1,75±0,10	12,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	4,2±0,1	0,4±0,05
8D43	10,6±0,1	8,4±0,1	16,0±0,3	7,5±0,1	1,75±0,10	16,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	4,7±0,1	0,4±0,05
5012	5,4±0,1	5,4±0,1	12,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	1,4±0,1	0,3±0,05
6012	6,55±0,1	6,55±0,1	16,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	1,4±0,1	0,3±0,05
7D15	7,4±0,1	7,4±0,1	16,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	1,8±0,1	0,3±0,05
7D18	7,4±0,1	7,4±0,1	16,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	1,9±0,1	0,3±0,05
7D25	7,4±0,1	7,4±0,1	16,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	2,6±0,1	0,3±0,05
7D28	7,4±0,1	7,4±0,1	16,0±0,3	7,5±0,1	1,75±0,10	8,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	3,0±0,1	0,3±0,05
10D15	10,4±0,1	10,4±0,1	24,0±0,3	11,5±0,1	1,75±0,10	16,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	1,7±0,1	0,35±0,05
10D25	10,4±0,1	10,4±0,1	24,0±0,3	11,5±0,1	1,75±0,10	16,0±0,1	2,0±0,1	4,0±0,1	1,50+0,1/-0	2,8±0,1	0,35±0,05

# FrelTec Shielded SMD Power Inductors

## SMD

### Lead Dimensions:



3D11,3D16,4D18,4D28,5D18,5D28,6D28,6D38,5012,6012:

Unfilled Area(Front)  $\leq 200$ mm ; Unfilled Area (Back)  $\leq 300$ mm

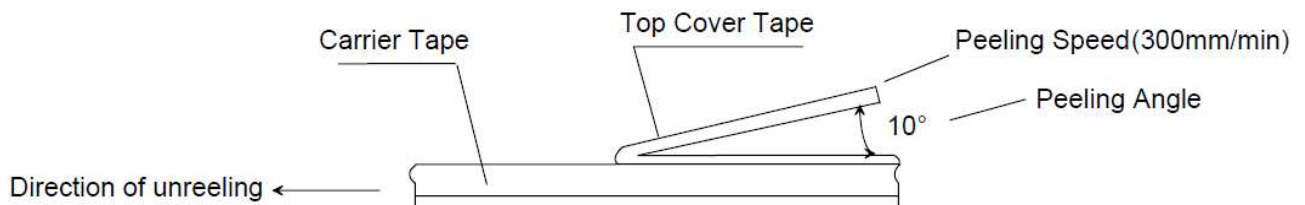
7D15,7D18,7D25,7D28,8D43,10D15,10D25:

