TDK

December 2015

Inductors for High Frequency Circuits

Multilayer Ceramic

MLG Series

MLG1608 Type

MLG1608	**1608 [0603 inch]***

*** Dimensions Code JIS[EIA]**

⚠ Caution

The products in this catalog will be or have been stopped production

Discontinue Issue Date	Nov.4, 2015
Last Purchase Order Date	Dec.29, 2016
Last Shipment Date	Jan.30, 2017

Please refer to our Web site about replacement information.

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.

Inductors for High Frequency Circuits

Multilayer Ceramic

Product compatible with RoHS directive
Halogen-free
Compatible with lead-free solders

Overview of MLG1608 Type

FEATURES

- Advanced monolithic structure is formed using a multilayering and sintering process with ceramic and conductive materials for High-frequency.

APPLICATION

Smart phones, tablet terminals, high frequency modules (PAs, VCOs, FEMs , etc.), Bluetooth, W-LAN, UWB, tuners and other high frequency circuits for the mobile communication industry

PART NUMBER CONSTRUCTION

MLG	1608	S	0N3	S	T	000

Series name	L×W×H Dimensions (mm)		Product internal code	Inductance (nH)		Inductance tolerance		Packaging style		Internal code
	1608	1.6×0.8×0.8	B	1N1	1.1	S	±0.3nH	T	Taping	000
			S	11N	11	D	±0.5nH			
				R10	100	J	±5%			
				1R0	1000					

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

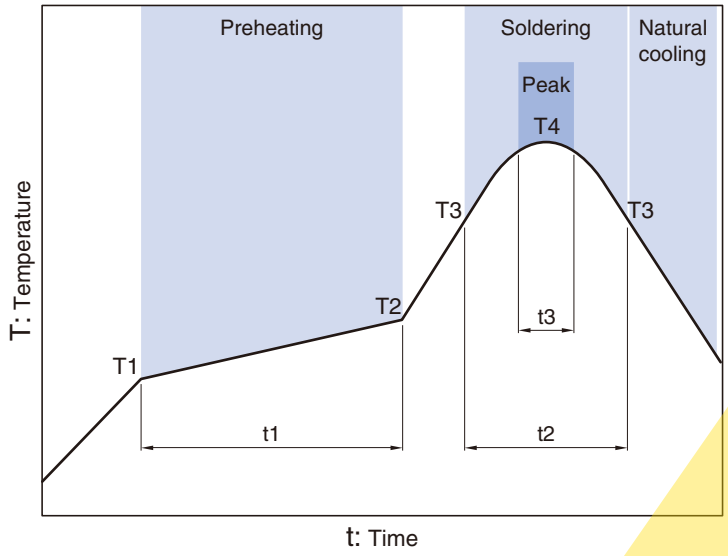
Type	Temperature range		Package quantity	Individual weight
	Operating temperature (°C)	Storage temperature* (°C)	(pieces/reel)	(mg)
MLG1608	–55 to +125	–55 to +125	4000	4

* The Storage temperature range is for after the circuit board is mounted.

- RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. http://product.tdk.com/en/environment/rohs/
- Halogen-free: Indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

MLG1608 Type

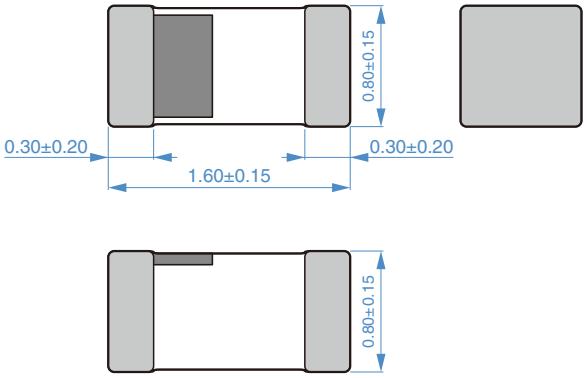
RECOMMENDED REFLOW PROFILE



Preheating			Soldering		Peak	
Temp.		Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3
150°C	180°C	60 to 120s	230°C	30 to 60s	250 to 260°C	10s max.

