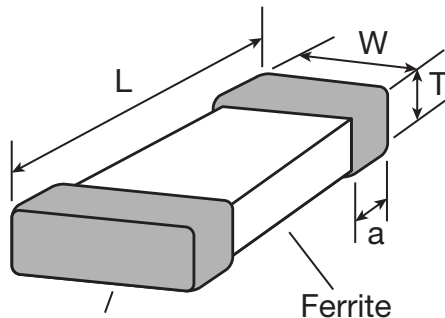


# Multilayer Chip Inductors

## Features

- No crosstalk between inductors due to magnetic shield  
Perfect for high density installation
- Unified automatic chip mounting shape with no directionality
- Excellent solderability and high resistance for either flow or reflow soldering
- Monolithic structure for high reliability

## Dimensions



Termination finish is  
100% matte Tin (Sn)  
over Nickel (Ni)

Unit: mm (inch)

SERIES	L	W	T	a
MLF 1608 (0603)	1.6 ± 0.15 (0.064 ± .006)	0.8 ± 0.15 (0.032 ± .006)	0.8 ± 0.15 (0.032 ± .006) 1.2 ± 0.2 (0.048 ± .008)	0.3 ± 0.2 (0.012 ± .008)
MLF 2012 (0805)	2.0 ± 0.2 (0.080 ± .008)	1.25 ± 0.2 (0.050 ± .008)	0.85 ± 0.2 (0.034 ± .008) 1.25 ± 0.2 (0.050 ± .008)	0.5 ± 0.3 (0.020 ± .012)
MLF 3216 (1206)	3.2 ± 0.2 (0.128 ± .008)	1.6 ± 0.2 (0.064 ± .008)	0.6 ± 0.2 (0.024 ± .008) 1.1 ± 0.2 (0.044 ± .008)	0.5 ± 0.3 (0.020 ± .012)

<b>Operating Temperature Range</b>	-40 to +85° C
<b>Storage Temperature Range</b>	-10 to +40° C

## How To Order

**MLF1608**

Series

—

**47N**

Inductance  
Value

47N: 47nH (0.047μH)  
R12: 0.12μH  
1R0: 1μH

**M**

Tolerance  
J: ± 5%  
K: ± 10%  
M: ± 20%  
S: ± 0.3nH

**T**

Packaging  
T: Tape

NOTE: All MLF series have Ferrite core.

Standard termination finish for this product is  
100% matte Tin (Sn)

**Please Note: Venkel offers Engineering Kits for this product. See page 117 for details.**

All components in this section are RoHS compliant per the EU directives and definitions.

