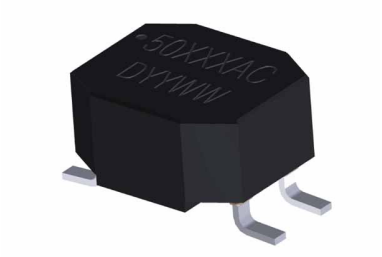
Murata Power Solutions

5000A Series

Surface Mount Common Mode Chokes



FEATURES

- 51µH to 4.7mH
- Up to 800mA IDC
- Surface mount
- Signal line applications
- UL94 V-0 package materials
- J-STD-020 reflow
- RoHS compliant

PRODUCT OVERVIEW

The 5000A series is a range of surface mount common mode chokes designed to attenuate up to 100MHz common mode noise where signal line filtering is required.

SELECTION GUIDE

Order Code	Inductance, L (0.1Vrms @ 100kHz)[1]		Leakage Inductance, L_L[2](0.1Vrms @ 100kHz)	DC Resistance, R_{DC}	Current Rating[3] (series connection)	Isolation[4]
	Typ.	Tolerance	Typ.	Max.		
	mH	%	nH	Ω	mA_{DC}	Vrms
50503AC	0.051	+50/-30	1700	0.168	800	500
50513AC	0.051		70	0.168	800	
50474AC	0.47		100	0.36	700	
50105AC	1.0		70	0.36	700	
50225AC	2.2		120	0.48	500	
50475AC	4.7		250	0.84	400	

ABSOLUTE MAXIMUM RATINGS

Operating free air temperature range[5]	-40°C to 125°C
Storage temperature range	-40°C to 125°C

SOLDERING INFORMATION

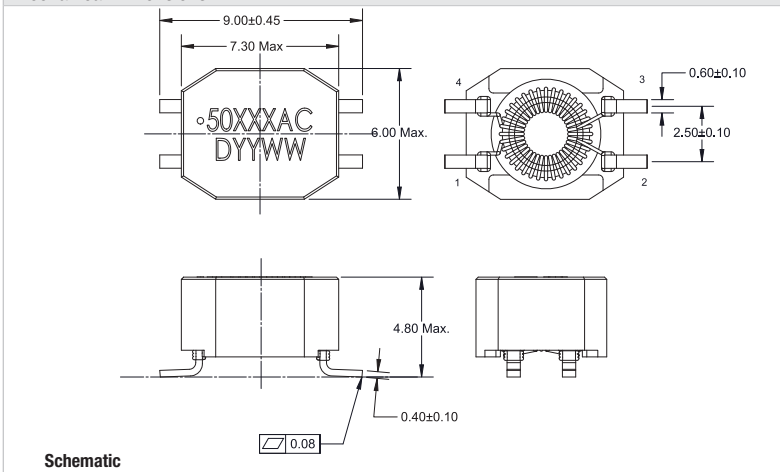
Peak reflow temperature	250°C
Pin finish	Pure tin with nickel interlayer
Moisture sensitivity level[6]	1

All specifications typical at T_A=25°C

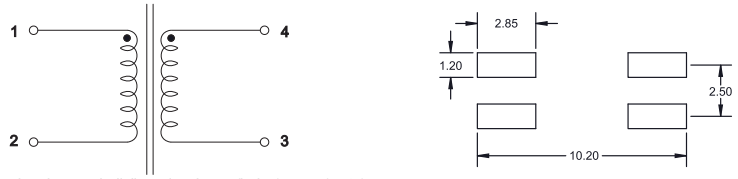
1 50503AC and 50513AC tested at 0.01Vrms @100kHz
2 Measured between pins 1-4 with 2-3 shorted.
3 The maximum DC current occurs when its temperature rise reaches 65°C.
4 Flash tested for 1 second.
5 Including self heating.
6 Representative samples of the product were subjected to the conditioning described in IPC/JEDEC J-STD-020E and passed electrical testing, package coplanarity and visual inspection.

