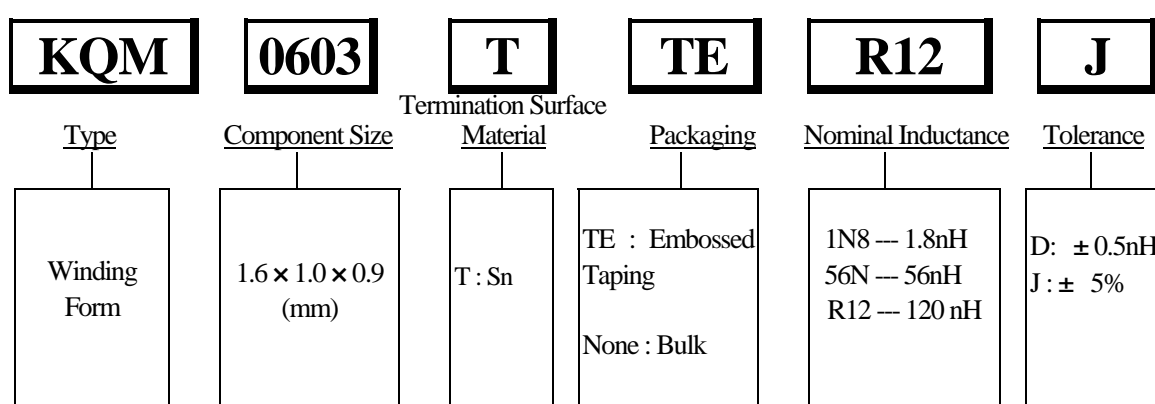


1. SCOPE

This specifications shall be applied to CHIP INDUCTORS KQM 0603T produced by KOA corporation.

2. TYPE DESIGNATION

Type designation shall be as the following form.



3. RATING

No	ITEM	SPECIFICATION
1	Nominal inductance range	1.6 nH ~ 390 nH
2	Nominal inductance tolerance	The rating shall be shown in the TABLE-1
3	Q (Quality factor)	
4	Self-resonant frequency (MHz)	
5	DC resistance (ohm)	
6	Allowable current (mA)	
7	Measurement frequency (MHz)	
8	Storage temperature range	-40 ~ +100
9	Operating temperature range	-40 ~ +125