# Multilayer Chip Inductors

## MLF1608 SERIES (0603) - Electrical Characteristics

Inductance (μH)	Inductance Tolerance	Q		Test frequency L, Q (MHz)	Self-resonant frequency (MHz)		DC resistance (Ω)		Rated current (mA) max.	Thickness T (mm)	Part No.*
		min.	nominal		min.	nominal	max.	nominal			
0.047	± 20%	10	20	50	260	350	0.3	0.2	50	0.8	MLF1608-47NM T
0.068	± 20%	10	20	50	250	325	0.3	0.2	50	0.8	MLF1608-68NM T
0.082	± 20%	10	20	50	245	310	0.3	0.2	50	0.8	MLF1608-82NM T
0.1	± 20%, ± 10%	15	25	25	240	295	0.5	0.3	50	0.8	MLF1608-R10□T
0.12	± 20%, ± 10%	15	25	25	205	280	0.5	0.3	50	0.8	MLF1608-R12□T
0.15	± 20%, ± 10%	15	25	25	180	260	0.6	0.4	50	0.8	MLF1608-R15□T
0.18	± 20%, ± 10%	15	25	25	165	245	0.6	0.4	50	0.8	MLF1608-R18□T
0.22	± 20%, ± 10%	15	25	25	150	230	0.8	0.45	50	0.8	MLF1608-R22□T
0.27	± 20%, ± 10%	15	25	25	136	210	0.8	0.5	50	0.8	MLF1608-R27□T
0.33	± 20%, ± 10%	15	25	25	125	200	0.85	0.55	35	0.8	MLF1608-R33□T
0.39	± 20%, ± 10%	15	25	25	110	185	1	0.65	35	0.8	MLF1608-R39□T
0.47	± 20%, ± 10%	15	25	25	105	170	1.35	0.7	35	0.8	MLF1608-R47□T
0.56	± 20%, ± 10%	15	25	25	95	155	1.55	0.75	35	0.8	MLF1608-R56□T
0.68	± 20%, ± 10%	15	25	25	90	140	1.7	0.8	35	0.8	MLF1608-R68□T
0.82	± 20%, ± 10%	15	25	25	85	125	2.1	0.85	35	0.8	MLF1608-R82□T
1	± 20%, ± 10%	35	50	10	75	105	0.6	0.35	25	0.8	MLF1608-1R0□T
1.2	± 20%, ± 10%	35	50	10	65	100	0.8	0.45	25	0.8	MLF1608-1R2□T
1.5	± 20%, ± 10%	35	50	10	60	90	0.8	0.5	25	0.8	MLF1608-1R5□T
1.8	± 20%, ± 10%	35	50	10	55	80	0.95	0.55	25	0.8	MLF1608-1R8□T
2.2	± 20%, ± 10%	35	50	10	50	75	1.15	0.65	15	0.8	MLF1608-2R2□T
2.7	± 20%, ± 10%	35	50	10	45	65	1.35	0.75	15	0.8	MLF1608-2R7□T
3.3	± 20%, ± 10%	35	50	10	40	60	1.55	0.85	15	0.8	MLF1608-3R3□T
3.9	± 20%, ± 10%	35	50	10	35	50	1.7	0.9	15	0.8	MLF1608-3R9□T
4.7	± 20%, ± 10%	35	50	10	33	47	2.1	1	15	0.8	MLF1608-4R7□T
5.6	± 20%, ± 10%	35	55	4	22	45	1.55	0.8	5	0.8	MLF1608-5R6□T
6.8	± 20%, ± 10%	35	55	4	20	40	1.7	0.9	5	0.8	MLF1608-6R8□T
8.2	± 20%, ± 10%	35	55	4	18	38	2.1	1	5	0.8	MLF1608-8R2□T
10	± 20%, ± 10%	30	50	2	17	37	1.85	0.9	3	0.8	MLF1608-100□T
12	± 20%, ± 10%	30	50	2	15	35	2.1	1	3	0.8	MLF1608-120□T
15	± 20%, ± 10%	20	35	1	14	30	1.7	0.8	1	0.8	MLF1608-150□T
18	± 20%, ± 10%	20	35	1	13	28	1.85	0.9	1	0.8	MLF1608-180□T
22	± 20%, ± 10%	20	35	1	11	25	2.1	1	1	0.8	MLF1608-220□T
27	± 20%, ± 10%	20	35	1	10	23	2.75	1.2	1	1.2	MLF1608-270□T
33	± 20%, ± 10%	20	35	1	9	21	2.95	1.3	1	1.2	MLF1608-330□T

\*NOTE — Part No. can be written as MLF0603.

