

NFC circuit/Inductors for standard circuits

Multilayer ferrite

MLJ series



MLJ1005H type



FEATURES

- The small multilayer inductor most suitable for a noise countermeasure of a NFC circuit.
- Magnetic shielding structure reduces leakage flux.
- Narrow tolerance correspondence by highly precise laminating is achieved.
- Ultra-low loss ferrite material contributes to the improvement of circuit efficiency.
- Operating temperature range: -55 to +125°C

APPLICATION

- Smartphone, tablets, wearable equipment, NFC circuits for devices such as PCs
- Application guides: [Smart phones/tablets](#)

PART NUMBER CONSTRUCTION

MLJ	1005	H	XG	R16	J	T	D0B
Series name	LxWxH Dimensions 1.0x0.5x0.5 mm	Characteristics	Internal code	Inductance (nH)	Inductance Tolerance	Packaging style	Internal code

CHARACTERISTICS SPECIFICATION TABLE

L		Q	L, Q measuring conditions		DC resistance	Rated current*	Part No.
(nH)	Tolerance	typ.	Frequency (MHz)	Current (mA)	(Ω)max.	85°C (mA)max.	
56	±4nH	14	13.56	1	0.325	950	MLJ1005HXG56NETD0B
82	±5%	14	13.56	1	0.390	850	MLJ1005HXG82NJD0B
91	±5%	14	13.56	1	0.351	900	MLJ1005HXG91NJD0B
160	±5%	14	13.56	1	0.754	600	MLJ1005HXGR16JTD0B
180	±5%	14	13.56	1	0.780	500	MLJ1005HXGR18JTD0B
200	±5%	14	13.56	1	0.845	480	MLJ1005HXGR20JTD0B

* Rated current: current assumed when temperature has risen to 40°C max.

Measurement equipment

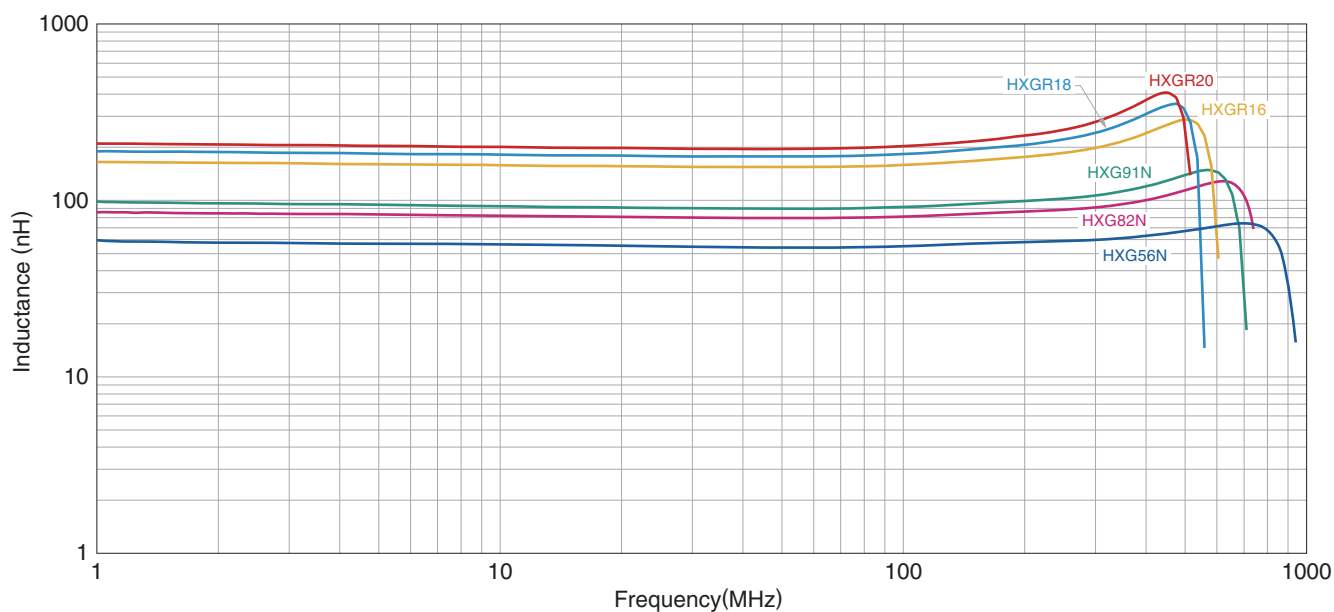
Measurement item	Product No.	Manufacturer
L, Q	4294A+16034G	Keysight Technologies
Self-resonant frequency	E4991A	Keysight Technologies
DC resistance	Type-7561	Yokogawa

