# TYPE MIC

## FEATURES

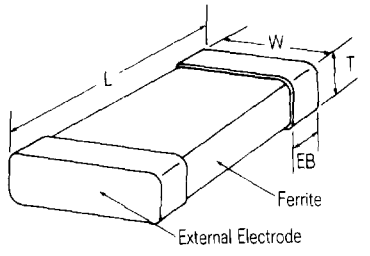
SMEC offers a product that utilizes a unique technology to provide a Surface Mount Chip Inductor, that is unlike any coil type inductor. Magnetic materials technology and multilayer technology is used to produce chip inductors that do not use any windings. This multilayer process uses alternate ferrite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

(Dimensions in inches)

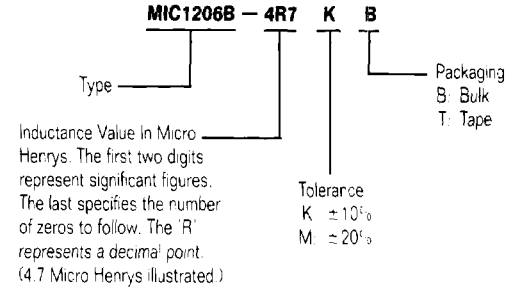



| Type | L | W | T | EB |
|---|---|---|---|---|
| **MIC0603D** | .060 ± .005 | .032 ± .005 | .030 ± .005 | .010 - .020 |
| **MIC0805A** | .080 ± .005 | .050 ± .005 | .025 ± .005 | .015 - .025 |
| **MIC0805D** | .080 ± .005 | .050 ± .005 | .035 ± .005 | .015 - .025 |
| **MIC0805E** | .080 ± .005 | .050 ± .005 | .050 ± .005 | .015 - .025 |
| **MIC1206A** | .126 ± .005 | .063 ± .005 | .025 ± .005 | .015 - .025 |
| **MIC1206B** | .126 ± .005 | .063 ± .005 | .045 ± .005 | .015 - .025 |
| **MIC1210B** | .126 ± .005 | .100 ± .005 | .045 ± .005 | .015 - .025 |
| **MIC1210C** | .126 ± .005 | .100 ± .005 | .100 ± .005 | .015 - .025 |

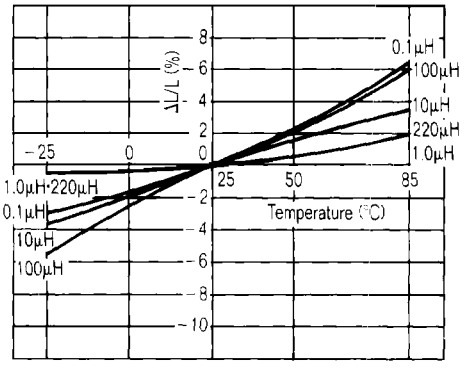
## TAPE PACKAGING

| Type | Chips/Reel | Tape Material |
|---|---|---|
| MIC0603D | 8,000 | Embossed |
| MIC0805A | 4,000 | Paper |
| MIC0805D | 4,000 | Paper |
| MIC0805E | 2,000 | Embossed |
| MIC1206A | 4,000 | Paper |
| MIC1206B | 2,000 | Embossed |
| MIC1210B | 2,000 | Embossed |
| MIC1210C | 1,000 | Embossed |

