



# MULTILAYER CHIP INDUCTORS

## T Y P E M I C

### FEATURES

SMEC offers a product that utilizes a unique technology to provide a Surface Mount Chip Inductor, that is unlike any coil type inductor. Magnetic materials technology and multilayer technology is used to produce chip inductors that do not use any windings. This multilayer process uses alternate ferrite and conductor layers to form a completely monolithic structure.

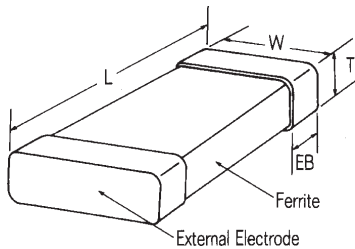
Some of the features provided are:

- High Volumetric efficiency.
- Magnetic shield eliminates crosstalk, perfect for high density surface mount applications.
- Excellent solderability with all reflow techniques.
- No polarity.

### DIMENSIONS

Inches (mm)

Type	L	W	T	EB	Termination
MIC 0402	0.040 (1.0)	0.020 (0.5)	0.020 (0.5)	0.010 (0.25)	Ni/Sn
MIC 0603	0.063 (1.6)	0.031 (0.8)	0.031 (0.8)	0.012 (0.3)	Ni/Sn
MIC 0805	0.079 (2.0)	0.049 (1.25)	0.049 (1.25)	0.020 (0.5)	Ni/Sn
MIC 1206	0.126 (3.2)	0.063 (1.6)	0.043 (1.1)	0.020 (0.5)	Ni/Sn
MIC 1210	0.126 (3.2)	0.100 (2.5)	0.100 (2.5)	0.020 (0.5)	Ni/Sn



### TAPE PACKAGING

Inches (mm)

Type	Taping	Thickness	Qty./Reel	Pitch
MIC 0402	Embossed	0.020 (0.5)	10,000	0.079 (2.0)
MIC 0603	Embossed	0.031 (0.8)	4,000	0.157 (4.0)
	Embossed	0.047 (1.2)	2,000	0.157 (4.0)
MIC 0805	Embossed	0.033 (.085)	4,000	0.157 (4.0)
	Embossed	0.049 (1.25)	2,000	0.157 (4.0)
MIC 1206	Paper	0.024 (0.6)	4,000	0.079 (2.0)
	Embossed	0.043 (1.1)	2,000	0.157 (4.0)
	Embossed	0.063 (1.6)	2,000	0.157 (4.0)
MIC 1210	Embossed	0.043 (1.1)	1,000	0.157 (4.0)

### ORDERING INFORMATION

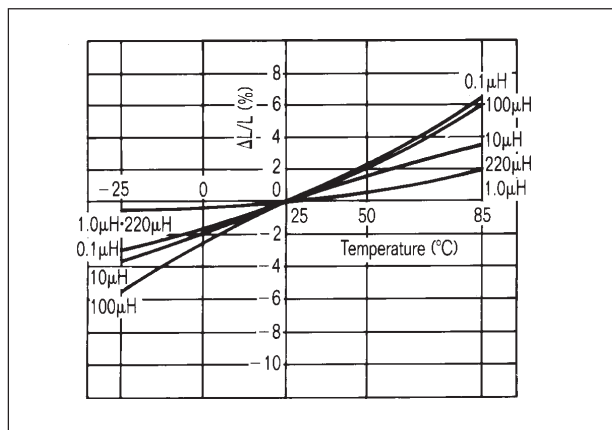
**MIC1206A - 4R7 K T F .... LEAD FREE / ROHS**

Type ———— Inductance Value In Micro Henrys. The first two digits represent significant figures. The last specifies the number of zeros to follow. The 'R' represents a decimal point. (4.7 Micro Henrys illustrated.)