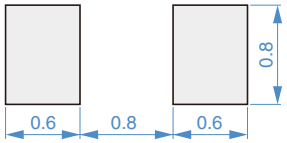
MLG1608 Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

MLG1608 Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Q	L, Q measuring frequency	Self-resonant frequency		DC resistance		Rated current	Part No.*
(nH)	Tolerance	min.	(MHz)	(GHz)min.	(GHz)typ.	(Ω)max.	(Ω)typ.	(mA)max.	
1.0	±0.3nH	8	100	10.0	20up	0.10	0.03	600	MLG1608B1N0ST000
1.2	±0.3nH	8	100	10.0	20up	0.10	0.04	600	MLG1608B1N2ST000
1.5	±0.3nH	8	100	10.0	19.60	0.10	0.03	600	MLG1608B1N5ST000
1.8	±0.3nH	8	100	10.0	16.60	0.10	0.04	600	MLG1608B1N8ST000
2.2	±0.3nH	10	100	8.0	10.80	0.10	0.05	600	MLG1608B2N2ST000
2.7	±0.3nH	10	100	7.0	8.80	0.12	0.06	600	MLG1608B2N7ST000
3.3	±0.3nH	10	100	6.5	8.80	0.12	0.06	600	MLG1608B3N3ST000
3.9	±0.3nH	10	100	6.0	7.90	0.14	0.06	600	MLG1608B3N9ST000
4.7	±0.3nH	10	100	5.0	6.80	0.15	0.08	600	MLG1608B4N7ST000
5.6	±0.5nH	10	100	5.0	6.80	0.16	0.08	600	MLG1608B5N6DT000
6.8	±0.5nH	10	100	4.5	5.70	0.18	0.10	600	MLG1608B6N8DT000
8.2	±0.5nH	10	100	4.5	5.60	0.20	0.10	600	MLG1608B8N2DT000
10	±5%	12	100	3.5	4.50	0.20	0.11	600	MLG1608B10NJT000
12	±5%	12	100	3.0	3.80	0.25	0.13	600	MLG1608B12NJT000
15	±5%	12	100	2.8	3.60	0.28	0.14	600	MLG1608B15NJT000
18	±5%	12	100	2.6	3.30	0.32	0.16	600	MLG1608B18NJT000
22	±5%	12	100	2.3	3.00	0.35	0.19	500	MLG1608B22NJT000
27	±5%	12	100	2.0	2.70	0.40	0.21	500	MLG1608B27NJT000
33	±5%	12	100	1.8	2.30	0.50	0.25	500	MLG1608B33NJT000
39	±5%	12	100	1.6	2.00	0.55	0.26	400	MLG1608B39NJT000
47	±5%	14	100	1.4	1.80	0.60	0.35	400	MLG1608B47NJT000
56	±5%	14	100	1.2	1.80	0.70	0.41	400	MLG1608B56NJT000
68	±5%	14	100	1.1	1.60	0.75	0.43	300	MLG1608B68NJT000
82	±5%	14	100	1.0	1.40	0.80	0.50	300	MLG1608B82NJT000
100	±5%	14	100	0.8	1.20	1.00	0.64	300	MLG1608BR10JT000
120	±5%	14	100	0.7	0.80	1.20	0.89	300	MLG1608SR12JT000
150	±5%	14	100	0.6	0.70	1.30	1.03	250	MLG1608SR15JT000
180	±5%	14	100	0.5	0.60	1.40	1.08	250	MLG1608SR18JT000
220	±5%	14	100	0.5	0.60	1.70	1.29	200	MLG1608SR22JT000
270	±5%	14	100	0.4	0.50	2.00	1.59	200	MLG1608SR27JT000
330	±5%	10	50	0.4	0.47	2.80	1.90	100	MLG1608SR33JT000
390	±5%	10	50	0.3	0.43	3.00	2.06	100	MLG1608SR39JT000
470	±5%	10	50	0.3	0.39	3.50	2.47	100	MLG1608SR47JT000
560	±5%	10	50	0.3	0.36	4.50	3.20	70	MLG1608SR56JT000
680	±5%	10	50	0.2	0.31	5.50	3.88	70	MLG1608SR68JT000
820	±5%	10	50	0.2	0.22	5.50	3.76	70	MLG1608SR82JT000
1000	±5%	10	50	0.1	0.19	5.50	4.27	70	MLG1608S1R0JT000

* Please contact us for ±2% inductance tolerance (code G) products.

○ Measurement equipment

Measurement item	Product No.	Manufacturer
L, Q	4291B +16193A	Agilent Technologies
Self-resonant frequency	8720C	Panasonic
DC resistance	Type-7561	Yokogawa

＊ Equivalent measurement equipment may be used.