PACKAGE SPECIFICATIONS

Mechanical Dimensions



Schematic



Unless otherwise stated, all dimensions in mm (inches) ±0.25 (0.010).
Package weight: 0.3g Typ.

RoHS COMPLIANT

For full details go to
https://www.murata.com/en-global/products/power/rohs

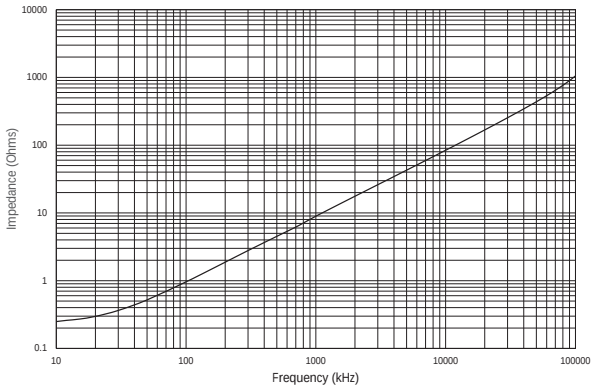
ENVIRONMENTAL VALIDATION TESTING

The following tests have been conducted on this product series, as part of our design verification process. The datasheet characteristics specify user operating conditions for this series, please contact Murata if further information about the tests is required.

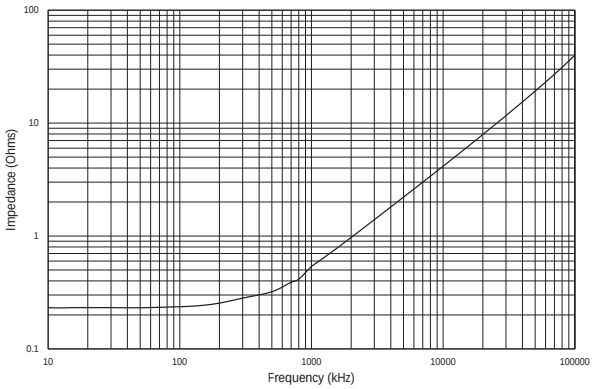
Test	Standard	Condition
Temperature cycling	JEDEC JESD22-A104	1000 cycles. -40°C to +125°C. 30 mins at each extreme, inclusive of any ramps.
Humidity bias	JEDEC JESD22-A101	85°C ± 2°C, 85% ± 5% R.H. for >1000 hours
High temperature Storage life	JEDEC JESD22-A103, Conditon A	125°C +10/-0°C for ≥1000 hours
Vibration	MIL-STD-202 Method 204	5G for 20 minutes frequency swept from 10 to 2000 Hz and return to 10Hz. Performed in each orientation, tested 12 times.
Shock	MIL-STD-202 Method 213, Condition C	3 pulses 100G peak, 6ms, half-sine,12.3ft/sec, x, y, z axes bi-directional. 18 shocks in total (3 shocks x 6 axis)
Solvent cleaning	Resistance to cleaning agents	Solvent – Novec 71IPA & Topklean EL-20A. Pulsed ultrasonic immersion 45°C- 65°C
Moisture sensitivity level (MSL 1)	Based on IPC/JEDEC J-STD-020	Bake samples at 125 +5/-0°C for 24 hours minimum before conditioning in the temperature/humidity chamber for 168 hours at 85°C/85%RH and Pb Free JEDEC Max profile conditioning. Subjected to 3 cycles with electrical testing, co-planarity inspection and visual inspection before and after.