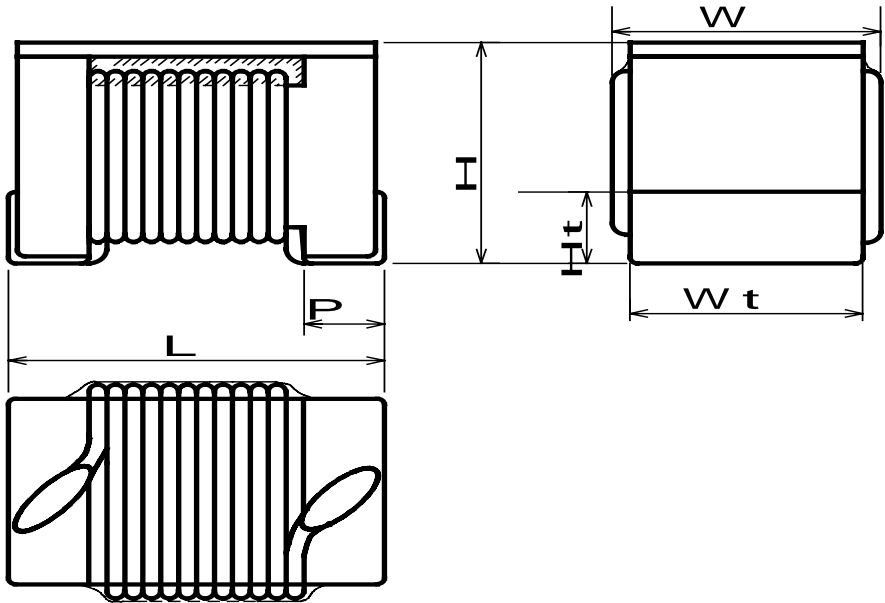
TABLE-1

ORDERING CODE	NOMINAL INDUCTANCE @100MHz	INDUCTANCE TOLERANCE	QUALITY FACTOR MIN.	Q MEASURING FREQ. (MHz)	SELF RESONANT FREQ. MIN. (MHz)	DC RESISTANCE MAX. ()	ALLOWABLE DC CURRENT MAX. (mA)	
KQMO603TTE1N6	1.6 nH	C(±0.2nH)	24	250	12500	0.030	850	
KQMO603TTE1N8	1.8 nH		16	250	12500	0.045	850	
KQMO603TTE3N3	3.3 nH		22	250	6900	0.055	850	
KQMO603TTE3N6	3.6 nH		25	250	6900	0.059	850	
KQMO603TTE3N9	3.9 nH		35	250	6900	0.059	850	
KQMO603TTE4N3	4.3 nH		35	250	6000	0.059	850	
KQMO603TTE4N7	4.7 nH		35	250	6000	0.059	850	
KQMO603TTE5N1	5.1 nH		D(±0.5nH)	35	250	6000	0.082	750
KQMO603TTE6N8	6.8 nH			35	250	6000	0.082	750
KQMO603TTE7N5	7.5 nH			35	250	6000	0.082	750
KQMO603TTE8N2	8.2 nH			35	250	6000	0.11	700
KQMO603TTE8N7	8.7 nH			35	250	4600	0.109	700
KQMO603TTE9N5	9.5 nH			35	250	6000	0.11	700
KQMO603TTE10N	10 nH			35	250	6000	0.11	700
KQMO603TTE11N	11 nH	35		250	4600	0.086	700	
KQMO603TTE12N	12 nH	35		250	4500	0.13	700	
KQMO603TTE15N	15 nH	40		250	4200	0.13	700	
KQMO603TTE16N	16 nH	40		250	3800	0.104	700	
KQMO603TTE18N	18 nH	40		250	3600	0.16	700	
KQMO603TTE22N	22 nH	40		250	3500	0.17	700	
KQMO603TTE23N	23 nH	40		250	3300	0.15	700	
KQMO603TTE24N	24 nH	40	250	3200	0.135	700		
KQMO603TTE27N	27 nH	40	250	3200	0.21	600		
KQMO603TTE30N	30 nH	40	250	3000	0.144	600		
KQMO603TTE33N	33 nH	40	250	2900	0.22	600		
KQMO603TTE36N	36 nH	40	250	2900	0.25	600		
KQMO603TTE39N	39 nH	40	250	2800	0.25	600		
KQMO603TTE43N	43 nH	40	200	2700	0.28	600		
KQMO603TTE47N	47 nH	J(±5%)	38	200	2600	0.28	600	
KQMO603TTE51N	51 nH		38	200	2600	0.30	600	
KQMO603TTE56N	56 nH	K(±10%)	38	200	2400	0.31	600	
KQMO603TTE68N	68 nH		38	200	2200	0.34	600	
KQMO603TTE72N	72 nH		34	150	2100	0.49	400	
KQMO603TTE82N	82 nH		34	150	2000	0.54	400	
KQMO603TTER10	100 nH		34	150	1800	0.58	400	
KQMO603TTER11	110 nH		32	150	1800	0.61	300	
KQMO603TTER12	120 nH		32	150	1600	0.65	300	
KQMO603TTER15	150 nH		32	150	1400	1.4	160	
KQMO603TTER18	180 nH		25	100	1300	2.2	140	
KQMO603TTER20	200 nH		25	100	1250	2.3	130	
KQMO603TTER21	210 nH		25	100	1200	2.3	130	
KQMO603TTER22	220 nH		25	100	1200	2.5	120	
KQMO603TTER25	250 nH		25	100	1000	2.4	120	
KQMO603TTER27	270 nH		30	100	1000	2.3	170	
KQMO603TTER33	330 nH	30	100	800	3.0	100		
KQMO603TTER39	390 nH	30	100	800	3.7	80		