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

Packing  
B: Bulk Pack  
T: Tape & Reel

### TEMPERATURE CHARACTERISTICS



# MULTILAYER CHIP INDUCTORS — TYPE MIC

## TYPE 0402 ELECTRICAL SPECIFICATIONS

SMEC Part No.	Thickness (mm)	Inductance (nH)	Q min.	Q nominal	L, Q Test Freq. (MHz)	SRF (MHz) typ.	DC Resistance (Ω) max.	Rated DC Current (mA) max.
MIC0402-1N0ST	0.5	1.0 ± 0.3nH	8	30	50	>6000	0.10	300
MIC0402-1N2ST	0.5	1.2 ± 0.3nH	8	30	50	>6000	0.10	300
MIC0402-1N5ST	0.5	1.5 ± 0.3nH	6	30	50	>6000	0.10	300
MIC0402-1N8ST	0.5	1.8 ± 0.3nH	6	30	50	>6000	0.10	300
MIC0402-2N2ST	0.5	2.2 ± 0.3nH	6	30	50	>6000	0.20	300
MIC0402-2N7ST	0.5	2.7 ± 0.3nH	7	30	52	5500	0.20	300
MIC0402-3N3KT	0.5	3.3 ± 10%	7	28	49	5000	0.30	300
MIC0402-3N9KT	0.5	3.9 ± 10%	7	30	46	4700	0.30	300
MIC0402-4N7KT	0.5	4.7 ± 10%	7	28	43	4300	0.40	300
MIC0402-5N6KT	0.5	5.6 ± 10%	7	28	40	4000	0.40	300
MIC0402-6N8KT	0.5	6.8 ± 10%	10	28	37	3650	0.50	300
MIC0402-8N2KT	0.5	8.2 ± 10%	9	28	32	3200	0.50	300
MIC0402-10NKT	0.5	10.0 ± 10%	9	23	22	2800	0.60	300
MIC0402-12NKT	0.5	12.0 ± 10%	10	24	18	2700	0.60	300
MIC0402-15NKT	0.5	15.0 ± 10%	12	25	15	2200	0.70	300
MIC0402-18NKT	0.5	18.0 ± 10%	10	17	—	2000	0.80	300
MIC0402-22NKT	0.5	22.0 ± 10%	11	23	—	1800	0.90	300
MIC0402-27NKT	0.5	27.0 ± 10%	12	20	—	1600	1.00	300

## TYPE 0603 ELECTRICAL SPECIFICATIONS

SMEC Part No.	Thickness (mm)	Inductance (μH)	Q min.	L, Q Test Freq. (MHz)	SRF (MHz) Min.	DC Resistance (Ω) max.	Rated DC Current (mA) Max.
MIC0603D-47NMT	0.8	0.047 ± 20%	10	50	260	0.30	50
MIC0603D-68NMT	0.8	0.068 ± 20%	10	50	250	0.30	50
MIC0603D-82NMT	0.8	0.082 ± 20%	10	50	245	0.30	50
MIC0603D-R10KT	0.8	0.10 ± 10%	15	25	240	0.50	50
MIC0603D-R12KT	0.8	0.12 ± 10%	15	25	205	0.50	50
MIC0603D-R15KT	0.8	0.15 ± 10%	15	25	180	0.60	50
MIC0603D-R18KT	0.8	0.18 ± 10%	15	25	165	0.60	50
MIC0603D-R22KT	0.8	0.22 ± 10%	15	25	150	0.80	50
MIC0603D-R27KT	0.8	0.27 ± 10%	15	25	136	0.80	50
MIC0603D-R33KT	0.8	0.33 ± 10%	15	25	125	0.85	35
MIC0603D-R39KT	0.8	0.39 ± 10%	15	25	110	1.00	35
MIC0603D-R47KT	0.8	0.47 ± 10%	15	25	105	1.35	35
MIC0603D-R56KT	0.8	0.56 ± 10%	15	25	95	1.55	35
MIC0603D-R68KT	0.8	0.68 ± 10%	15	25	90	1.70	35
MIC0603D-R82KT	0.8	0.82 ± 10%	15	25	85	2.10	35
MIC0603A-1R0KT	0.8	1.0 ± 10%	35	10	75	0.60	25
MIC0603A-1R2KT	0.8	1.2 ± 10%	35	10	65	0.80	25
MIC0603A-1R5KT	0.8	1.5 ± 10%	35	10	30	0.80	25
MIC0603A-1R8KT	0.8	1.8 ± 10%	35	10	55	0.95	25
MIC0603A-2R2KT	0.8	2.2 ± 10%	35	10	50	1.15	15
MIC0603A-2R7KT	0.8	2.7 ± 10%	35	10	45	1.35	15
MIC0603A-3R3KT	0.8	3.3 ± 10%	35	10	40	1.55	15
MIC0603A-3R9KT	0.8	3.9 ± 10%	35	10	35	1.70	15
MIC0603A-4R7KT	0.8	4.7 ± 10%	35	10	33	2.10	15
MIC0603E-5R6KT	0.8	5.6 ± 10%	35	4	22	1.55	5
MIC0603E-6R8KT	0.8	6.8 ± 10%	35	4	20	1.70	5
MIC0603E-8R2KT	0.8	8.2 ± 10%	35	4	18	2.10	5
MIC0603K-100KT	0.8	10.0 ± 10%	30	2	17	1.85	3
MIC0603K-120KT	0.8	12.0 ± 10%	30	2	15	2.10	3
MIC0603C-150KT	0.8	15.0 ± 10%	20	1	14	1.70	1
MIC0603C-180KT	0.8	18.0 ± 10%	20	1	13	1.85	1
MIC0603C-220KT	0.8	22.0 ± 10%	20	1	11	2.10	1
MIC0603C-270KT	1.2	27.0 ± 10%	20	1	10	2.75	1
MIC0603C-330KT	1.2	33.0 ± 10%	20	1	9	2.95	1

