OBSOLETE

Chip Inductors

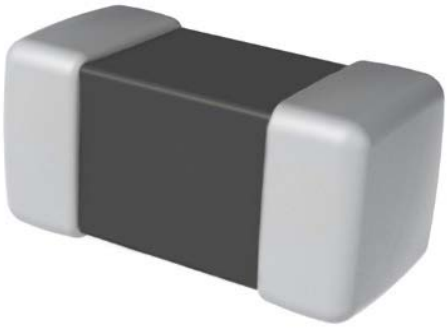
High Current Multilayer Chip Power Inductor L-DMI

Overview

KEMET L-DMI ferrite-based Multilayer Chip Power Inductors are ideal for use in DC to DC switching power supplies. The small size of this chip inductor makes it suitable for mobile equipement that requires tight space both in dimension and in height. The internal printed coil structure creates a closed magnetic circuit, which acts as a magnetic shield eliminating crosstalk, thus permitting higher mounting densities. The multilayer block structure yields higher reliability. In addition, the inductor shows excellent low DC power dissipation, due to low Rdc with a high aspect ratio internal conductor that stands on unique green sheet and printing technologies.

Applications

- Switching DC-DC power supplies
- Wearables
- Smartphone
- Tablet device
- Digital still camera
- HDD



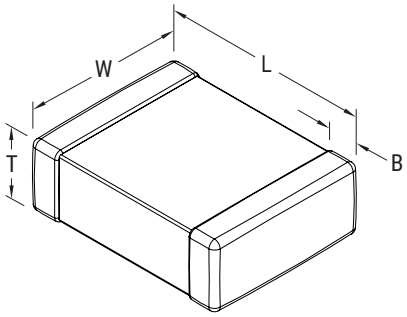
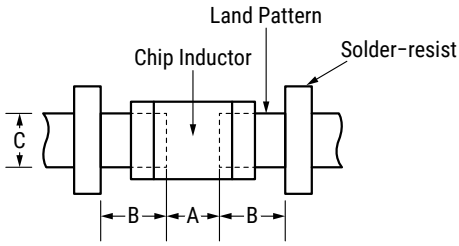
Benefits

- Unique green sheet and printing technologies
- High reliability
- High current
- Low DCR
- Inductance value from 0.47 – 4.7 µH
- Rated current range from 0.65 – 1.8 A
- Operating temperature range from –40°C to +85°C
- Low profile 1.2 mm maximum

Part Number System

L	0603	C	1R0	M	DMI	T
Inductor	EIA Case Size (L" x W")	Specification	Inductance Value (µH)	Inductance Tolerance	Series	Packaging
	0603 (1608 in mm) 0805 (2012 in mm) 0806 (2016 in mm) 1008 (2520 in mm)	C = Commercial L = 0.8 mm maximum height S = High saturation type Q = 1.2 mm maximum height	R = decimal point Examples: R47 = 0.47 µH 1R0 = 1.0 µH	M = ±20%	DMI = High current multilayer chip type	T = Tape & Reel

Dimensions – Millimeters (Inches)

Dimensions - Millimeters (Inches)						Land Pattern - Millimeters		
								
EIA Size Code	**Metric Size Code**	**L Length**	**W Width**	**T Thickness**	**B Bandwidth**	**A**	**B**	**C**
0603	1608	1.60 (0.063) ±0.15 (0.006)	0.80 (0.031) ±0.15 (0.006)	0.95 (0.037) Maximum	0.30 (0.012) ±0.20 (0.008)	0.8 ~ 1.0	0.6 ~ 0.8	0.6 ~ 0.8
0805	2012	2.00 (0.079) ±0.20 (0.008)	1.25 (0.049) ±0.20 (0.008)	1.00 (0.039) Maximum	0.50 (0.020) ±0.30 (0.012)	0.8 ~ 1.2	0.8 ~ 1.2	0.9 ~ 1.6
0806	2016	2.00 (0.079) ±0.20 (0.008)	1.60 (0.063) ±0.20 (0.008)	1.00 (0.039) Maximum	0.50 (0.020) ±0.30 (0.012)	0.8 ~ 1.2	0.8 ~ 1.2	1.2 ~ 2.0
1008	2520	2.50 (0.098) ±0.20 (0.008)	2.00 (0.079) ±0.20 (0.008)	0.80 (0.031) Maximum 1.00 (0.039) Maximum 1.20 (0.047) Maximum	0.50 (0.020) ±0.30 (0.012)	1.0 ~ 1.4	0.6 ~ 1.0	1.8 ~ 2.2

Performance Characteristics

Item	Performance Characteristics
Operating Temperature Range	−40°C to +85°C
Rated Inductance Range	0.47 – 4.7 µH
Inductance Tolerance	±20%
Inductance Measurement Condition	1 MHz
Rated Current Range	0.65 – 1.8 A
Rated DC Resistance Range Typical	0.04 – 0.27 Ω
Rated DC Resistance Range Maximum	0.05 – 0.3 Ω

Environmental Compliance

All KEMET Chip Inductors are RoHS and REACH Compliant.