TE : EMBOSSED PLASTIC

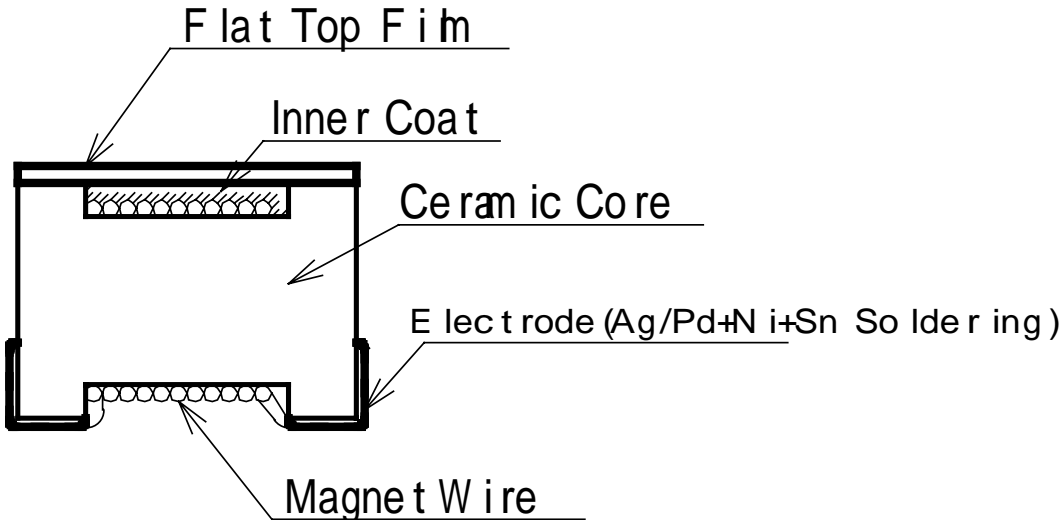
: TOLERANCE CHARACTER (C, D, G, J, K,)

4. DIMENSIONS



Dimension	L	W	H	Wt	Ht	P
mm	1.6 ± 0.1	1.0 ± 0.1	0.9 ± 0.1	0.85 ± 0.1	0.25 ± 0.15	0.35 ± 0.1

5. CONSTRUCTION



6. MARKING OF INDUCTANCE

The marking of nominal inductance consists of only one-figure number as detailed below:

VALUE	NUMBER	VALUE	NUMBER	VALUE	NUMBER	VALUE	NUMBER
1.6 nH	C	9.5nH	B	33 nH	9	120 nH	8
1.8 nH	0	10 nH	3	36 nH	P	150 nH	9
3.3 nH	X	11 nH	K	39 nH	0	180 nH	0
3.6 nH	E	12 nH	4	43 nH	Q	200 nH	U
3.9 nH	1	15 nH	5	47 nH	1	210 nH	V
4.3 nH	F	16 nH	L	51 nH	T	220 nH	1
4.7 nH	G	18 nH	6	56 nH	2	250 nH	W
5.1 nH	Y	22 nH	7	68 nH	3	270 nH	2
6.8 nH	2	23 nH	S	72 nH	4	330 nH	3
7.5 nH	H	24 nH	M	82 nH	5	390 nH	4
8.2 nH	A	27 nH	8	100 nH	6		
8.7 nH	J	30 nH	N	110 nH	7		

No tolerance of inductance shall be indicated.

7. MEASUREMENT METHOD

Nominal Inductance Range	Test Equipment	Fixture	Setup	Measuring Frequency
1.6nH to 390nH	4291A RF Impedance Analyzer (H.P)	16193A Test Fixture	E.L=1.4cm OSC=500mV	Listed TABLE-1

8. TEST CONDITIONS

Unless otherwise specified, the test shall be performed at the temperature of 20 ± 15 and at a relative humidity of $65 \pm 20\%$. Revers for the test conditions shall be performed at the temperature of 20 ± 2 and at a relative humidity of $65 \pm 5\%$.