Unfilled Area(Front)  $\leq 300$ mm ; Unfilled Area (Back)  $\leq 400$ mm

### Cover Tape Peel off Strength

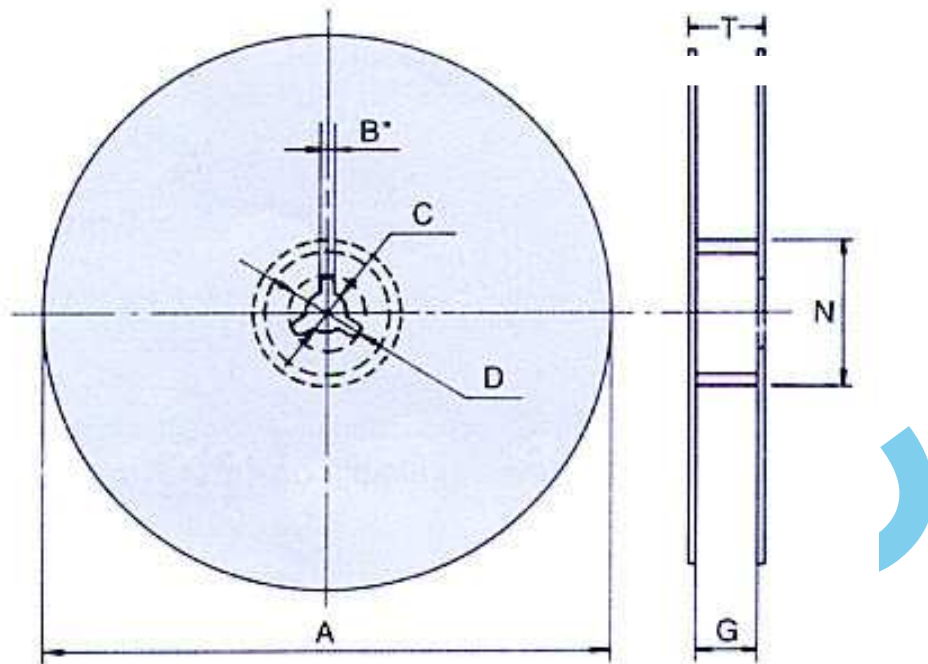
Specifications: 0,01N~1,3 N

Angle of between 165 and 180 degrees with the top of the carries tape. The cover tape, shall be pulled with a velocity of 300 mm  $\pm$  10 mm/ minute, relative to the carrier tape, during peeling, which results in the cover/carrier tape seal being separated at a rate of 150 mm/minute.



# SMD

# FrelTec Shielded SMD Power Inductors



Symbol	Reel Type / Tape	A	N	C	D	B	G	T
Dimension	3D11	178±2,0	62±1,0	13,5+0,5	21,5±0,5	1,5±0,5	12,4 <sup>+0,2</sup> <sub>-0</sub>	15,6+1,0
	3D16			-0,2				-0,5
	4D18	330±1,0	100±0,5	13,0±1,0	20,4±0,3	2,2±0,3	12,5±0,3	16,9±0,3
	4D28							
	5D18	330±1,0	100±0,5	13,0±1,0	20,4±0,3	2,2±0,3	16,5±0,3	20,9±0,3
	5D28							
	6D28							
	6D38							
	8D43	178±2,0	62±1,0	13,5+0,5	21,5±0,5	1,5±0,5	12,4 <sup>+0,2</sup> <sub>-0</sub>	15,6+1,0
	5012			-0,2				-0,5
	6012	178±2,0	62±1,0	13,5+0,5	21,5±0,5	1,5±0,5	16,4 <sup>+0,2</sup> <sub>-0</sub>	19,6+1,0
				-0,2				-0,5
	7D15	330±1,0	100±0,5	13,0±1,0	20,4±0,3	2,2±0,3	16,5±0,3	20,9±0,3
	7D18							
7D25								
7D28								
10D15	330±2,0	100±0,5	13,0±1,0	20,4±0,3	2,2±0,3	24,5±0,3	28,9±0,3	
10D25								

in mm

### SMD

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

Humidity < 80%RH

#### Characteristics

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

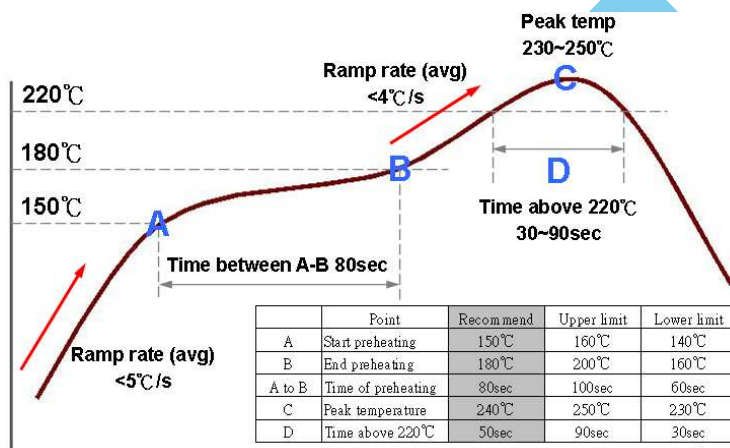
Isat: For Inductance drop 35% from its value without current.

Irms: The value of D.C current, measured when the temperature rise is  $\Delta T \leq 40^\circ\text{C}$   
( $T_a = 25^\circ\text{C}$ )

#### Stock period

The performance of these products, including the solderability, is guaranteed for one year 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