Table 1 – Ratings & Part Number Reference

Part Number	Inductance (µH) at 1 MHz	Inductance Tolerance	DC Resistance (Ω) Typical	DC Resistance (Ω) Maximum	Rated Current (A) Maximum[1]
L0603CR50MDMIT	0.5	±20%	0.12	0.15	0.9
L0603C1R0MDMIT	1.0	±20%	0.17	0.2	0.75
L0603C2R2MDMIT	2.2	±20%	0.27	0.3	0.65
L0805CR47MDMIT	0.47	±20%	0.06	0.08	1.2
L0805C1R0MDMIT	1.0	±20%	0.11	0.14	1
L0805C1R5MDMIT	1.5	±20%	0.15	0.2	0.8
L0805C2R2MDMIT	2.2	±20%	0.15	0.2	0.8
L0805C3R3MDMIT	3.3	±20%	0.2	0.24	0.7
L0805C4R7MDMIT	4.7	±20%	0.23	0.28	0.7
L0806CR47MDMIT	0.47	±20%	0.06	0.075	1.6
L0806C1R0MDMIT	1.0	±20%	0.09	0.12	1.3
L0806C1R5MDMIT	1.5	±20%	0.1	0.13	1.2
L0806C2R2MDMIT	2.2	±20%	0.11	0.14	1.2
L0806C3R3MDMIT	3.3	±20%	0.13	0.16	1.1
L0806C4R7MDMIT	4.7	±20%	0.16	0.2	0.9
L1008CR47MDMIT	0.47	±20%	0.04	0.05	1.8
L1008C1R0MDMIT	1.0	±20%	0.07	0.08	1.4
L1008C1R5MDMIT	1.5	±20%	0.08	0.09	1.3
L1008C2R2MDMIT	2.2	±20%	0.08	0.09	1.3
L1008C3R3MDMIT	3.3	±20%	0.09	0.12	1.2
L1008C4R7MDMIT	4.7	±20%	0.12	0.15	1.1
L1008L1R5MDMIT	1.5	±20%	0.08	0.09	1.3
L1008L2R2MDMIT	2.2	±20%	0.08	0.1	1.2
L1008S1R0MDMIT	1.0	±20%	0.09	0.115	1.2
L1008S2R2MDMIT	2.2	±20%	0.09	0.115	1.2
L1008S4R7MDMIT	4.7	±20%	0.14	0.16	1.1
L1008Q1R0MDMIT	1.0	±20%	0.09	0.12	1.2
L1008Q2R2MDMIT	2.2	±20%	0.12	0.15	1.1
L1008Q3R3MDMIT	3.3	±20%	0.11	0.15	1.1
L1008Q4R7MDMIT	4.7	±20%	0.14	0.16	1.1
Part Number	**Inductance (µH) at 1 MHz**	**Inductance Tolerance**	**DC Resistance (Ω) Typical**	**DC Resistance (Ω) Maximum**	**Rated Current (A) Maximum[1]**

[1] *T = 40 K rise at rated current at 20°C*

DC-Superposed Characteristics

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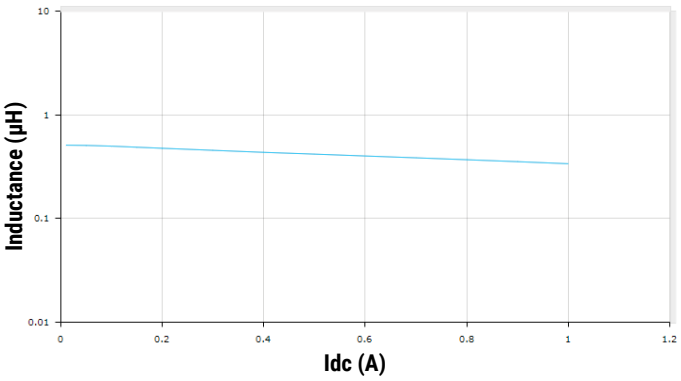

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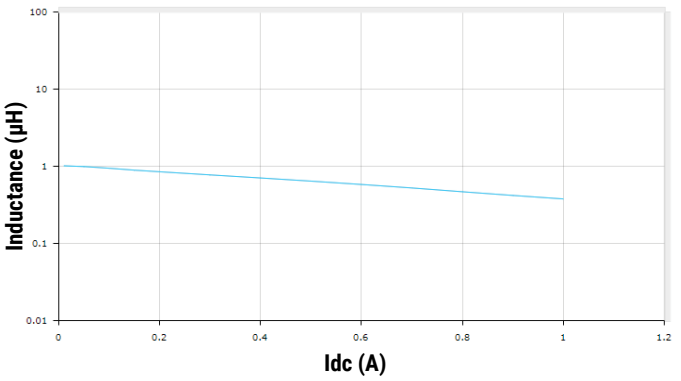

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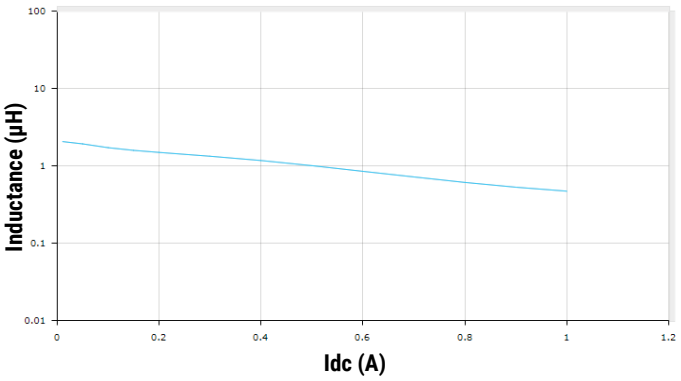