* Equivalent measurement equipment may be used.



MLJ1005H type

L FREQUENCY CHARACTERISTICS

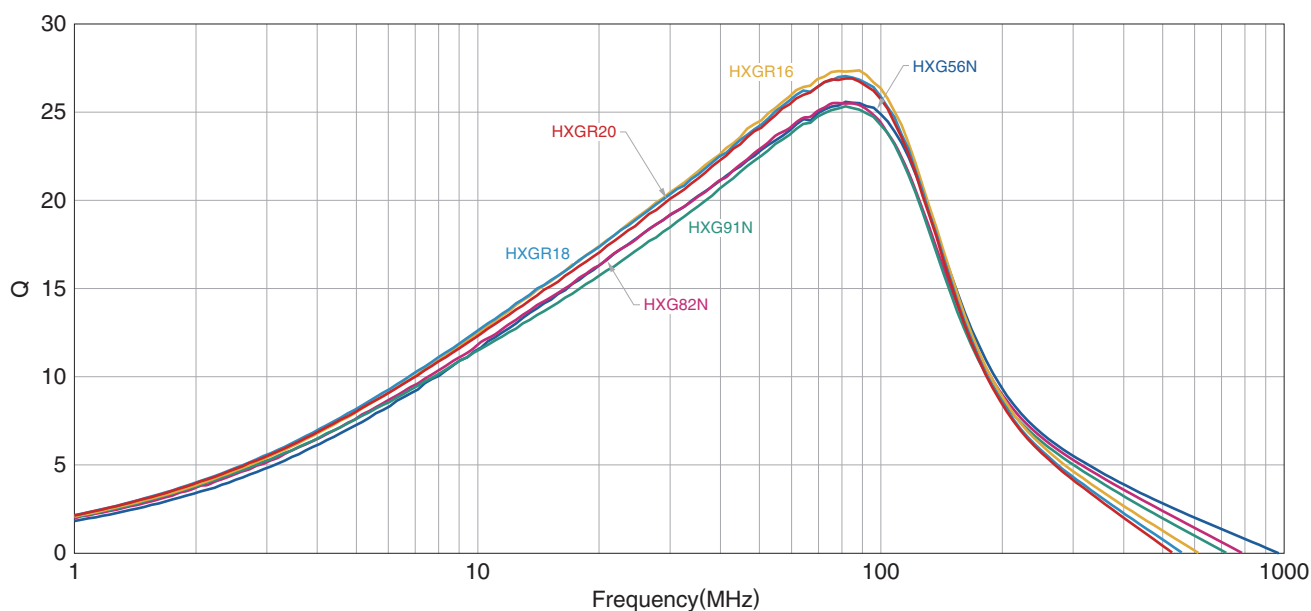


Measurement equipment

Product No.	Manufacturer
E4991A+16197A	Keysight Technologies

* Equivalent measurement equipment may be used.

Q FREQUENCY CHARACTERISTICS



Measurement equipment

Product No.	Manufacturer
E4991A+16197A	Keysight Technologies

* Equivalent measurement equipment may be used.