DIFFERENTIAL MODE IMPEDANCE VS FREQUENCY

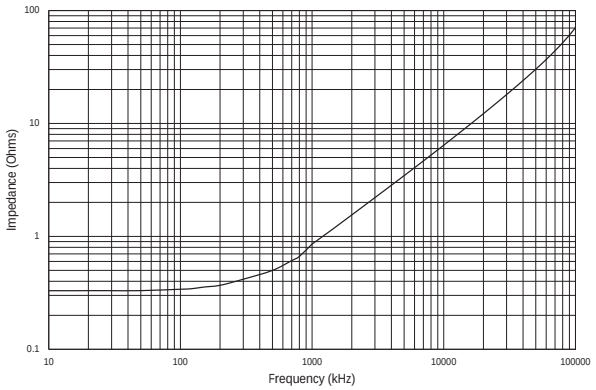
50503AC



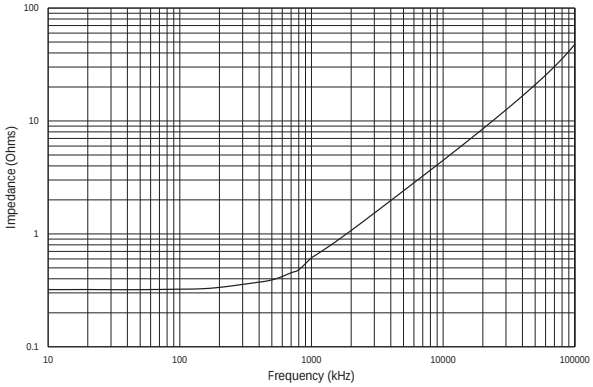
50513AC



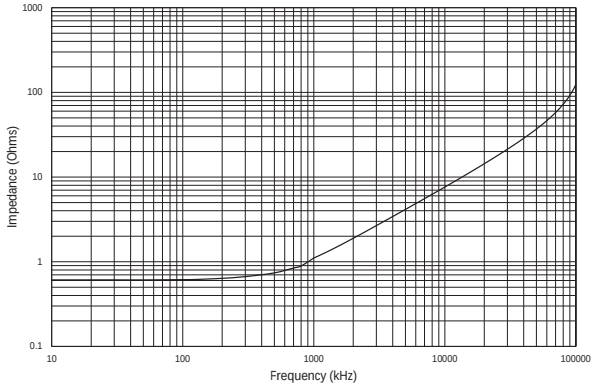
50474AC



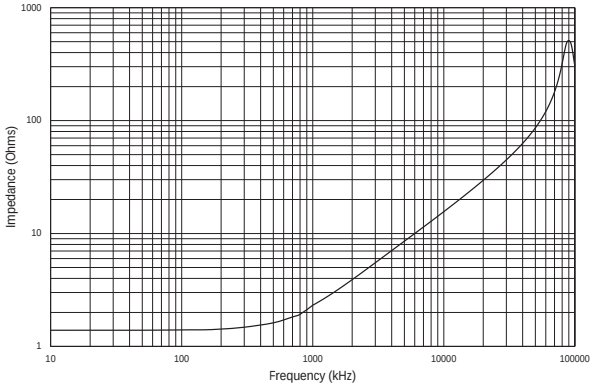
50105AC



50225AC