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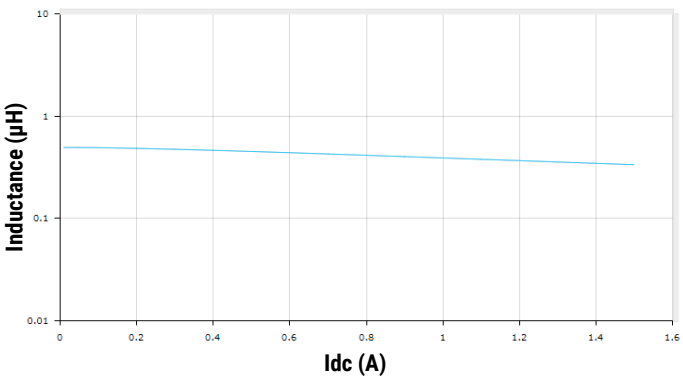

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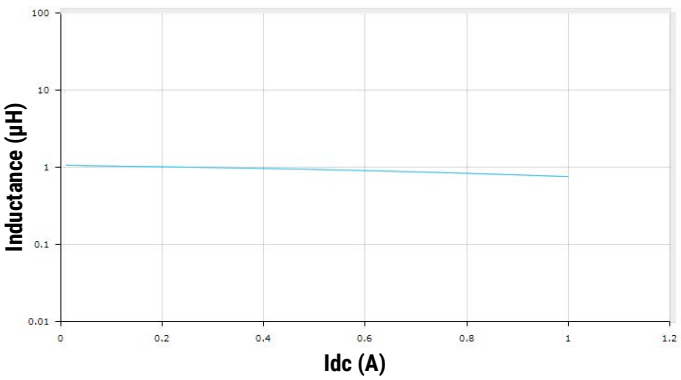

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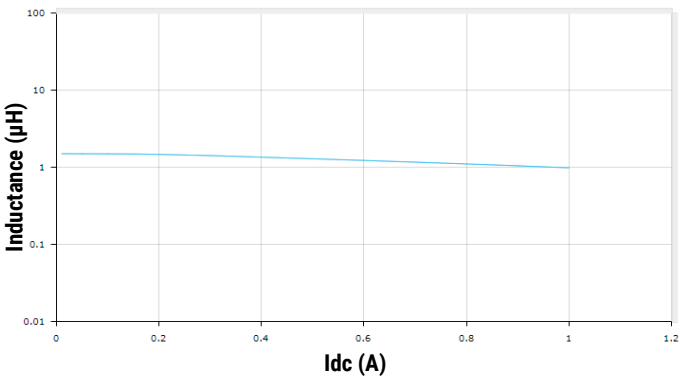

DC-Superposed Characteristics cont.

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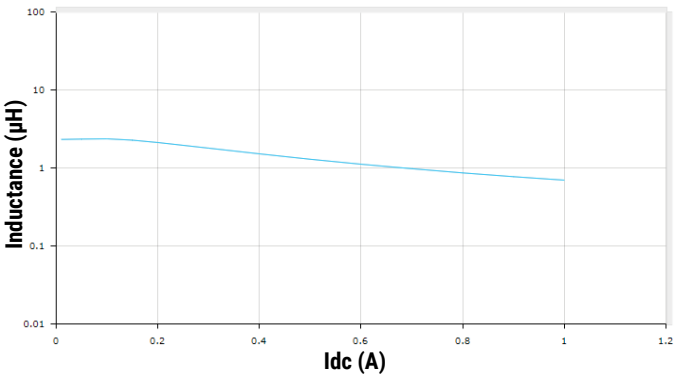

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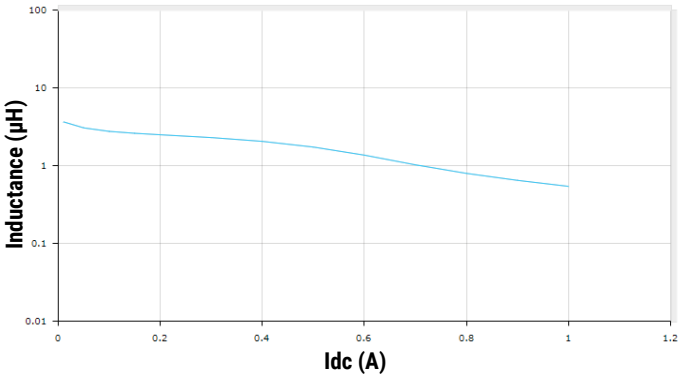

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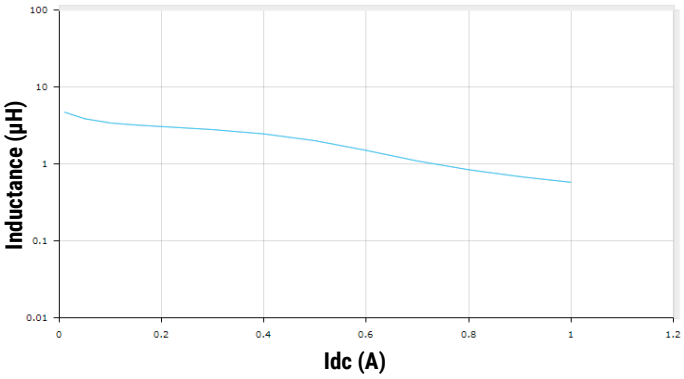