## ORDERING INFORMATION




## TEMPERATURE CHARACTERISTICS



# MULTILAYER CHIP INDUCTORS — TYPE MIC

## ELECTRICAL SPECIFICATIONS

| Type | Inductance (µH) | Inductance Symbol | Q min. | L,Q test frequency (MHz) | Self resonant frequency (MHz) min. | DC resistance (Ω) max. | Rated current (mA) max. |
|---|---|---|---|---|---|---|---|
| MIC0603D | 0.047 | 47N | 10 | 50 | 260 | 0.30 | 50 |
| | 0.068 | 68N | 10 | 50 | 250 | 0.30 | 50 |
| | 0.082 | 82N | 10 | 50 | 245 | 0.30 | 50 |
| MIC0603D | 0.10 | R10 | 15 | 25 | 240 | 0.50 | 50 |
| | 0.12 | R12 | 15 | 25 | 205 | 0.50 | 50 |
| | 0.15 | R15 | 15 | 25 | 180 | 0.60 | 50 |
| | 0.18 | R18 | 15 | 25 | 165 | 0.60 | 50 |
| | 0.22 | R22 | 15 | 25 | 150 | 0.80 | 50 |
| | 0.27 | R27 | 15 | 25 | 136 | 0.80 | 50 |
| | 0.33 | R33 | 15 | 25 | 125 | 0.85 | 35 |
| | 0.39 | R39 | 15 | 25 | 110 | 1.00 | 35 |
| | 0.47 | R47 | 15 | 25 | 105 | 1.35 | 35 |
| | 0.56 | R56 | 15 | 25 | 95 | 1.55 | 35 |
| | 0.68 | R68 | 15 | 25 | 90 | 1.70 | 35 |
| | 0.82 | R82 | 15 | 25 | 85 | 2.10 | 35 |
| MIC0603D | 1.0 | 1R0 | 35 | 10 | 75 | 0.60 | 25 |
| | 1.2 | 1R2 | 35 | 10 | 65 | 0.80 | 25 |
| | 1.5 | 1R5 | 35 | 10 | 60 | 0.80 | 25 |
| | 1.8 | 1R8 | 35 | 10 | 55 | 0.95 | 25 |
| | 2.2 | 2R2 | 35 | 10 | 50 | 1.15 | 15 |
| | 2.7 | 2R7 | 35 | 10 | 45 | 1.35 | 15 |
| | 3.3 | 3R3 | 35 | 10 | 40 | 1.55 | 15 |
| | 3.9 | 3R9 | 35 | 10 | 35 | 1.70 | 15 |
| | 4.7 | 4R7 | 35 | 10 | 33 | 2.10 | 15 |
| MIC0603D | 5.6 | 5R6 | 35 | 4 | 22 | 1.55 | 5 |
| | 6.8 | 6R8 | 35 | 4 | 20 | 1.70 | 5 |
| | 8.2 | 8R2 | 35 | 4 | 18 | 2.10 | 5 |
| | 10.0 | 100 | 30 | 2 | 17 | 1.85 | 3 |
| | 12.0 | 120 | 30 | 2 | 15 | 2.10 | 3 |
| | 15.0 | 150 | 20 | 1 | 14 | 1.70 | 1 |
| | 18.0 | 180 | 20 | 1 | 13 | 1.85 | 1 |
| | 22.0 | 220 | 20 | 1 | 11 | 2.10 | 1 |
| | 27.0 | 270 | 20 | 1 | 10 | 2.75 | 1 |
| | 33.0 | 330 | 20 | 1 | 9 | 2.95 | 1 |

Note: .047 µH to .082 µH tolerance is ±20% and .10 µH to 33 µH tolerance is ±10 %

## ELECTRICAL SPECIFICATIONS

| Type | Inductance (µH) | Inductance Symbol | Q min. | L,Q test frequency (MHz) | Self resonant frequency (MHz) min. | DC resistance (Ω) max. | Rated current (mA) max. |
|---|---|---|---|---|---|---|---|
| MIC0805A | 0.047 | 47N | 15 | 50 | 260 | 0.30 | 100 |
| | 0.068 | 68N | 15 | 50 | 250 | 0.30 | 100 |
| MIC0805D | 0.082 | 82N | 15 | 50 | 245 | 0.35 | 100 |
| | 0.10 | R10 | 20 | 25 | 240 | 0.35 | 100 |
| | 0.12 | R12 | 20 | 25 | 205 | 0.45 | 100 |
| | 0.15 | R15 | 20 | 25 | 180 | 0.45 | 100 |
| | 0.18 | R18 | 20 | 25 | 165 | 0.55 | 100 |
| | 0.22 | R22 | 20 | 25 | 150 | 0.65 | 100 |
| | 0.27 | R27 | 20 | 25 | 136 | 0.65 | 100 |
| | 0.33 | R33 | 20 | 25 | 125 | 0.75 | 100 |
| | 0.39 | R39 | 25 | 25 | 110 | 0.75 | 100 |
| MIC0805E | 0.47 | R47 | 25 | 25 | 105 | 0.75 | 100 |
| | 0.56 | R56 | 25 | 25 | 95 | 0.85 | 100 |
| | 0.68 | R68 | 25 | 25 | 80 | 0.95 | 100 |
| | 0.82 | R82 | 25 | 25 | 75 | 1.05 | 100 |
| MIC0805D | 1.00 | 1R0 | 25 | 10 | 70 | 0.65 | 50 |
| | 1.20 | 1R2 | 25 | 10 | 60 | 0.75 | 50 |
| | 1.50 | 1R5 | 25 | 10 | 55 | 0.75 | 50 |
| | 1.80 | 1R8 | 25 | 10 | 50 | 0.75 | 50 |
| | 2.20 | 2R2 | 30 | 10 | 45 | 0.85 | 30 |
| MIC0805E | 2.70 | 2R7 | 30 | 10 | 40 | 0.95 | 30 |
| | 3.30 | 3R3 | 30 | 10 | 38 | 1.05 | 30 |
| | 3.90 | 3R9 | 30 | 10 | 36 | 1.15 | 30 |
| | 4.70 | 4R7 | 30 | 10 | 33 | 1.35 | 30 |
| | 5.60 | 5R6 | 30 | 4 | 22 | 0.95 | 15 |
| | 6.80 | 6R8 | 30 | 4 | 20 | 1.05 | 15 |
| | 8.20 | 8R2 | 30 | 4 | 18 | 1.15 | 15 |
| | 10.0 | 100 | 30 | 2 | 17 | 1.35 | 15 |
| | 12.0 | 120 | 30 | 2 | 15 | 1.85 | 15 |
| | 15.0 | 150 | 30 | 1 | 14 | 0.85 | 5 |
| | 18.0 | 180 | 30 | 1 | 13 | 1.05 | 5 |
| | 22.0 | 220 | 30 | 1 | 11 | 1.15 | 5 |
| | 27.0 | 270 | 30 | 1 | 10 | 1.25 | 5 |
| | 33.0 | 330 | 30 | 0.4 | 9 | 1.65 | 5 |

Note: .047 µH to .082 µH tolerance is ±20% and .10 µH to 33 µH tolerance is ±10%.

