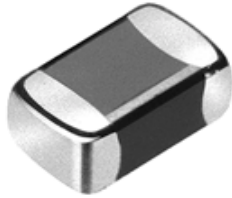




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SMD Multi-Layers Inductors, CL Series

Feature:



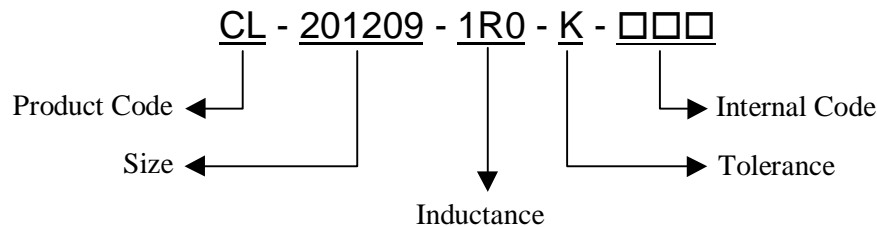
Our range of Multilayer Chip Inductors offers magnetic shielding, and various sizes.

Which are specially designs for Electronics products, which are compact and highly dense with component.

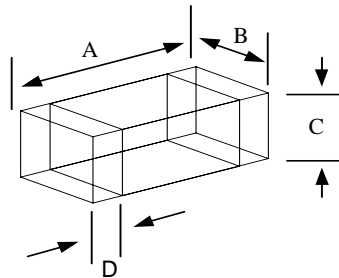
Its offer minimum flux leakage thus eliminating cross talk.

Its has a full range for application in Computers, DVD, Hard Disk, CD ROM, wireless Telephone and related products.

Ordering Code:



Dimension:



Units : mm (inches)

Part Number	A	B	C	D	Inductance
CL-160808 (0603)	1.6 ± 0.15 (0.063±0.006)	0.80 ± 0.15 (0.031 ± 0.006)	0.80 ± 0.15 (0.031 ± 0.006)	0.3 ± 0.2 (0.012±0.008)	0.47uH to 22uH
CL-201209 (0805)	2.00 ± 0.2 (0.079±0.0008)	1.25 ± 0.2 (0.049 ± 0.008)	0.90 ± 0.2 (0.035 ± 0.008)	0.5 ± 0.3 (0.020±0.012)	0.18uH to 0.39uH
CL-201212 (0805)	2.00 ± 0.2 (0.079±0.0008)	1.25 ± 0.2 (0.049 ± 0.008)	1.25 ± 0.2 (0.049 ± 0.008)	0.5 ± 0.3 (0.020±0.012)	0.47uH to 33uH
CL-321606 (1206)	3.20 ± 0.2 (0.126±0.008)	1.60 ± 0.2 (0.063 ± 0.008)	0.60 ± 0.2 (0.024 ± 0.008)	0.5 ± 0.3 (0.020±0.012)	0.22uH to 0.33uH
CL-321611 (1206)	3.20 ± 0.2 (0.126±0.008)	1.60 ± 0.2 (0.063 ± 0.008)	1.10 ± 0.2 (0.043 ± 0.008)	0.5 ± 0.3 (0.020±0.012)	0.39uH to 33.0uH

⇒ [General Component Specification](#)

⇒ [Tape and Reel](#)

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SMD Multi-Layers Inductors, CL Series