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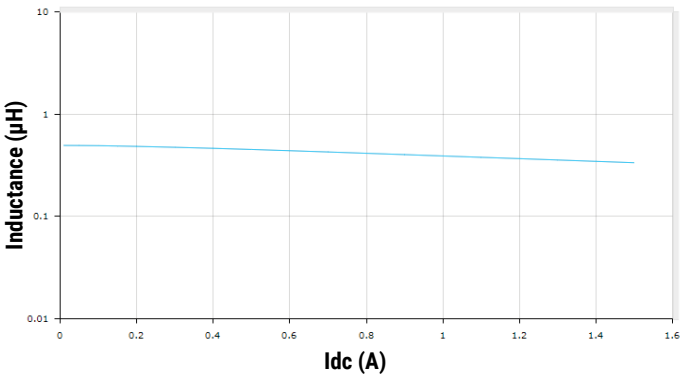

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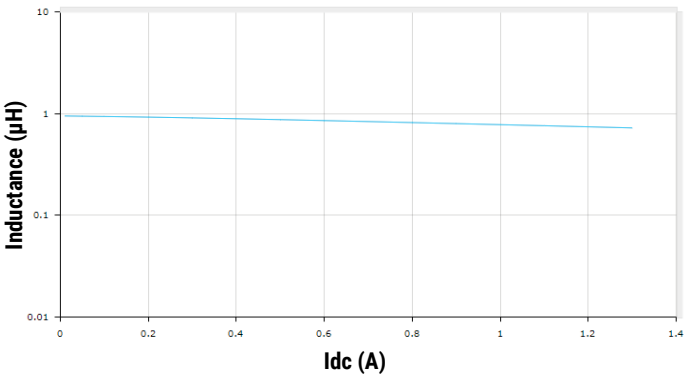

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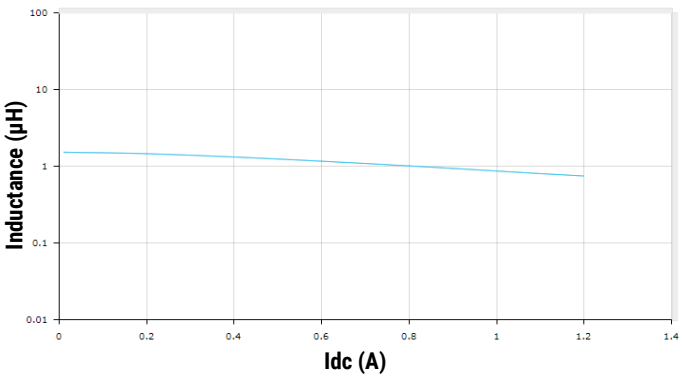

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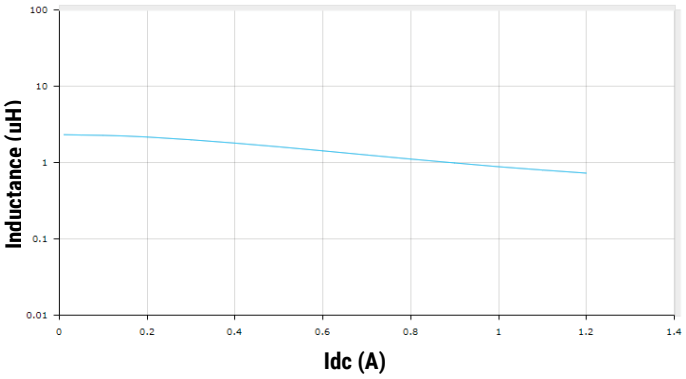

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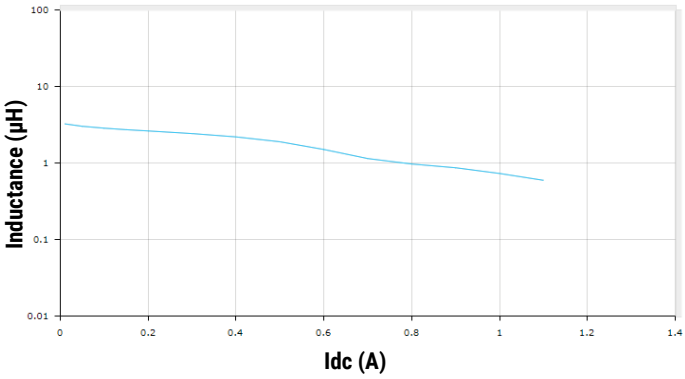

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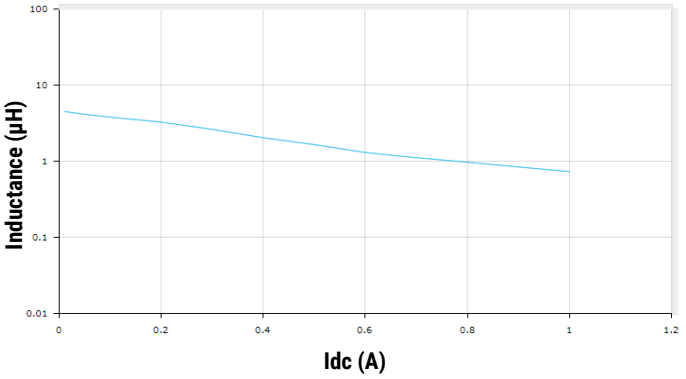