## MLF2012 SERIES (0805) - Electrical Characteristics

Inductance ( $\mu$ H)	Inductance tolerance	Q		Test frequency L, Q (MHz)	Self-resonant frequency (MHz)		DC resistance ( $\Omega$ )		Rated current (mA) max.	Thickness T (mm)	Part No.*
		min.	nominal		min.	nominal	max.	nominal			
0.047	$\pm 20\%$	15	25	50	320	400	0.2	0.11	300	0.85	MLF2012-47NM T
0.068	$\pm 20\%$	15	25	50	280	350	0.2	0.11	300	0.85	MLF2012-68NM T
0.082	$\pm 20\%$	15	25	50	255	320	0.2	0.11	300	0.85	MLF2012-82NM T
0.1	$\pm 20\%, \pm 10\%$	20	30	25	235	300	0.3	0.16	250	0.85	MLF2012-R10□T
0.12	$\pm 20\%, \pm 10\%$	20	30	25	220	280	0.3	0.16	250	0.85	MLF2012-R12□T
0.15	$\pm 20\%, \pm 10\%$	20	30	25	200	250	0.4	0.21	250	0.85	MLF2012-R15□T
0.18	$\pm 20\%, \pm 10\%$	20	30	25	185	230	0.4	0.21	250	0.85	MLF2012-R18□T
0.22	$\pm 20\%, \pm 10\%$	20	30	25	170	220	0.5	0.26	250	0.85	MLF2012-R22□T
0.27	$\pm 20\%, \pm 10\%$	20	30	25	150	200	0.5	0.26	250	0.85	MLF2012-R27□T
0.33	$\pm 20\%, \pm 10\%$	20	30	25	145	180	0.55	0.31	250	0.85	MLF2012-R33□T
0.39	$\pm 20\%, \pm 10\%$	25	35	25	135	170	0.65	0.36	200	0.85	MLF2012-R39□T
0.47	$\pm 20\%, \pm 10\%$	25	35	25	125	160	0.65	0.36	200	1.25	MLF2012-R47□T
0.56	$\pm 20\%, \pm 10\%$	25	35	25	115	150	0.75	0.41	150	1.25	MLF2012-R56□T
0.68	$\pm 20\%, \pm 10\%$	25	35	25	105	135	0.8	0.46	150	1.25	MLF2012-R68□T
0.82	$\pm 20\%, \pm 10\%$	25	35	25	100	125	1	0.56	150	1.25	MLF2012-R82□T
1	$\pm 20\%, \pm 10\%$	45	55	10	75	105	0.4	0.21	50	0.85	MLF2012-1R0□T
1.2	$\pm 20\%, \pm 10\%$	45	55	10	65	95	0.5	0.26	50	0.85	MLF2012-1R2□T
1.5	$\pm 20\%, \pm 10\%$	45	55	10	60	85	0.5	0.26	50	0.85	MLF2012-1R5□T
1.8	$\pm 20\%, \pm 10\%$	45	55	10	55	78	0.6	0.31	50	0.85	MLF2012-1R8□T
2.2	$\pm 20\%, \pm 10\%$	45	60	10	50	70	0.65	0.36	30	0.85	MLF2012-2R2□T
2.7	$\pm 20\%, \pm 10\%$	45	60	10	45	64	0.75	0.41	30	1.25	MLF2012-2R7□T
3.3	$\pm 20\%, \pm 10\%$	45	60	10	41	58	0.8	0.46	30	1.25	MLF2012-3R3□T
3.9	$\pm 20\%, \pm 10\%$	45	60	10	38	53	0.9	0.51	30	1.25	MLF2012-3R9□T
4.7	$\pm 20\%, \pm 10\%$	45	60	10	35	48	1	0.56	30	1.25	MLF2012-4R7□T
5.6	$\pm 20\%, \pm 10\%$	50	60	4	32	44	0.9	0.51	15	1.25	MLF2012-5R6□T
6.8	$\pm 20\%, \pm 10\%$	50	60	4	29	40	1	0.56	15	1.25	MLF2012-6R8□T
8.2	$\pm 20\%, \pm 10\%$	50	60	4	26	36	1.1	0.61	15	1.25	MLF2012-8R2□T
10	$\pm 20\%, \pm 10\%$	50	60	2	24	33	1.15	0.66	15	1.25	MLF2012-100□T
12	$\pm 20\%, \pm 10\%$	50	60	2	22	30	1.25	0.71	15	1.25	MLF2012-120□T
15	$\pm 20\%, \pm 10\%$	30	40	1	19	27	0.8	0.46	5	1.25	MLF2012-150□T
18	$\pm 20\%, \pm 10\%$	30	40	1	18	25	0.9	0.51	5	1.25	MLF2012-180□T
22	$\pm 20\%, \pm 10\%$	30	40	1	16	22	1.1	0.61	5	1.25	MLF2012-220□T
27	$\pm 20\%, \pm 10\%$	30	40	1	14	20	1.5	0.66	5	1.25	MLF2012-270□T
33	$\pm 20\%, \pm 10\%$	30	40	0.4	13	18	1.25	0.71	5	1.25	MLF2012-330□T

\*NOTE — Part No. can be written as MLF0805.