CL - 160808 Series

Electrical Characteristics

Part Number	Inductance μH	Q min	Test Freq. MHz	SRF MHz Min	DCR Ω Max	IDC mA Max
CL-160808-R47 M	$0.47 \pm 20\%$	15	25	105	1.35	35
CL-160808-R56 M	$0.56 \pm 20\%$	15	25	95	1.55	35
CL-160808-R68 M	$0.68 \pm 20\%$	15	25	90	1.70	35
CL-160808-R82 M	$0.82 \pm 20\%$	15	25	85	2.10	35
CL-160808-1R0 \square	$1.0 \pm 20\% \pm 10\%$	35	10	75	0.60	25
CL-160808-1R2 \square	$1.2 \pm 20\% \pm 10\%$	35	10	65	0.80	25
CL-160808-1R5 \square	$1.5 \pm 20\% \pm 10\%$	35	10	60	0.80	25
CL-160808-1R8 \square	$1.8 \pm 20\% \pm 10\%$	35	10	55	0.95	25
CL-160808-2R2 \square	$2.2 \pm 20\% \pm 10\%$	35	10	50	1.15	15
CL-160808-2R7 \square	$2.7 \pm 20\% \pm 10\%$	35	10	45	1.35	15
CL-160808-3R3 \square	$3.3 \pm 20\% \pm 10\%$	35	10	40	1.55	15
CL-160808-3R9 \square	$3.9 \pm 20\% \pm 10\%$	35	10	35	1.70	15
CL-160808-4R7 \square	$4.7 \pm 20\% \pm 10\%$	35	10	33	2.10	15
CL-160808-5R6 \square	$5.6 \pm 20\% \pm 10\%$	35	4	22	1.55	5
CL-160808-6R8 \square	$6.8 \pm 20\% \pm 10\%$	35	4	20	1.70	5
CL-160808-8R2 \square	$8.2 \pm 20\% \pm 10\%$	35	4	18	2.10	5
CL-160808-100 \square	$10.0 \pm 20\% \pm 10\%$	30	2	17	1.85	3
CL-160808-120 \square	$12.0 \pm 20\% \pm 10\%$	30	2	15	2.10	3
CL-160808-150 \square	$15.0 \pm 20\% \pm 10\%$	20	1	14	1.70	1
CL-160808-180 \square	$18.0 \pm 20\% \pm 10\%$	20	1	13	1.85	1
CL-160808-220 \square	$22.0 \pm 20\% \pm 10\%$	20	1	11	2.10	1

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M = $\pm 20\%$, K = $\pm 10\%$, J = $\pm 5\%$

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SMD Multi-Layers Inductors, CL Series

CL - 201209 Series

Electrical Characteristics

Part Number	Inductance μH	Q min	Test Freq. MHz	SRF MHz Min	DCR Ω Max	IDC mA Max
CL-201209-R18 M	$0.18 \pm 20\%$	20	25	185	0.4	250
CL-201209-R22 M	$0.22 \pm 20\%$	20	25	170	0.5	250
CL-201209-R27 M	$0.27 \pm 20\%$	20	25	150	0.5	250
CL-201209-R33 M	$0.33 \pm 20\%$	20	25	145	0.55	250
CL-201209-R39 M	$0.39 \pm 20\%$	25	25	135	0.65	200
CL-201209-1R0 \square	$1.0 \pm 20\% \pm 10\%$	45	10	75	0.4	50
CL-201209-1R2 \square	$1.2 \pm 20\% \pm 10\%$	45	10	65	0.5	50
CL-201209-1R5 \square	$1.5 \pm 20\% \pm 10\%$	45	10	60	0.5	50
CL-201209-1R8 \square	$1.8 \pm 20\% \pm 10\%$	45	10	55	0.6	50
CL-201209-2R2 \square	$2.2 \pm 20\% \pm 10\%$	45	10	50	0.65	30

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SMD Multi-Layers Inductors, CL Series