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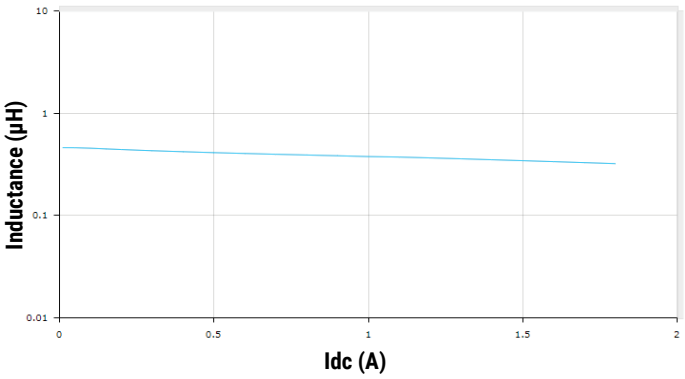

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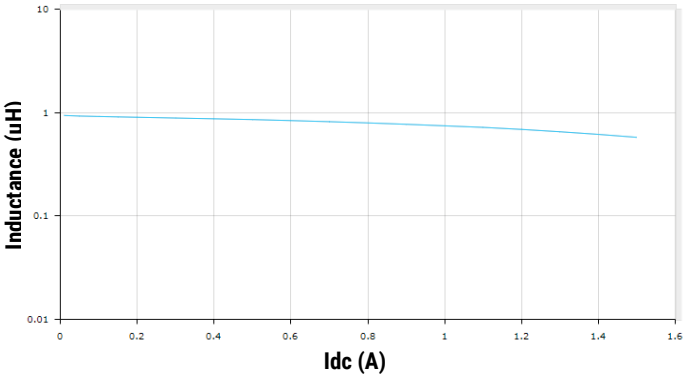

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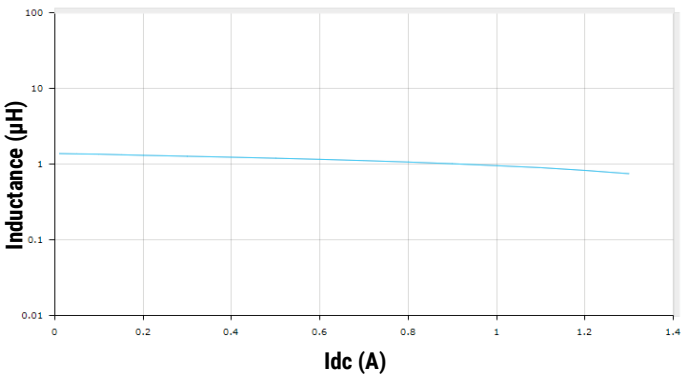

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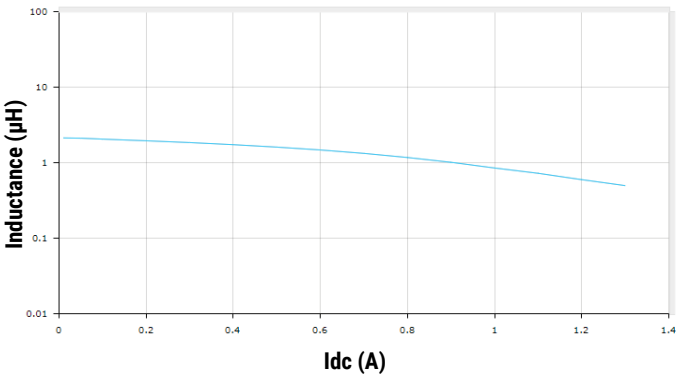

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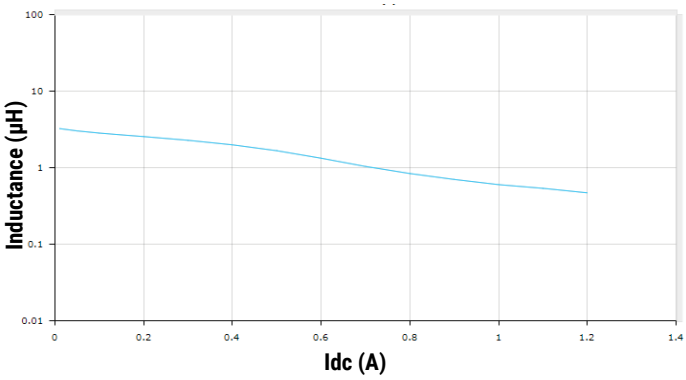

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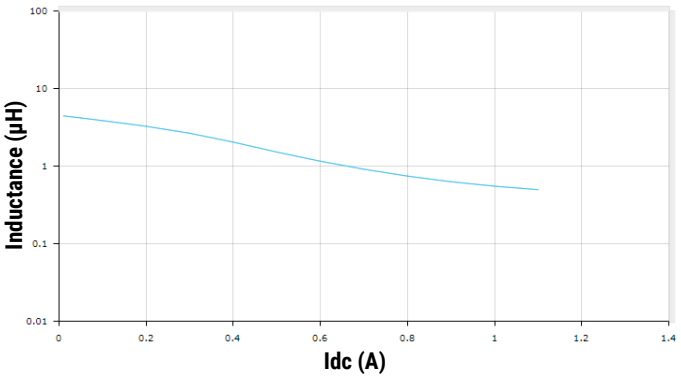