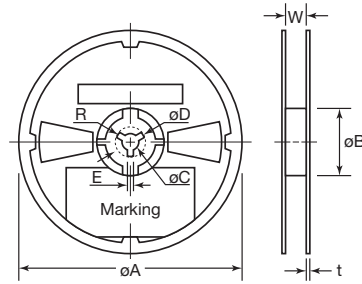
# Multilayer Chip Inductors

## MLF3216 SERIES (1206) - Electrical Characteristics

Inductance ( $\mu$ H)	Inductance tolerance	Q		Test frequency L, Q (MHz)	Self-resonant frequency (MHz)		DC resistance ( $\Omega$ )		Rated current (mA) max.	Thickness T (mm)	Part No.*
		min.	nominal		min.	nominal	max.	nominal			
0.047	$\pm 20\%$	20	30	50	320	400	0.15	0.08	300	0.6 $\pm$ 0.2	MLF3216-47NM T
0.068	$\pm 20\%$	20	30	50	280	330	0.25	0.13	300	0.6 $\pm$ 0.2	MLF3216-68NM T
0.1	$\pm 20\%, \pm 10\%$	20	30	25	235	280	0.25	0.13	250	0.6 $\pm$ 0.2	MLF3216-R10□T
0.12	$\pm 20\%, \pm 10\%$	20	30	25	220	260	0.3	0.18	250	0.6 $\pm$ 0.2	MLF3216-R12□T
0.15	$\pm 20\%, \pm 10\%$	20	30	25	200	240	0.3	0.18	250	0.6 $\pm$ 0.2	MLF3216-R15□T
0.18	$\pm 20\%, \pm 10\%$	20	30	25	185	220	0.4	0.23	250	0.6 $\pm$ 0.2	MLF3216-R18□T
0.22	$\pm 20\%, \pm 10\%$	20	30	25	170	200	0.4	0.23	250	0.6 $\pm$ 0.2	MLF3216-R22□T
0.27	$\pm 20\%, \pm 10\%$	20	30	25	150	180	0.5	0.28	250	0.6 $\pm$ 0.2	MLF3216-R27□T
0.33	$\pm 20\%, \pm 10\%$	20	30	25	145	170	0.6	0.34	250	0.6 $\pm$ 0.2	MLF3216-R33□T
0.39	$\pm 20\%, \pm 10\%$	25	35	25	135	160	0.5	0.28	200	1.1 $\pm$ 0.3	MLF3216-R39□T
0.47	$\pm 20\%, \pm 10\%$	25	35	25	125	145	0.6	0.34	200	1.1 $\pm$ 0.3	MLF3216-R47□T
0.56	$\pm 20\%, \pm 10\%$	25	35	25	115	135	0.7	0.39	150	1.1 $\pm$ 0.3	MLF3216-R56□T
0.68	$\pm 20\%, \pm 10\%$	25	35	25	105	125	0.8	0.44	150	1.1 $\pm$ 0.3	MLF3216-R68□T
0.82	$\pm 20\%, \pm 10\%$	25	35	25	100	115	0.9	0.5	150	1.1 $\pm$ 0.3	MLF3216-R82□T
1	$\pm 20\%, \pm 10\%$	45	60	10	75	90	0.4	0.23	100	0.6 $\pm$ 0.2	MLF3216-1R0□T
1.2	$\pm 20\%, \pm 10\%$	45	60	10	65	80	0.5	0.28	100	0.6 $\pm$ 0.2	MLF3216-1R2□T
1.5	$\pm 20\%, \pm 10\%$	45	60	10	60	70	0.5	0.28	50	1.1 $\pm$ 0.3	MLF3216-1R5□T
1.8	$\pm 20\%, \pm 10\%$	45	60	10	55	66	0.5	0.28	50	1.1 $\pm$ 0.3	MLF3216-1R8□T
2.2	$\pm 20\%, \pm 10\%$	45	60	10	50	58	0.6	0.34	50	1.1 $\pm$ 0.3	MLF3216-2R2□T
2.7	$\pm 20\%, \pm 10\%$	45	60	10	45	53	0.6	0.34	50	1.1 $\pm$ 0.3	MLF3216-2R7□T
3.3	$\pm 20\%, \pm 10\%$	45	65	10	41	49	0.07	0.39	50	1.1 $\pm$ 0.3	MLF3216-3R3□T
3.9	$\pm 20\%, \pm 10\%$	45	65	10	38	45	0.8	0.44	50	1.1 $\pm$ 0.3	MLF3216-3R9□T
4.7	$\pm 20\%, \pm 10\%$	45	65	10	35	41	0.9	0.5	50	1.1 $\pm$ 0.3	MLF3216-4R7□T
5.6	$\pm 20\%, \pm 10\%$	50	65	4	32	38	0.7	0.39	25	1.1 $\pm$ 0.3	MLF3216-5R6□T
6.8	$\pm 20\%, \pm 10\%$	50	65	4	29	34	0.8	0.44	25	1.1 $\pm$ 0.3	MLF3216-6R8□T
8.2	$\pm 20\%, \pm 10\%$	50	65	4	26	31	0.9	0.5	25	1.1 $\pm$ 0.3	MLF3216-8R2□T
10	$\pm 20\%, \pm 10\%$	50	65	2	24	28	1	0.55	25	1.1 $\pm$ 0.3	MLF3216-100□T
12	$\pm 20\%, \pm 10\%$	50	65	2	22	26	1.05	0.6	15	1.1 $\pm$ 0.3	MLF3216-120□T
15	$\pm 20\%, \pm 10\%$	35	45	1	19	23	0.7	0.39	5	1.1 $\pm$ 0.3	MLF3216-150□T
18	$\pm 20\%, \pm 10\%$	35	45	1	18	21	0.7	0.39	5	1.1 $\pm$ 0.3	MLF3216-180□T
22	$\pm 20\%, \pm 10\%$	35	45	1	16	19	0.9	0.5	5	1.1 $\pm$ 0.3	MLF3216-220□T
27	$\pm 20\%, \pm 10\%$	35	45	1	14	17	0.9	0.5	5	1.1 $\pm$ 0.3	MLF3216-270□T
33	$\pm 20\%, \pm 10\%$	35	45	0.4	13	16	1.05	0.6	5	1.1 $\pm$ 0.3	MLF3216-330□T