9. RELIABILITY TESTS

9-1 Electrical Characteristics

ITEM	REQUIREMENT	TEST METHODS
Dielectric Withstanding Voltage	No evidence of flaming, fuming, or breakdown	5 seconds at AC 500V applied between both terminals and film.
Insulation Resistance	1000M and over	1 minute at DC 100V measured between both terminals and film.
Flammability	IEC 695-2-2	Withstands needle-flame test.

9-2 Mechanical Characteristics

ITEM	REQUIREMENT	TEST METHODS
Terminal Pull Strength	No evidence of damage	Terminals shall be withstand a pull of 5N in a horizontal direction.
Terminal Bending Strength	No evidence of breakdown	Specimen shall be soldered on bend test board and force applied to the opposite side to cause a 3 mm deflection
Vibration	L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	2 hours in each direction of X,Y,Z on PCB at a frequency range of 10-55-10Hz with 1.5 mm amplitude
Dropping	No evidence of damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	Dropping 1 m on the ground of concrete 1 time
Resistance to Soldering Heat	No evidence of outer damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	Immerse in the solder at 260 ± 5 for 10 ± 1 seconds
Solderability	95% of the terminal should be covered with new solder	Immerse in the solder at 230 ± 5 for 3 ± 0.5 seconds
Resistance to Solvent	No damage and marking must remain legible	Accordance with MIL-STD-202F Method 215

9-3 Environmental Characteristics

ITEM	REQUIREMENT	TEST METHODS
Low Temperature Storage	No evidence of damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	Store at -40 ± 2 , for 1000 hours
High Temperature Storage	No evidence of damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	Store at $+125 \pm 2$, for 1000 hours
Moisture Endurance	No evidence of damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	Store at $+40 \pm 2$, 90 ~ 95%RH for 1000 hours
Load Life	No evidence of damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	Biased to full rated current at $+125$ for 1000 hours
High Temperature High Humidity	No evidence of damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	Biased to 10% rated current at $+85$,85%RH for 1000 hours
Thermal Shock	No evidence of damage L/L within $\pm 5\%$ Q/Q within $\pm 10\%$	100cycles between -40 /0.5hour and $+125$ /0.5hour
Temperature Characteristics	L/L within $\pm 5\%$	L/L to be measured at the temperature of between -40 and $+125$ as based on the inductance at 20

Unless otherwise specified, measurements shall be performed within 2 hours after leaving test samples for more than one hour at the normal temperature and at the normal humidity.