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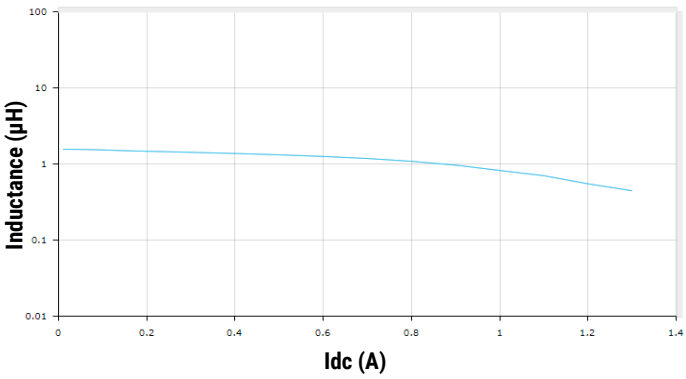

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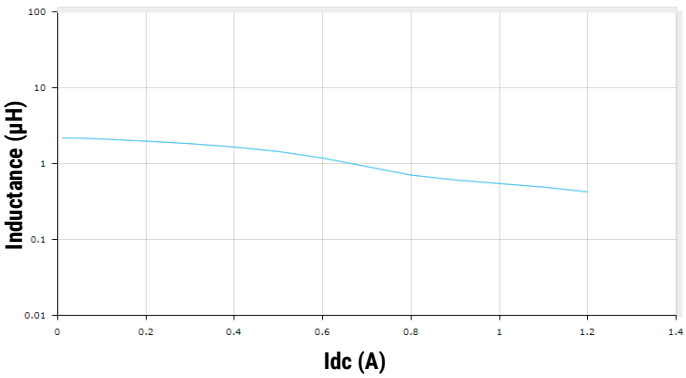

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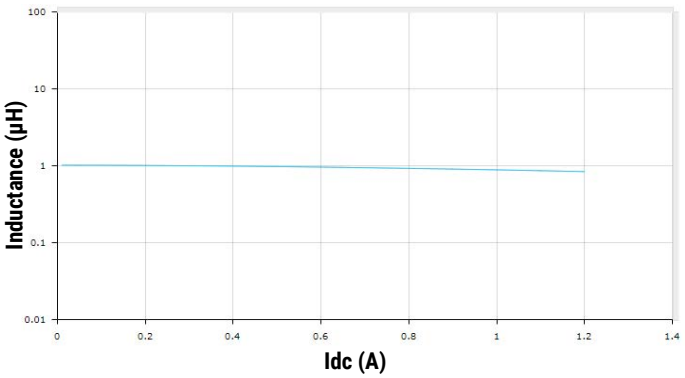

DC-Superposed Characteristics cont.

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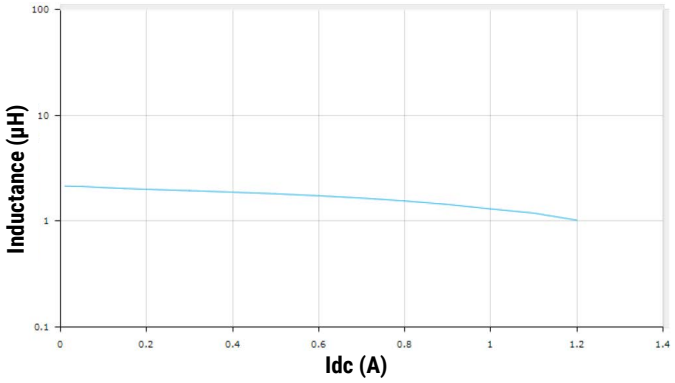

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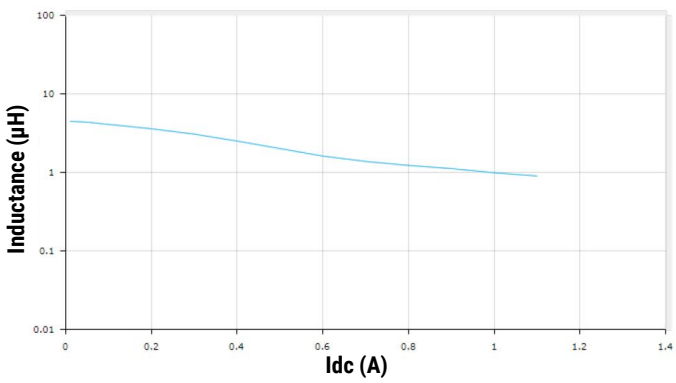

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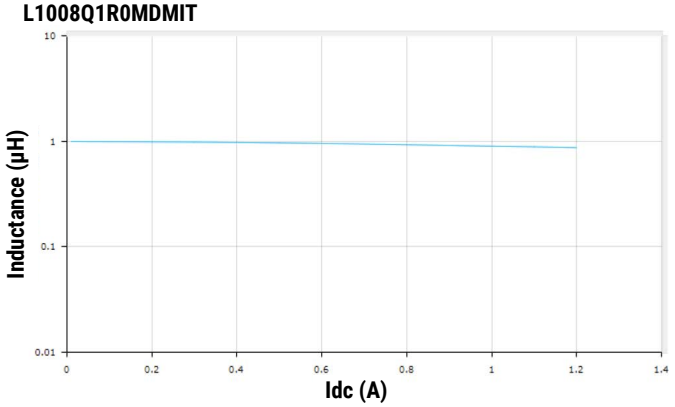