MLG1608 Type

■ELECTRICAL CHARACTERISTICS

□L, Q FREQUENCY CHARACTERISTICS TABLE

L(nH)typ.					Q typ.					Part No.*
500MHz	800MHz	1.8GHz	2.0GHz	2.4GHz	500MHz	800MHz	1.8GHz	2.0GHz	2.4GHz	
1.0	1.0	1.0	1.0	1.0	39	48	77	82	95.00	MLG1608B1N0ST000
1.2	1.1	1.2	1.2	1.2	28	35	57	60	68	MLG1608B1N2ST000
1.5	1.5	1.5	1.5	1.5	37	48	78	81	93.00	MLG1608B1N5ST000
1.8	1.8	1.8	1.8	1.8	38	48	77	81	95	MLG1608B1N8ST000
2.2	2.1	2.2	2.2	2.2	44	54	88	91	107	MLG1608B2N2ST000
2.6	2.6	2.7	2.7	2.8	40	51	79	81	94	MLG1608B2N7ST000
3.2	3.2	3.3	3.3	3.4	38	48	76	79	91	MLG1608B3N3ST000
3.8	3.8	4.0	4.0	4.1	40	50	79	81	93	MLG1608B3N9ST000
4.6	4.6	4.9	5.0	5.2	41	51	76	79	88	MLG1608B4N7ST000
5.4	5.5	5.8	5.9	6.2	37	46	69	71	79	MLG1608B5N6DT000
6.6	6.7	7.3	7.5	8.0	38	47	67	68	74	MLG1608B6N8DT000
8.0	8.1	8.9	9.3	10.0	39	48	67	68	71	MLG1608B8N2DT000
9.8	10.0	11.5	12.1	13.6	38	47	63	63	61	MLG1608B10NJT000
11.8	12.1	14.8	16.0	19.3	39	48	59	57	51	MLG1608B12NJT000
14.8	15.4	20.6	23.4		38	46	49	46		MLG1608B15NJT000
17.8	18.5	25.5	29.3		36	44	47	42		MLG1608B18NJT000
21.9	22.9	33.6	40.2		36	44	43	38		MLG1608B22NJT000
27.1	28.8	50.6			37	43	34			MLG1608B27NJT000
33.4	36.0				37	43				MLG1608B33NJT000
40.2	45.0				36	40				MLG1608B39NJT000
49.1	56.0				38	41				MLG1608B47NJT000
59.6	71.1				37	38				MLG1608B56NJT000
74.0	92.8				34	33				MLG1608B68NJT000
91.1	120.6				33	31				MLG1608B82NJT000
118.0					35					MLG1608BR10JT000
188.0					23					MLG1608SR12JT000
										MLG1608SR15JT000
										MLG1608SR18JT000
										MLG1608SR22JT000
										MLG1608SR27JT000
										MLG1608SR33JT000
										MLG1608SR39JT000
										MLG1608SR47JT000
										MLG1608SR56JT000
										MLG1608SR68JT000
										MLG1608SR82JT000
										MLG1608S1R0JT000

* Please contact us for ±2% inductance tolerance (code G) products.