10. PACKAGING

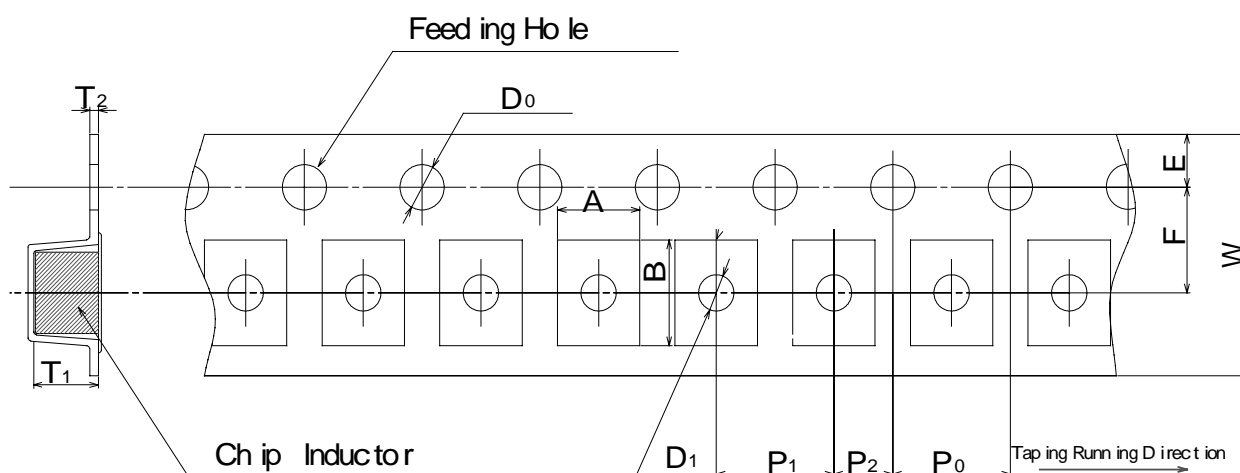
10-1 Bulk packaging

- (1) 200pcs CHIP INDUCTORS are packed in a poly bag.
- (2) Inner box shall be indicated Type (KQM0603T), Nominal Inductance, Tolerance, Quantity, Production lot number, Manufacture's name or Trade mark..

10-2 Taping

The tapes for taping shall be embossed carrier tapes of 8 mm width and 4 mm pitches. The standard quantity per reel be 2,000 pcs.

(1) Dimensions of Carrier Tape



[unit : mm]

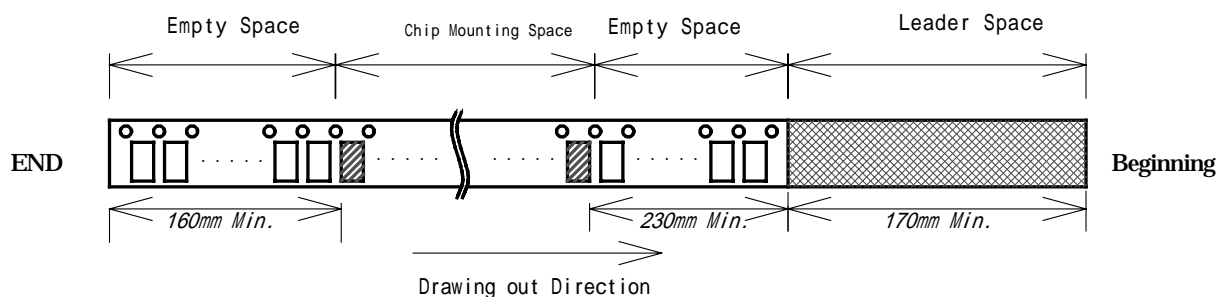
A	B	W	E	F	T ₁
1.15 ± 0.05	1.86 ± 0.05	8.0 ± 0.1	1.75 ± 0.10	3.50 ± 0.05	0.98 ± 0.05
T ₂	P ₀	P ₁	P ₂	D ₀	D ₁
0.25 ± 0.05	4.0 ± 0.1	4.0 ± 0.1	2.00 ± 0.05	1.5 ± ^{0.1} ₀	0.60 ± 0.05