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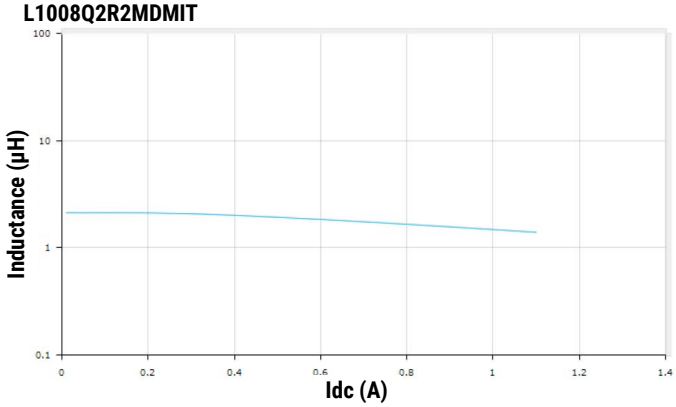

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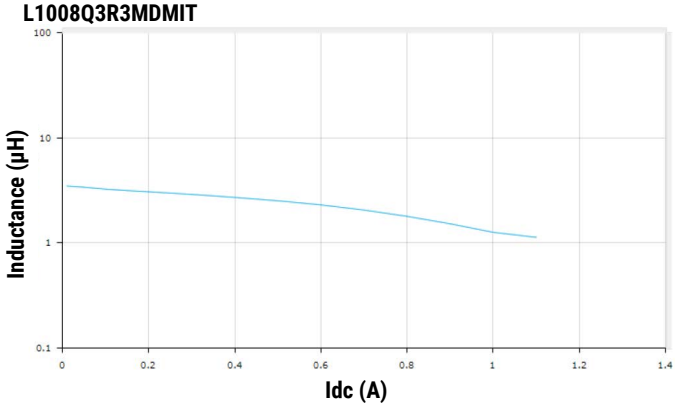

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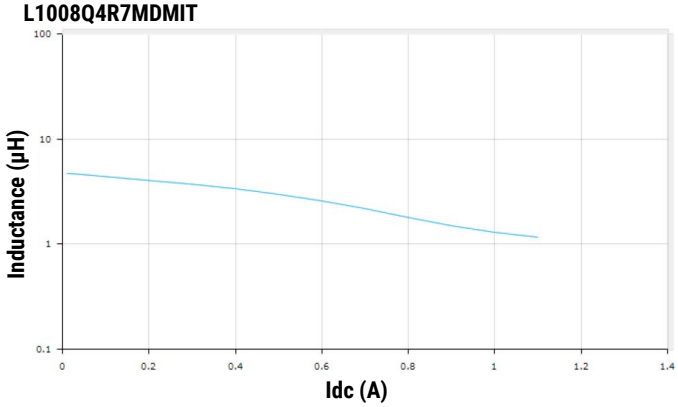
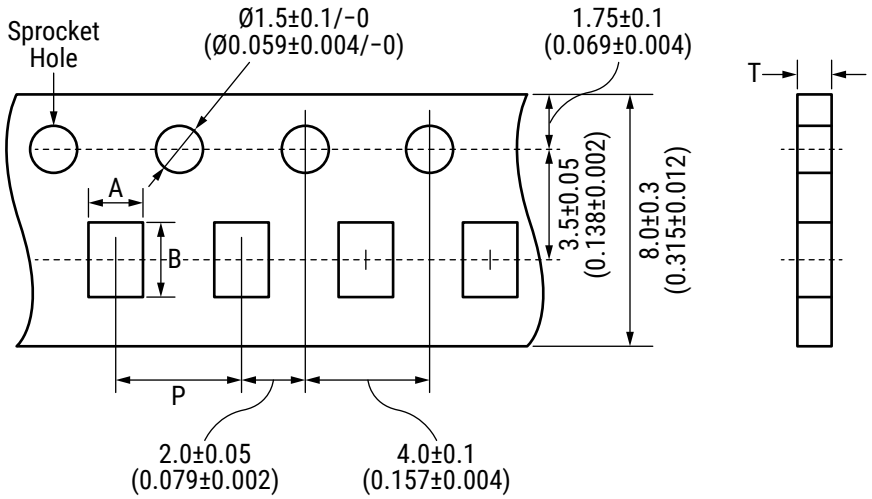


Taping Specifications - Millimeters (Inches)

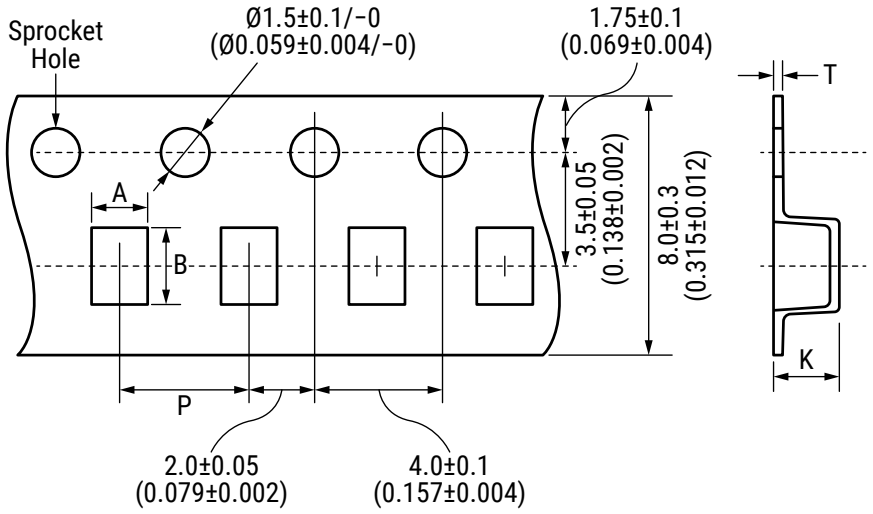
0603 Paper Tape 8mm Width



EIA Case Size	Metric Case Size	Height	Reel Quantity		Cavity		Pitch	Thickness
					A	B	P	T
0603	1608	0.8	4,000	Nominal	1.0	1.8	4.0	1.1
				Tolerance	±0.2	±0.2	±0.1	Maximum