CL -201212 Series

Electrical Characteristics

Part Number	Inductance μH	Q min	Test Freq. MHz	SRF MHz Min	DCR Ω Max	IDC mA Max
CL-201212-R47 M	$0.47 \pm 20\%$	25	25	125	0.65	200
CL-201212-R56 M	$0.56 \pm 20\%$	25	25	115	0.75	150
CL-201212-R68 M	$0.68 \pm 20\%$	25	25	105	0.8	150
CL-201212-R82 M	$0.82 \pm 20\%$	25	25	100	1.0	150
CL-201212-3R3 \square	$3.3 \pm 20\% \pm 10\%$	45	10	41	0.8	30
CL-201212-3R9 \square	$3.9 \pm 20\% \pm 10\%$	45	10	38	0.9	30
CL-201212-4R7 \square	$4.7 \pm 20\% \pm 10\%$	45	10	35	1.0	30
CL-201212-5R6 \square	$5.6 \pm 20\% \pm 10\%$	50	4	32	0.9	15
CL-201212-6R8 \square	$6.8 \pm 20\% \pm 10\%$	50	4	29	1.0	15
CL-201212-8R2 \square	$8.2 \pm 20\% \pm 10\%$	50	4	26	1.1	15
CL-201212-100 \square	$10.0 \pm 20\% \pm 10\%$	50	2	24	1.15	15
CL-201212-120 \square	$12.0 \pm 20\% \pm 10\%$	50	2	22	1.25	15
CL-201212-150 \square	$15.0 \pm 20\% \pm 10\%$	30	1	19	0.8	5
CL-201212-180 \square	$18.0 \pm 20\% \pm 10\%$	30	1	18	0.9	5
CL-201212-220 \square	$22.0 \pm 20\% \pm 10\%$	30	1	16	1.1	5
CL-201212-270 \square	$27.0 \pm 20\% \pm 10\%$	30	1	14	1.15	5
CL-201212-330 \square	$33.0 \pm 20\% \pm 10\%$	30	0.4	13	1.25	5
CL-201212-390 \square	$39.0 \pm 20\% \pm 10\%$	35	2	8	2.9	4
CL-201212-470 \square	$47.0 \pm 20\% \pm 10\%$	35	2	7.5	3.0	4
CL-201212-560 \square	$56.0 \pm 20\% \pm 10\%$	35	2	7	3.1	4
CL-201212-680 \square	$68.0 \pm 20\% \pm 10\%$	25	1	6.5	2.9	4

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SMD Multi-Layers Inductors, CL Series

CL - 321606 Series

Electrical Characteristics

Part Number	Inductance μH	Q min	Test Freq. MHz	SRF MHz Min	DCR Ω Max	IDC mA Max
CL-321606-R22 □	$0.22 \pm 20\%$	20	25	170	0.5	250
CL-321606-R27 □	$0.27 \pm 20\%$	20	25	150	0.5	250
CL-321606-R33 □	$0.33 \pm 20\%$	20	25	145	0.55	250

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SMD Multi-Layers Inductors, CL Series

CL - 321611 Series

Electrical Characteristics

Part Number	Inductance μH	Q min	Test Freq. MHz	SRF MHz Min	DCR Ω Max	IDC mA Max
CL-321611-R39 □	$0.39 \pm 20\%$	25	25	135	0.65	200
CL-321611-R47 □	$0.47 \pm 20\%$	10	45	75	0.4	50
CL-321611-R56 □	$0.56 \pm 20\%$	45	10	65	0.5	50
CL-321611-R68 □	$0.68 \pm 20\%$	45	10	60	0.5	50
CL-321611-R82 □	$0.82 \pm 20\%$	45	10	55	0.6	50
CL-321611-1R0 □	$1.0 \pm 20\% \pm 10\%$	45	10	55	0.6	50
CL-321611-1R2 □	$1.2 \pm 20\% \pm 10\%$	25	10	60	0.75	100
CL-321611-1R5 □	$1.5 \pm 20\% \pm 10\%$	30	10	55	0.65	50
CL-321611-1R8 □	$1.8 \pm 20\% \pm 10\%$	30	10	50	0.75	50
CL-321611-2R2 □	$2.2 \pm 20\% \pm 10\%$	30	10	45	0.85	50
CL-321611-2R7 □	$2.7 \pm 20\% \pm 10\%$	30	10	40	0.95	50
CL-321611-3R3 □	$3.3 \pm 20\% \pm 10\%$	30	10	38	1.05	50
CL-321611-3R9 □	$3.9 \pm 20\% \pm 10\%$	30	10	36	1.15	50
CL-321611-4R7 □	$4.7 \pm 20\% \pm 10\%$	30	10	33	1.35	50
CL-321611-5R6 □	$5.6 \pm 20\% \pm 10\%$	30	4	22	0.95	25
CL-321611-6R8 □	$6.8 \pm 20\% \pm 10\%$	30	4	20	1.05	25
CL-321611-8R2 □	$8.2 \pm 20\% \pm 10\%$	30	4	18	1.15	25
CL-321611-100 □	$10.0 \pm 20\% \pm 10\%$	30	2	17	1.35	25
CL-321611-120 □	$12.0 \pm 20\% \pm 10\%$	30	2	15	1.85	15
CL-321611-150 □	$15.0 \pm 20\% \pm 10\%$	30	1	14	0.85	5
CL-321611-180 □	$18.0 \pm 20\% \pm 10\%$	30	1	13	1.05	5
CL-321611-220 □	$22.0 \pm 20\% \pm 10\%$	30	1	11	1.15	5
CL-321611-270 □	$27.0 \pm 20\% \pm 10\%$	30	1	10	1.25	5
CL-321611-330 □	$33.0 \pm 20\% \pm 10\%$	30	0.4	9	1.65	5