#### Lead Free Reflow Soldering Profile by using lead-free solder paste

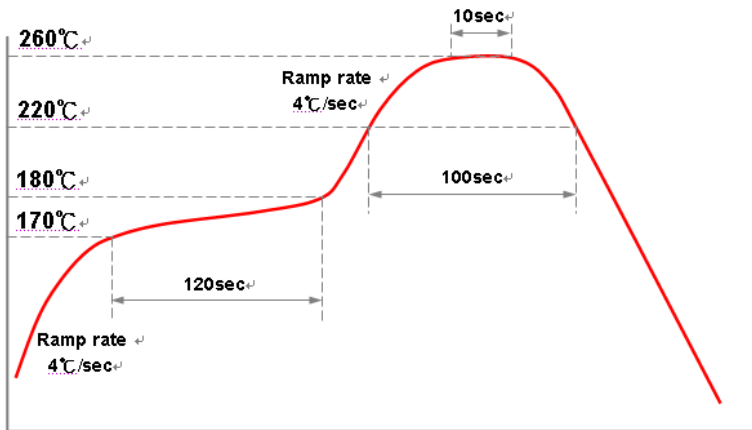


The reflow condition recommended above is according to the machine used by our company. Big differences will arise as a result of the type of machine, reflow conditions, method, etc used. Hence, before setting up your reflow conditions, please confirm with the above.



## SMD

### Head endurance test



The test should be made under the conditions according to the chart, after the test it is kept for 2 hours under the normal temperature and humidity.

The reflow test can be done twice, but the interval should be more than one hour under the normal conditions.

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## Shielded SMD Power Inductors

### SMD

#### Reliability Test

167 3D11, 3D16, 4D18, 4D28, 5D18, 5D28, 6D28, 6D38, 8D43, 5012, 6012, 7D15, 7D18, 7D25, 7D28

Test Items	Test Conditions	Criteria
Low temperature storage	Placed at -40°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	Inductance shall be within $\pm 10\%$ of the initial value.
High temperature storage	Placed at +125°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	Inductance shall be within $\pm 10\%$ of the initial value.
Thermal shock	Condition for 1 cycle: -40°C, 30min. ~ +125°C, 30min. Number of cycles: 5	Inductance shall be within $\pm 10\%$ of the initial value.
Humidity resistance	Placed at 90 to 95%RH, +60°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	Inductance shall be within $\pm 10\%$ of the initial value. Insulation resistance > 100 Mohm at DC
Drop	Drop specimen three times on concrete floor from a height of 1 meter which mounted on test board.	Inductance shall be within $\pm 10\%$ of the initial value.
Vibration	Frequency: 10~55~10Hz Amplitude: 1.5mm or 10G Sweep time: 1oct/min Test Directions: X, Y, Z Test Time: 2 hours each direction	Inductance shall be within $\pm 10\%$ of the initial value.
Terminal strength	Add static load 4,9N (500gf) to inductor through hole of test board for 10 $\pm$ 2 sec.	No detachment of terminal pin and no breakage of wire.
Soldering heat resistance	Dip inductor's terminal in solder bath of following conditions: 1) 260 $\pm$ 5°C, 10 $\pm$ 1sec, 2) 350 $\pm$ 10°C, 3.5 $\pm$ 0,5sec	Inductance shall be within $\pm 10\%$ of the initial value. Appearance: No damage

Test Items	Test Conditions	Criteria
Low temperature storage	Placed at -40°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	Inductance shall be within $\pm 10\%$ of the initial value.
High temperature storage	Placed at +105°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	Inductance shall be within $\pm 10\%$ of the initial value.
Thermal shock	Condition for 1 cycle: -40°C, 30min. ~ +105°C, 30min. Number of cycles: 5	Inductance shall be within $\pm 10\%$ of the initial value.
Humidity resistance	Placed at 90 to 95%RH, +50°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	Inductance shall be within $\pm 10\%$ of the initial value. Insulation resistance > 100 Mohm at DC
Drop	Drop specimen three times on concrete floor from a height of 1 meter which mounted on test board.	Inductance shall be within $\pm 10\%$ of the initial value.
Vibration	Frequency: 10~50~10Hz Amplitude: 1.5mm or 10G Sweep time: 1oct/min Test Directions: X,Y,Z Test Time: 2 hours each direction	Inductance shall be within $\pm 10\%$ of the initial value.
Terminal strength	Add static load 4,9N (500gf) to inductor through hole of test board for 10 $\pm$ 2 sec.	No detachment of terminal pin and no breakage of wire.
Soldering heat resistance	Dip inductor's terminal in solder bath of following conditions: 1) 260 $\pm$ 5°C, 10 $\pm$ 1sec, 2) 350 $\pm$ 10°C, 3,5 $\pm$ 0,5sec	Inductance shall be within $\pm 10\%$ of the initial value. Appearance: No damage

### SMD

**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 (2011/65/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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