# MULTILAYER CHIP INDUCTORS — TYPE MIC

## TYPE 0805 ELECTRICAL SPECIFICATIONS

SMC Part No.	Thickness (mm)	Inductance (μH)	Q min.	L, Q Test Freq. (MHz)		SRF (MHz) Min.	DC Resistance (Ω) max.	Rated DC Current (mA) Max.
				L	Q			
MIC0805D-47NMT	0.85	0.047 ±20%	15	50	320	0.2	300	
MIC0805D-68NMT	0.85	0.068 ±20%	15	50	280	0.2	300	
MIC0805D-82NMT	0.85	0.082 ±20%	15	50	255	0.2	300	
MIC0805D-R10KT	0.85	0.10 ±10%	20	25	235	0.3	250	
MIC0805D-R12KT	0.85	0.12 ±10%	20	25	220	0.3	250	
MIC0805D-R15KT	0.85	0.15 ±10%	20	25	200	0.4	250	
MIC0805D-R18KT	0.85	0.18 ±10%	20	25	185	0.4	250	
MIC0805D-R22KT	0.85	0.22 ±10%	20	25	170	0.5	250	
MIC0805D-R27KT	0.85	0.27 ±10%	20	25	150	0.5	250	
MIC0805D-R33KT	0.85	0.33 ±10%	20	25	145	0.55	250	
MIC0805D-R39KT	0.85	0.39 ±10%	25	25	135	0.65	200	
MIC0805D-R47KT	1.25	0.47 ±10%	25	25	125	0.65	200	
MIC0805D-R56KT	1.25	0.56 ±10%	25	25	115	0.75	150	
MIC0805D-R68KT	1.25	0.68 ±10%	25	25	105	0.8	150	
MIC0805D-R82KT	1.25	0.82 ±10%	25	25	100	1.0	150	
MIC0805A-1R0KT	0.85	1.0 ± 10%	45	10	75	0.4	50	
MIC0805A-1R2KT	0.85	1.2 ± 10%	45	10	65	0.5	50	
MIC0805A-1R5KT	0.85	1.5 ± 10%	45	10	60	0.5	50	
MIC0805A-1R8KT	0.85	1.8 ± 10%	45	10	55	0.6	50	
MIC0805A-2R2KT	0.85	2.2 ± 10%	45	10	50	0.65	30.0	
MIC0805A-2R7KT	1.25	2.7 ± 10%	45	10	45	0.75	30.0	
MIC0805A-3R3KT	1.25	3.3 ± 10%	45	10	41	0.8	30.0	
MIC0805A-3R9KT	1.25	3.9 ± 10%	45	10	38	0.9	30.0	
MIC0805A-4R7KT	1.25	4.7 ± 10%	45	10	35	1.0	30.0	
MIC0805E-5R6KT	1.25	5.6 ± 10%	50	4.0	32	0.9	15.0	
MIC0805E-6R8KT	1.25	6.8 ± 10%	50	4.0	29	1.0	15.0	
MIC0805E-8R2KT	1.25	8.2 ± 10%	50	4.0	26	1.1	15.0	
MIC0805E-100KT	1.25	10.0 ± 10%	50	2.0	24	1.15	15.0	
MIC0805E-120KT	1.25	12.0 ± 10%	50	2.0	22	1.25	15.0	
MIC0805C-150KT	1.25	15.0 ± 10%	30	1.0	19	0.8	5.0	
MIC0805C-180KT	1.25	18.0 ± 10%	30	1.0	18	0.8	5.0	
MIC0805C-220KT	1.25	22.0 ± 10%	30	1.0	16	1.1	5.0	
MIC0805C-270KT	1.25	27.0 ± 10%	30	1.0	14	1.15	5.0	
MIC0805C-330KT	1.25	33.0 ± 10%	30	0.4	13	1.25	5.0	
MIC0805K-390KT	1.25	39.0 ± 10%	35	2.0	8.0	2.90	4.0	
MIC0805K-470KT	1.25	47.0 ± 10%	35	2.0	7.5	3.00	4.0	
MIC0805K-560KT	1.25	56.0 ± 10%	35	2.0	7.0	3.10	4.0	
MIC0805C-680KT	1.25	68.0 ± 10%	25	1.0	6.5	2.90	1.0	
MIC0805C-820KT	1.25	82.0 ± 10%	25	1.0	6.0	3.00	1.0	
MIC0805C-101KT	1.25	100.0 ±10%	25	1.0	5.5	3.10	1.0	