○ Measurement equipment

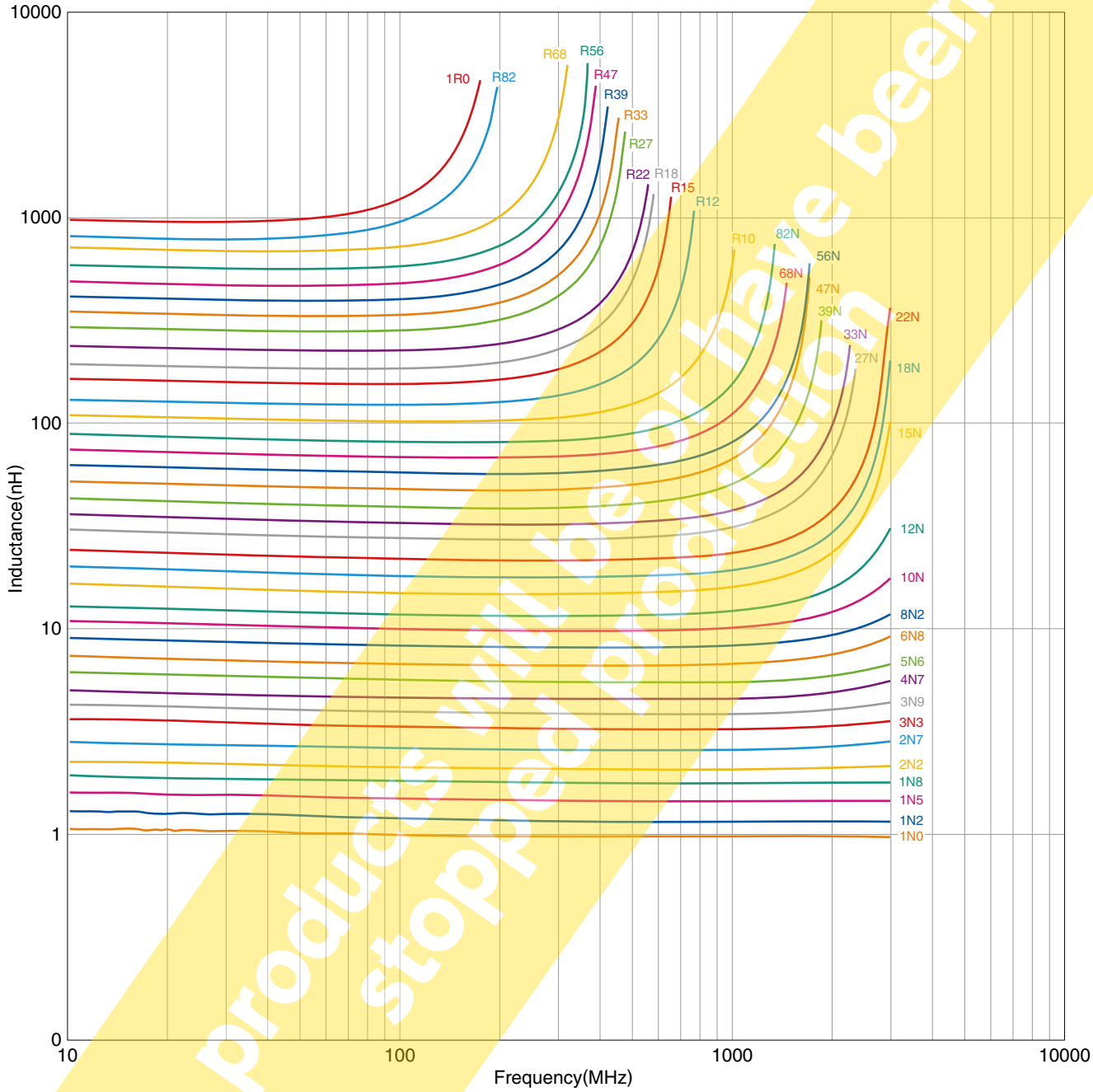
Product No.	Manufacturer
4291B +16193A	Agilent Technologies

∗ Equivalent measurement equipment may be used.

MLG1608 Type

ELECTRICAL CHARACTERISTICS

L FREQUENCY CHARACTERISTICS GRAPH (EXAMPLE)