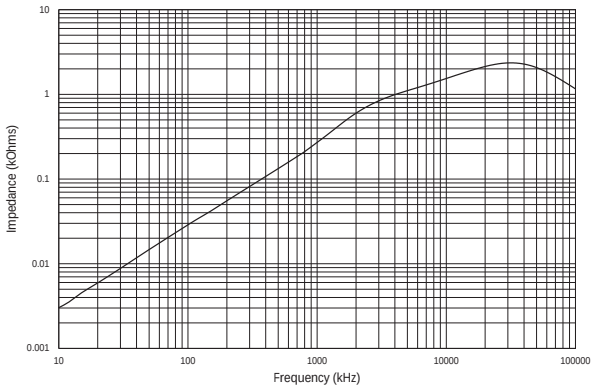


50475AC

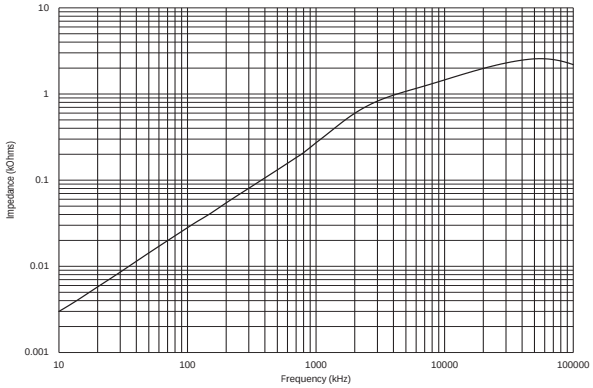


COMMON MODE IMPEDANCE VS FREQUENCY

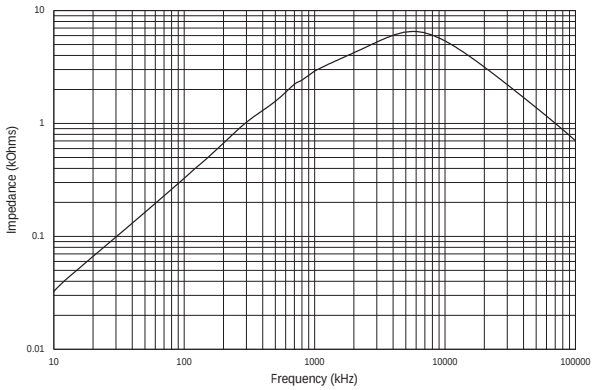
50503AC



50513AC



50474AC



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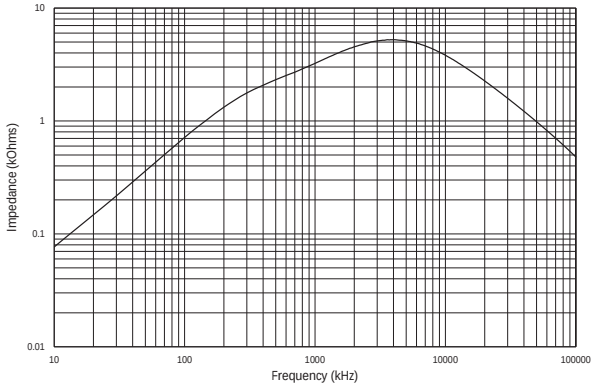