20 Pitches accumulation of feeding holes shall be 80 ± 0.15mm.

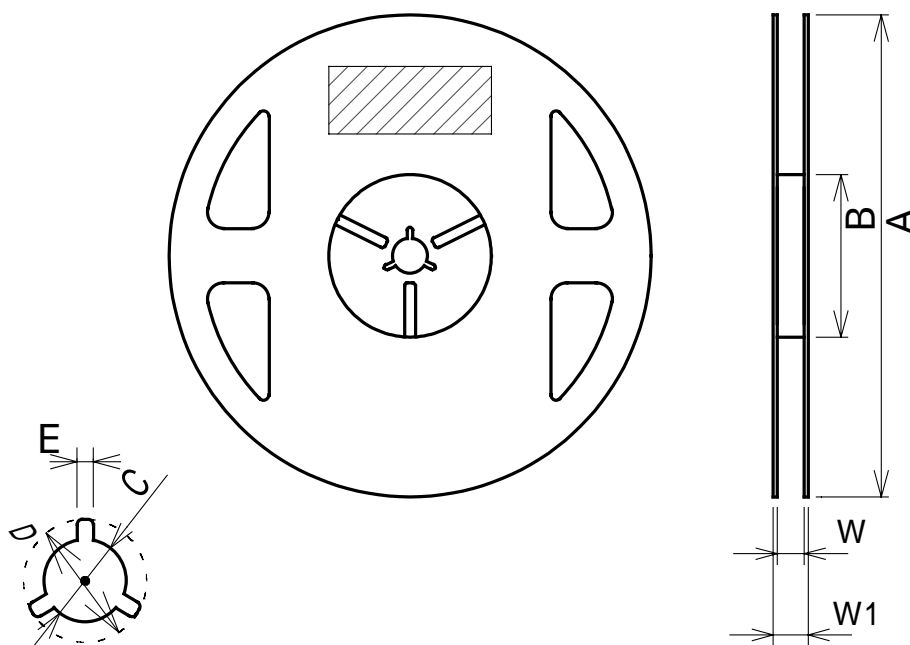
Top tape peeling strength : 0.1 N ~ 0.7 N

(2) Taped Configuration

Conforming to EIA-481 standard



(3) Reel Dimensions and Indication



A	B	C	D	E	W	W ₁
180 ± 3^0	60 ± 1.0	13 ± 0.2	21.0 ± 0.8	2.0 ± 0.5	9.0 ± 0.3	11.4 ± 1.0

The following items shall be indicated on the reel.

- () Type(KQM0603TTE)
- () Nominal inductance and tolerance
- () Quantity
- () Production lot number
- () Manufacturer's name or trade mark

11 GENERAL INFORMATION

(1) Storage

CHIP INDUCTORS shall not be stored under high temperature and high humidity conditions. Especially, do not store TAPING where they are exposed to heat or direct sunlight. Otherwise, the packing material may be deformed, causing problems during mounting.

(2) Mounting

Placement force should not be excessive.

(3) Soldering

- Reflow soldering should be done at 240 °C for less than 30 seconds with eutectic solder, and peak 250 °C more than 230 °C for 30-40 seconds with lead free solder.
- When using a soldering iron, temperature shall not exceed 350 °C and within 3 seconds. Soldering iron time of each electrode shall be allowed only one time. After soldering, CHIP INDUCTORS shall not be stressed excessively.

(4) Cleaning

It is no problem to use organic solvents.

Since this CHIP INDUCTOR is a coil of ultra-fine wire, it is susceptible to vibration. If an ultrasonic cleaning unit is used for cleaning, check for any possibility of problem generation before practical use since such cleaning units considerably differ in vibration level and mode.

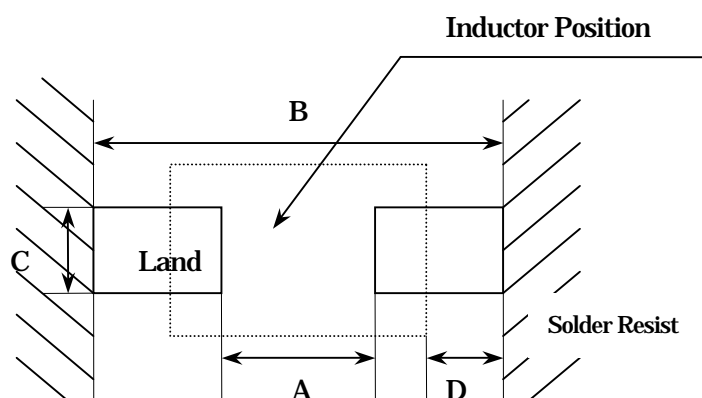
Although the conditions differ depending on the printed board size, ultrasonic cleaning is generally used in the conditions described below as examples.

Power : Within 20 W / L

Cleaning times : Within 5 minutes

(5) Pattern design

The land pattern is recommended as follows.



A	B	C	D
0.64	1.92	1.02	0.16