○ Measurement equipment

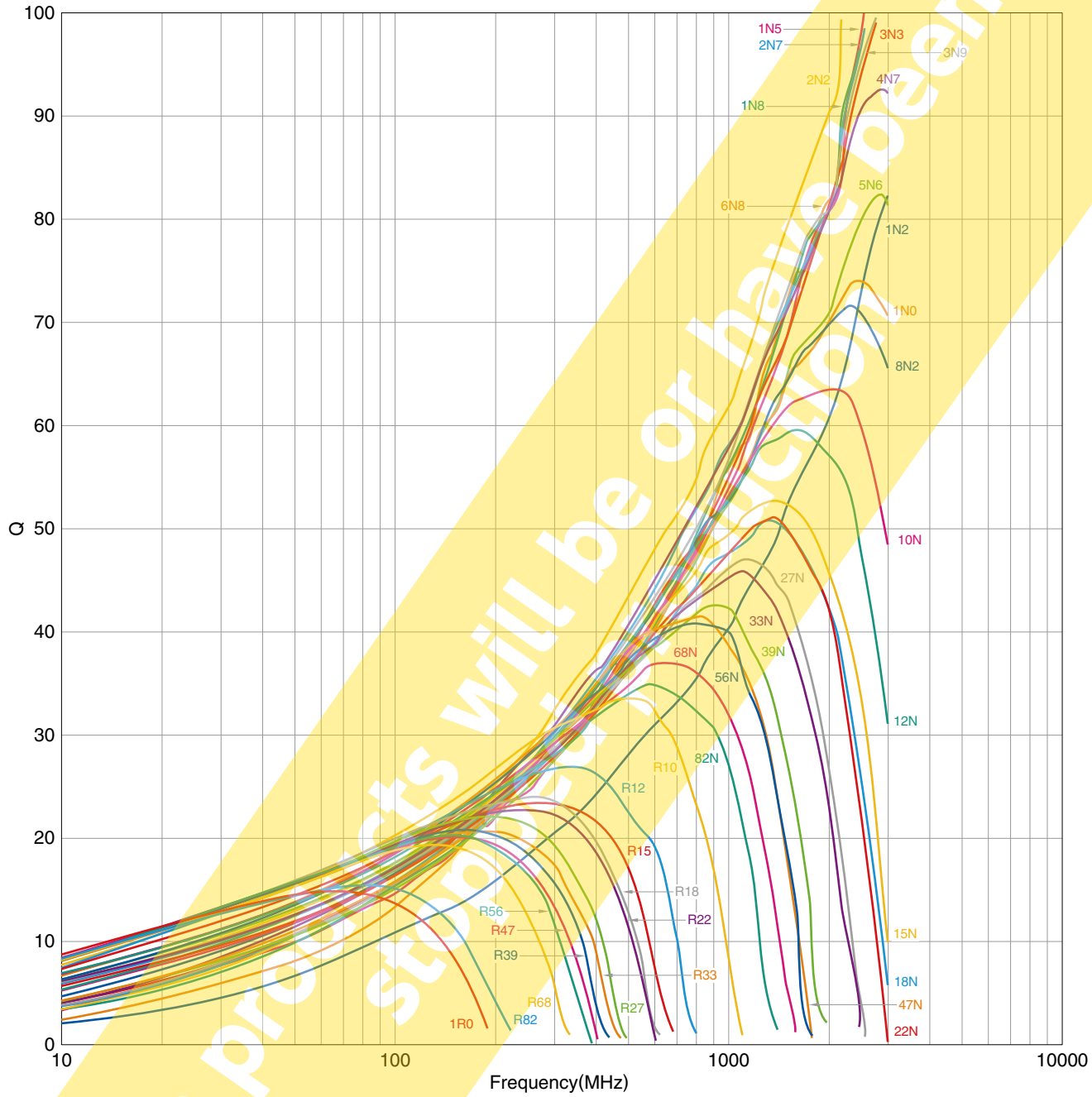
Product No.	Manufacturer
E4991A +16193A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

MLG1608Type

■ELECTRICAL CHARACTERISTICS

□Q FREQUENCY CHARACTERISTICS GRAPH (EXAMPLE)



○ Measurement equipment

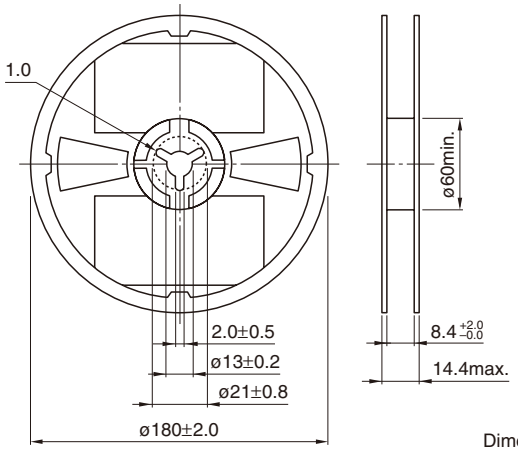
Product No.	Manufacturer
E4991A +16193A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

MLG1608 Type

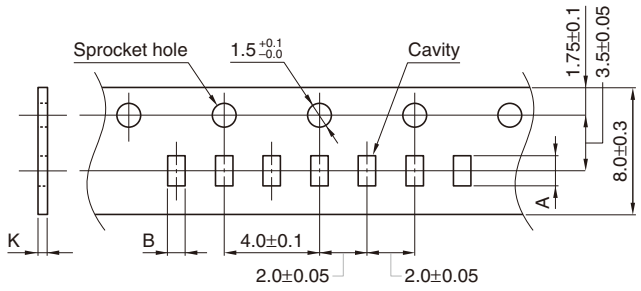
■PACKAGING STYLE

□REEL DIMENSIONS

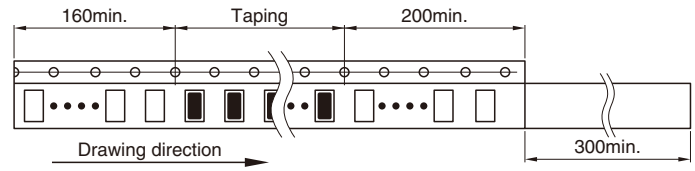


Dimensions in mm

□TAPE DIMENSIONS



Type	A	B	K
MLG1608	1.9±0.2	1.1±0.2	1.1 max.



Dimensions in mm