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M = $\pm 20\%$, K = $\pm 10\%$, J = $\pm 5\%$

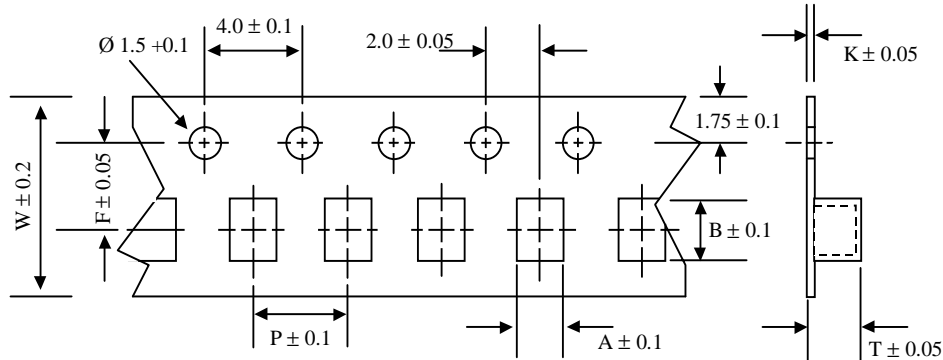
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SMD Multi-Layers Inductors, CL Series

Tape Dimensions:

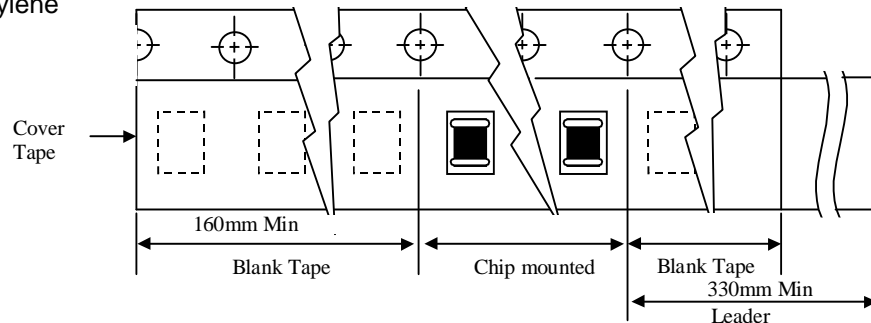


Type	A	B	T	W	P	F	K
CL-160808	1.14	1.75	1.15	8.0	4.0	3.5	0.2
CL-201209	1.54	2.32	1.15	8.0	4.0	3.5	0.2
CL-201212	1.54	2.32	1.35	8.0	4.0	3.5	0.2
CL-321611	1.94	3.54	1.29	8.0	4.0	3.5	0.2

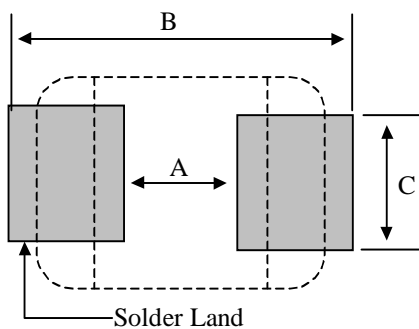
Tape Material:

Carrier Tape: Polystyrene

Cover Type : Polyethylene



Recommended Pattern:



Type	A	B	C
CL-160808	0.8	2.4 ~ 3.4	0.6
CL-201209	1.2	3.0 ~ 4.0	1.0
CL-201212	1.2	3.0 ~ 4.0	1.0
CL-321611	2.0	4.2 ~ 5.2	1.2