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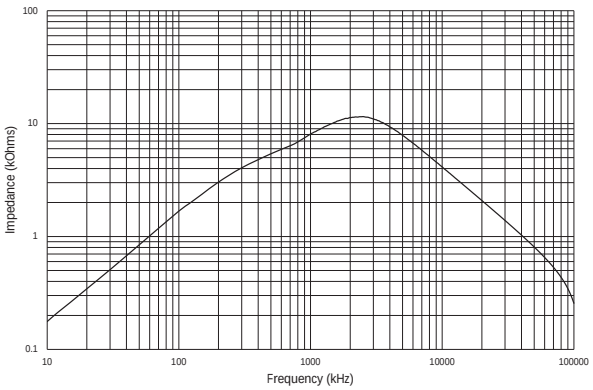
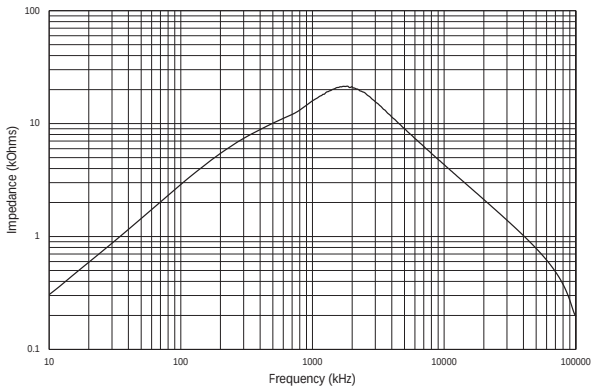
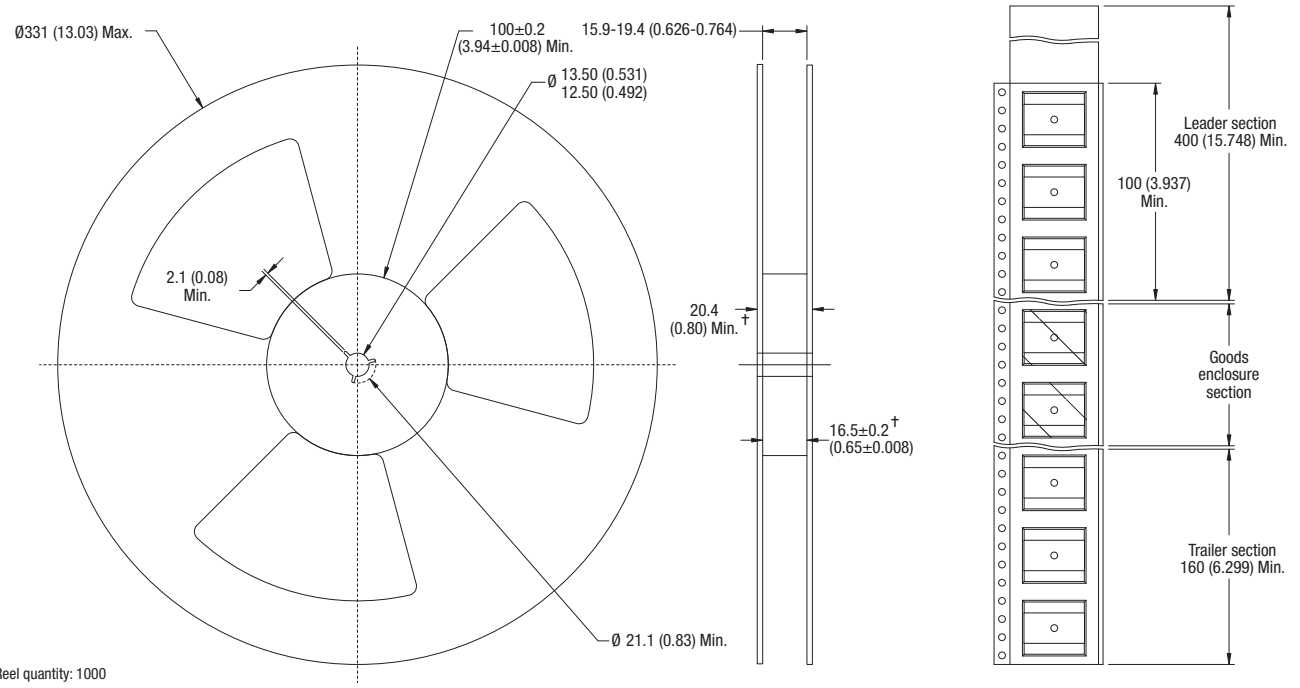


50475AC



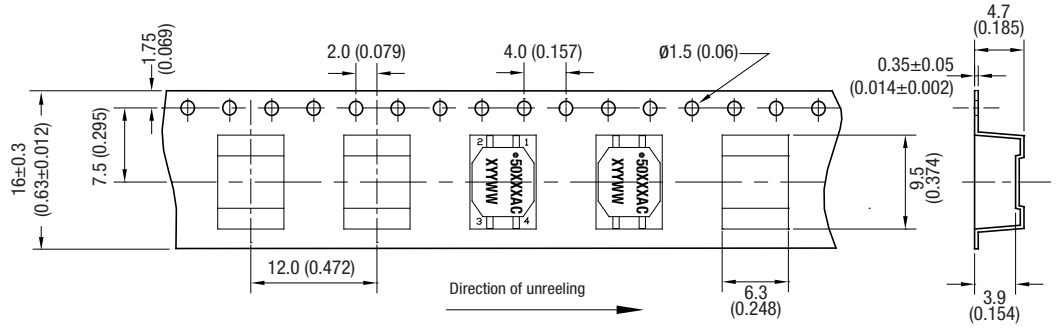
PACKAGE SPECIFICATIONS

Mechanical Dimensions



Reel quantity: 1000
All dimension in mm [inches]
† Measured at hub

Tape Outline Dimensions



Unless otherwise stated, all dimensions in mm (inches) ± 0.1 (0.004).

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