\*NOTE — Part No. can be written as MLF1206.

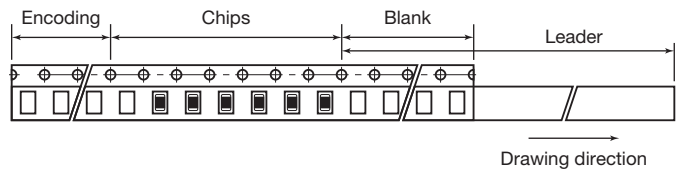
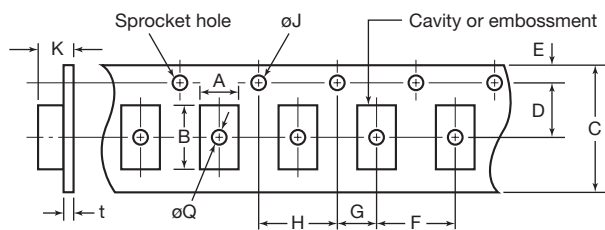
## Reel Dimensions



Dimensions (unit = mm)

Series	Product's Thickness (mm)	Quantities (pieces) Taping (/reel)	Reel Dimensions (mm)				
			$\phi A$	$\phi B$	$\phi C$	W	t
MLF 1608	$0.8 \pm 0.15$	4000 (4mm pitch)	$178 \pm 2$	$60 \pm 2$	$13 \pm 0.5$	$10 \pm 1.5$	$2.5 \pm 0.2$
	$1.2 \pm 0.2$	2000 (4mm pitch)					
MLF 2012	$0.85 \pm 0.2$	4000 (4mm pitch)	$178 \pm 2$	$60 \pm 2$	$13 \pm 0.5$	$10 \pm 1.5$	$2.5 \pm 0.2$
	$1.25 \pm 0.2$	2000 (4mm pitch)					
MLF 3216	$0.6 \pm 0.2$	4000 (4mm pitch)	$178 \pm 2$	$60 \pm 2$	$13 \pm 0.5$	$10 \pm 1.5$	$2.5 \pm 0.2$
	$1.1 \pm 0.3$	2000 or 3000 (4mm pitch)					

## Taping Dimensions



Tape Dimensions (unit = mm)

Series	Tape Dimensions (mm)												Tape Material	Taping Dimensions (mm)		
	A	B	C	D	E	F	G	H	$\phi J$	K	t	$\phi Q$		Leader	Blank	Ending
MLF 1608	1.1	1.9	8	3.5	1.75	4	2	4	1.5	1.1 max. 2 max.	0.3		Paper	150 min.	80 min.	40 min.
MLF 2012	1.5	2.3	8	3.5	1.75	4	2	4	1.5	1.5 max. 2 max.	0.3	0.5	Paper			
MLF 3216	1.9	3.5	8	3.5	1.75	4	2	4	1.5	1.1 max. 2 max.	0.3	0.5	Paper			

All components in this section are RoHS compliant per the EU directives and definitions.