# MULTILAYER CHIP INDUCTORS — TYPE MIC

## ELECTRICAL SPECIFICATIONS

| Type | Inductance (μH) | Inductance Symbol | Q min. | L,Q test frequency (MHz) | Self resonant frequency (MHz) min. | DC resistance (Ω) max. | Rated current (mA) max. |
|---|---|---|---|---|---|---|---|
| MIC1206A | 0.047 | 47N | 20 | 50 | 260 | 0.30 | 100 |
| | 0.068 | 68N | 20 | 50 | 250 | 0.30 | 100 |
| MIC1206A | 0.10 | R10 | 20 | 25 | 245 | 0.35 | 100 |
| | 0.12 | R12 | 20 | 25 | 205 | 0.45 | 100 |
| | 0.15 | R15 | 20 | 25 | 180 | 0.45 | 100 |
| | 0.18 | R18 | 20 | 25 | 165 | 0.55 | 100 |
| | 0.22 | R22 | 20 | 25 | 150 | 0.65 | 100 |
| | 0.27 | R27 | 20 | 25 | 136 | 0.65 | 100 |
| | 0.33 | R33 | 20 | 25 | 125 | 0.75 | 100 |
| MIC1206B | 0.39 | R39 | 25 | 25 | 110 | 0.65 | 100 |
| | 0.47 | R47 | 25 | 25 | 105 | 0.75 | 100 |
| | 0.56 | R56 | 25 | 25 | 95 | 0.85 | 100 |
| | 0.68 | R68 | 25 | 25 | 80 | 0.95 | 100 |
| | 0.82 | R82 | 25 | 25 | 75 | 1.05 | 100 |
| MIC1206A | 1.00 | 1R0 | 25 | 10 | 70 | 0.65 | 100 |
| | 1.20 | 1R2 | 25 | 10 | 60 | 0.75 | 100 |
| MIC1206B | 1.50 | 1R5 | 30 | 10 | 55 | 0.65 | 50 |
| | 1.80 | 1R8 | 30 | 10 | 50 | 0.75 | 50 |
| | 2.20 | 2R2 | 30 | 10 | 45 | 0.85 | 50 |
| | 2.70 | 2R7 | 30 | 10 | 40 | 0.95 | 50 |
| | 3.30 | 3R3 | 30 | 10 | 38 | 1.05 | 50 |
| | 3.90 | 3R9 | 30 | 10 | 36 | 1.15 | 50 |
| | 4.70 | 4R7 | 30 | 10 | 33 | 1.35 | 50 |
| | 5.60 | 5R6 | 30 | 4 | 22.0 | 0.95 | 25 |
| | 6.80 | 6R8 | 30 | 4 | 20.0 | 1.05 | 25 |
| | 8.20 | 8R2 | 30 | 4 | 18.0 | 1.15 | 25 |
| | 10.0 | 100 | 30 | 2 | 17.0 | 1.35 | 25 |
| | 12.0 | 120 | 30 | 2 | 15.0 | 1.85 | 15 |
| | 15.0 | 150 | 30 | 1 | 14.0 | 0.85 | 5 |
| | 18.0 | 180 | 30 | 1 | 13.0 | 1.05 | 5 |
| | 22.0 | 220 | 30 | 1 | 11.0 | 1.15 | 5 |
| | 27.0 | 270 | 30 | 1 | 10.0 | 1.25 | 5 |
| | 33.0 | 330 | 30 | 0.4 | 9.0 | 1.65 | 5 |
| MIC1210B | 39.0 | 390 | 30 | 0.4 | 8.0 | 1.85 | 5 |
| | 47.0 | 470 | 30 | 0.4 | 7.0 | 2.00 | 5 |
| | 56.0 | 560 | 30 | 0.4 | 6.5 | 2.15 | 5 |
| MIC1210C | 68.0 | 680 | 30 | 2 | 6.0 | 4.20 | 10 |
| | 82.0 | 820 | 30 | 2 | 5.5 | 4.50 | 10 |
| | 100.0 | 101 | 30 | 1 | 5.0 | 4.80 | 10 |
| | 120.0 | 121 | 30 | 0.2 | 4.5 | 2.80 | 5 |
| | 150.0 | 151 | 30 | 0.2 | 4.5 | 3.50 | 5 |
| | 180.0 | 181 | 30 | 0.2 | 4.0 | 3.80 | 5 |
| | 220.0 | 221 | 30 | 0.2 | 4.0 | 4.20 | 5 |

Note: .047 μH to .068 μH tolerance is ±20% and .10 μH to 220 μH tolerance is ±10%.