■ SHAPE & DIMENSIONS

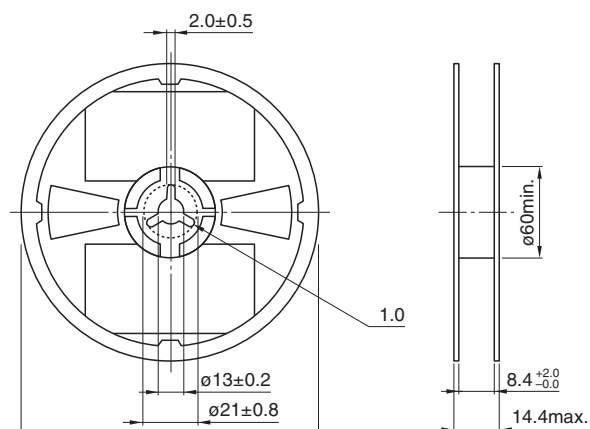


The diagram shows two identical rectangles, each with a width of 0.5 and a height of 0.96. They are positioned side-by-side with a gap of 0.4 between them. The total width of the arrangement is 0.5 + 0.4 + 0.5 = 1.4.

Dimensions in mm

The graph illustrates the temperature profile over time for a heat treatment process. The y-axis represents Temperature, and the x-axis represents Time. The process consists of three main stages: Preheating, Soldering, and Natural cooling. The Preheating stage starts at 150°C and rises to 180°C, taking 60 to 120 seconds. The Soldering stage starts at 180°C and rises to a peak of 250 to 260°C, taking 30 to 60 seconds. The peak temperature is maintained for a maximum of 10 seconds. The Natural cooling stage follows the peak, with the temperature falling from 230°C.

REEL DIMENSIONS



Dimensions in mm

Technical drawing of a shaft with five sprocket holes and seven cavities. The shaft has a total length of 35.0 ± 0.05 mm and a diameter of 8.0 ± 0.3 mm. The sprocket holes are spaced 2.0 ± 0.05 mm apart, with a $1.5^{+0.1}_{-0.0}$ mm gap from the left end. The cavities are spaced 2.0 ± 0.05 mm apart, with a 4.0 ± 0.1 mm gap from the left end. A detail view 'K' shows a cross-section of the shaft with diameter 'B' and length 'K'.

Figure 1 illustrates the proposed system's workflow. It shows a sequence of steps: 160min. (drawing), Taping, 200min. (drawing), and 300min. (drawing). A 'Drawing direction' arrow points right. A 'Marking' step is shown with a red box highlighting a specific area. The process involves a continuous strip of material with various components and markings.

Dimensions in mm

Package quantity	10000 pcs/reel
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Operating temperature range*	Storage temperature range**	Individual weight
-55 to +125 °C	-55 to +125 °C	1.8 mg

* Operating temperature range includes self-temperature rise.

** The storage temperature range is for after the assembly.

REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

REMINDERS

- The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less).
If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
- Before soldering, be sure to preheat components.
The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
- Soldering corrections after mounting should be within the range of the conditions determined in the specifications.
If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
- When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
- Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- Carefully lay out the coil for the circuit board design of the non-magnetic shield type.
A malfunction may occur due to magnetic interference.
- Use a wrist band to discharge static electricity in your body through the grounding wire.
- Do not expose the products to magnets or magnetic fields.
- Do not use for a purpose outside of the contents regulated in the delivery specifications.
- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

- (1) Aerospace/Aviation equipment
- (2) Transportation equipment (cars, electric trains, ships, etc.)
- (3) Medical equipment
- (4) Power-generation control equipment
- (5) Atomic energy-related equipment
- (6) Seabed equipment
- (7) Transportation control equipment

- (8) Public information-processing equipment
- (9) Military equipment
- (10) Electric heating apparatus, burning equipment
- (11) Disaster prevention/crime prevention equipment
- (12) Safety equipment
- (13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.