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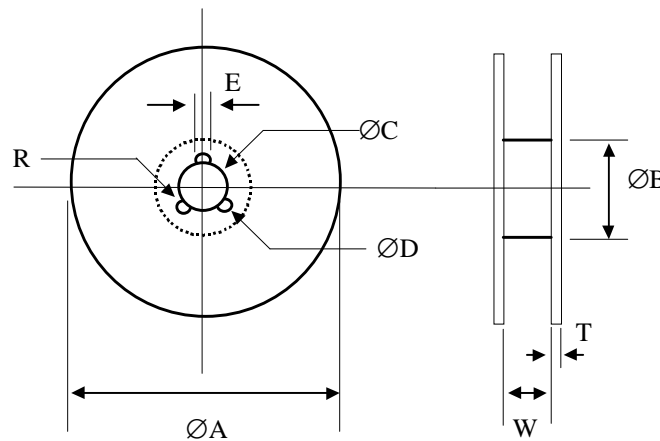
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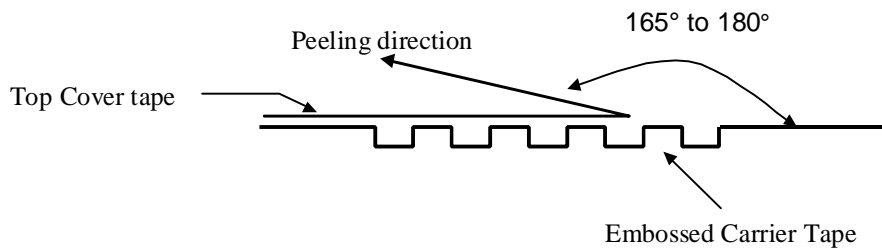
SMD Multi-Layers Inductors, CL Series

Reel Dimensions:



ØA	ØB	ØC	ØD	E	W	T	R
178 ±2	60 ± 1	13.0 ± 0.5	21.0 ± 0.8	2.0 ± 0.5	10.0 ± 1.0	2.0 ± 0.5	1.0

Tape peeling:



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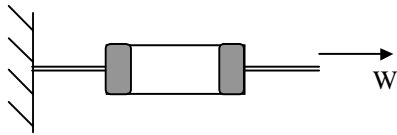
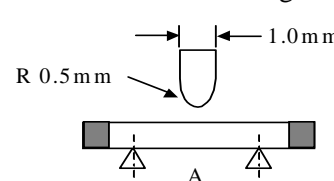


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SMD Multi-Layers Inductors, CL Series

General Component Specification for Multi-Layers Inductor

Reliability Test (Mechanical Performance Test)

No.	Item	Specification	Test Condition		
1.	Solderability	More than 90% of the terminal electrode shall be covered with fresh solder	Pre heat: 100°C to 150°C Pre heat Time: 1 minute Solder: H63A (Eutectic Solder) Solder Temperature: 230 ± 5°C Flux: Rosin Dip Time: 3 ± 1 seconds		
2.	Soldering Heat Resistance	The chips shall not crack. More than 75% of the Terminal Electrode shall be covered with solder	Pre heat: 100°C to 150°C Pre heat Time: 1 minute Solder: H63A (Eutectic Solder) Solder Temperature: 260 ± 5°C Flux: Rosin Dip Time: 10 ± 1 seconds		
3.	Terminal Strength	The terminal electrode shall not break off nor the ferrite damage 	Type	Kgf (min)	Time
			1608	0.6 kg	30 sec ± 5 Sec
			2012	0.6 kg	
			3216	1.0 kg	
4.	Bending strength	The ferrite shall not be damaged by force applied per test condition on the right 	Type	A (mm)	Kgf
			1608	1.0	0.6
			2012	1.4	1.0
			321611	2.0	2.0
			321616	2.0	2.5

Reliability Test (Climatic Test)

No	Item	Specification	Test Condition
5.	Thermal Shock (Temperature cycle)		Temperature: -40°C +85°C for 30 minutes, 100 Cycles
6.	Humidity Resistance	Inductance value shall be within ±10% of the initial value.	Temperature: +40°C ± 2°C Humidity: 90% to 95% Time 1000 ± 12 Hours
7.	High Temperature Resistance	Q Factor shall be within ±30% of initial value	Temperature: +80°C ± 2°C Humidity: 20% Time 1000 ± 12 Hours

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