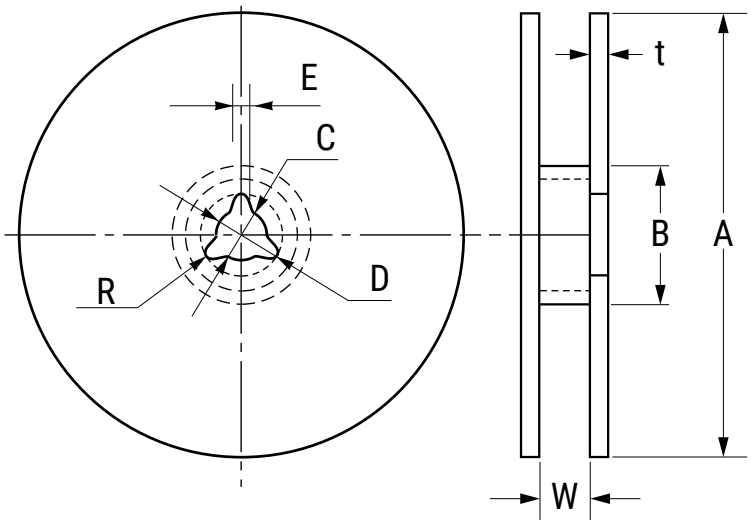
Taping Specifications - Millimeters (Inches) cont.

0805, 0806, 1008 Embossed (Plastic) Tape 8mm Width



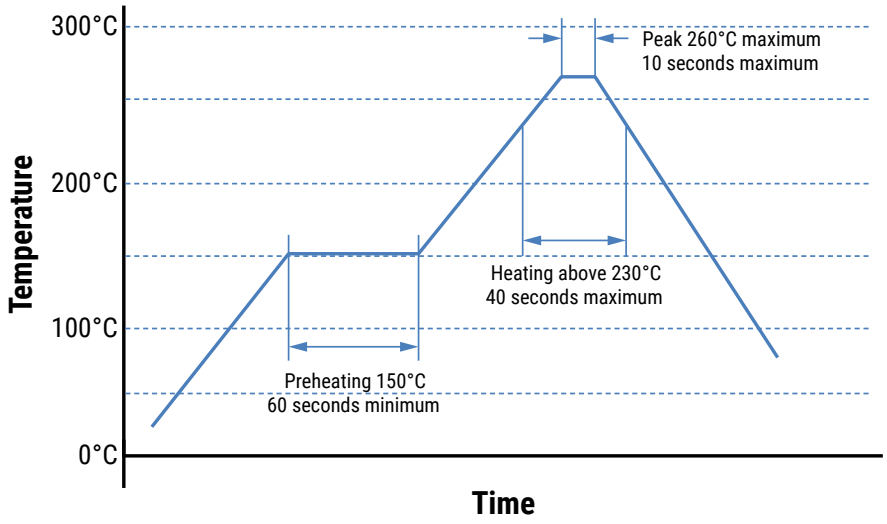
EIA Case Size	Metric Case Size	Height	Reel Quantity		Cavity		Pitch	Thickness	
					A	B	P	T	K
0805	2012	0.9	3,000	Nominal	1.55	2.30	4.00	0.30	1.3
				Tolerance	±0.2	±0.2	±0.1		
0806	2016	0.9	3,000	Nominal	1.80	2.20	4.00	0.25	1.3
				Tolerance	±0.1	±0.1	±0.1		
1008	2520	0.7	3,000	Nominal	2.3	2.8	4	0.30	1.4
		0.9	3,000	Tolerance	±0.1	±0.1	±0.1		
		1.1	2,000	Nominal	2.30	2.80	4.00	0.30	1.7
				Tolerance	±0.1	±0.1	±0.1		

Reel Specifications - Millimeters



Series		Dimensions - Millimeters							
		A	B	C	D	E	R	t	W
L-DMI	Nominal	ø178.0	ø60.0	ø13.0	ø21.0	2.0	1.0	2.5	10.0
	Tolerance	±2.0	Minimum	±0.2	±0.8	±0.5		Maximum	±1.5

Recommended Reflow Soldering Profile



Handling Precautions

Inductors should be stored in normal working environments. While the inductors themselves are quite robust in other environments, exposure to high temperatures, high humidity, corrosive atmospheres, and long-term storage degrades solderability.

KEMET recommends that maximum storage temperature not exceed 40°C and maximum storage humidity not exceed 70% relative humidity. Atmospheres should be free of chlorine-bearing and sulfur-bearing compounds. Temperature fluctuations should be minimized to avoid condensation on the parts.

For optimized solderability, inductor stock should be used promptly, preferably within six months of receipt.