## TYPE 1206 ELECTRICAL SPECIFICATIONS

SMC Part No.	Thickness (mm)	Inductance (μH)	Q min.	L, Q Test Freq. (MHz)		SRF (MHz) Min.	DC Resistance (Ω) max.	Rated DC Current (mA) Max.
				L	Q			
MIC1206D-47NMT	0.6	0.047 ±20%	20	50	320	0.15	300	
MIC1206D-68NMT	0.6	0.068 ±20%	20	50	280	0.25	300	
MIC1206D-R10KT	0.6	0.10 ±10%	20	25	235	0.25	250	
MIC1206D-R12KT	0.6	0.12 ±10%	20	25	220	0.30	250	
MIC1206D-R15KT	0.6	0.15 ±10%	20	25	200	0.30	250	
MIC1206D-R18KT	0.6	0.18 ±10%	20	25	185	0.40	250	
MIC1206D-R22KT	0.6	0.22 ±10%	20	25	170	0.40	250	
MIC1206D-R27KT	0.6	0.27 ±10%	20	25	150	0.50	250	
MIC1206D-R33KT	0.6	0.33 ±10%	20	25	145	0.60	250	
MIC1206D-R39KT	1.1	0.39 ±10%	25	25	135	0.50	200	
MIC1206D-R47KT	1.1	0.47 ±10%	25	25	125	0.60	200	
MIC1206D-R56KT	1.1	0.56 ±10%	25	25	115	0.70	150	
MIC1206D-R68KT	1.1	0.68 ±10%	25	25	105	0.80	150	
MIC1206D-R82KT	1.1	0.82 ±10%	25	25	100	0.90	150	
MIC1206A-1R0KT	0.6	1.0 ± 10%	45	10	75	0.40	100	
MIC1206A-1R2KT	0.6	1.2 ± 10%	45	10	65	0.50	100	
MIC1206A-1R5KT	1.1	1.5 ± 10%	45	10	60	0.50	50	
MIC1206A-1R8KT	1.1	1.8 ± 10%	45	10	55	0.50	50	
MIC1206A-2R2KT	1.1	2.2 ± 10%	45	10	50	0.60	50	
MIC1206A-2R7KT	1.1	2.7 ± 10%	45	10	45	0.60	50	
MIC1206A-3R3KT	1.1	3.3 ± 10%	45	10	41	0.70	50	
MIC1206A-3R9KT	1.1	3.9 ± 10%	45	10	38	0.80	50	
MIC1206A-4R7KT	1.1	4.7 ± 10%	45	10	35	0.90	50	
MIC1206E-5R6KT	1.1	5.6 ± 10%	50	4.0	32	0.70	25	
MIC1206E-6R8KT	1.1	6.8 ± 10%	50	4.0	29	0.80	25	
MIC1206E-8R2KT	1.1	8.2 ± 10%	50	4.0	26	0.90	25	
MIC1206E-100KT	1.1	10.0 ± 10%	50	2.0	24	1.00	25	
MIC1206E-120KT	1.1	12.0 ± 10%	50	2.0	22	1.05	15	
MIC1206C-150KT	1.1	15.0 ± 10%	35	1.0	19	0.70	5	
MIC1206C-180KT	1.1	18.0 ± 10%	35	1.0	18	0.70	5	
MIC1206C-220KT	1.1	22.0 ± 10%	35	1.0	16	0.90	5	
MIC1206C-270KT	1.1	27.0 ± 10%	35	1.0	14	0.90	5	
MIC1206C-330KT	1.1	33.0 ± 10%	35	0.4	13	1.05	5	

## TYPE 1210 ELECTRICAL SPECIFICATIONS

SMC Part No.	Thickness (mm)	Inductance (μH)	Q min.	L, Q Test Freq. (MHz)		SRF (MHz) Min.	DC Resistance (Ω) max.	Rated DC Current (mA) Max.
				L	Q			
MIC1210E-390KT	1.1	39.0 ±10%	35	0.4	13	1.20	5	
MIC1210E-470KT	1.1	47.0 ±10%	35	0.4	10	1.30	5	
MIC1210E-560KT	1.1	56.0 ±10%	35	0.4	10	1.50	5	
MIC1210K-680KT	2.5	68.0 ±10%	55	2.0	10	3.10	10	
MIC1210K-820KT	2.5	82.0 ±10%	55	2.0	9	3.40	10	
MIC1210K-101KT	2.5	100.0 ±10%	55	1.0	8	3.80	10	
MIC1210C-121KT	2.5	120.0 ±10%	35	0.2	6	2.30	5	
MIC1210C-151KT	2.5	150.0 ±10%	35	0.2	6	2.60	5	
MIC1210C-181KT	2.5	180.0 ±10%	35	0.2	5	2.80	5	
MIC1210C-221KT	2.5	220.0 ±10%	35	0.2	5	3.10	5	