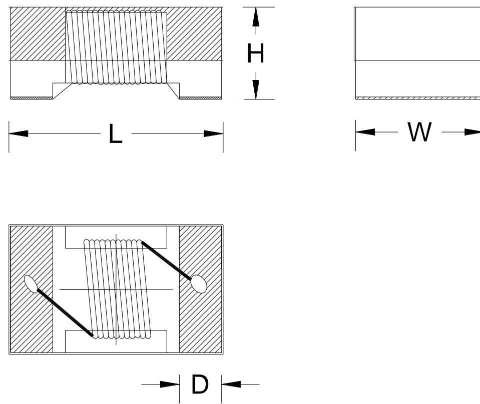
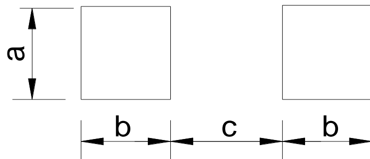
1. Dimensions



L	W	H	D
1.19 max.	0.70 max.	0.64 max.	0.23 typ.

2.Recommended Land Pattern



Symbol	Dimensions(mm)
a	0.66
b	0.36
c	0.46

2. Product Identification

KTW	0402	IF	20N	□	S	C
①	②	③	④	⑤	⑥	⑦

① Wire Wound Inductor Series；

② Dimensions：0402(inch)=1005(mm)=1.0x0.5mm

③ Material：IF ferrite core；

④ Inductance：20N=20nH,R22=220nH,1R0=1.0μH

⑤ Tolerance J:±5%,K:±10%, M:±20%

⑥ Terminal： S--- Tin

⑦ Packaging type：C--- Tape& Reel.

3.General Characteristics

Part Number	Tolerance	Inductance① (nH)	Inductance Test Conditions	DCR ② (Ω)max.	Rated current ③ (mA)	SRF(GHz) min.
KTW0402IF20N□SC	J,K,M	20	7.9MHz	0.05	1600	2.6
KTW0402IF22N□SC	J,K,M	22	7.9MHz	0.065	1300	2.5
KTW0402IF33N□SC	J,K,M	33	7.9MHz	0.06	1400	2.3
KTW0402IF36N□SC	J,K,M	36	7.9MHz	0.075	1300	2.2
KTW0402IF39N□SC	J,K,M	39	7.9MHz	0.115	830	1.95
KTW0402IF51N□SC	J,K,M	51	7.9MHz	0.07	1100	1.93
KTW0402IF56N□SC	J,K,M	56	7.9MHz	0.095	1000	1.9
KTW0402IF72N□SC	J,K,M	72	7.9MHz	0.10	1000	1.65
KTW0402IF78N□SC	J,K,M	78	7.9MHz	0.13	980	1.6
KTW0402IFR10□SC	J,K,M	100	7.9MHz	0.16	900	1.4
KTW0402IFR11□SC	J,K,M	110	7.9MHz	0.20	850	1.0
KTW0402IFR14□SC	J,K,M	140	7.9MHz	0.26	650	1.22
KTW0402IFR18□SC	J,K,M	180	7.9MHz	0.28	560	1.15
KTW0402IFR20□SC	J,K,M	200	7.9MHz	0.44	400	1.0
KTW0402IFR22□SC	J,K,M	220	7.9MHz	0.47	450	1.15
KTW0402IFR25□SC	J,K,M	250	7.9MHz	0.36	550	0.90
KTW0402IFR27□SC	J,K,M	270	7.9MHz	0.55	370	0.86
KTW0402IFR30□SC	J,K,M	300	7.9MHz	0.41	420	0.86
KTW0402IFR33□SC	J,K,M	330	7.9MHz	0.56	360	0.83
KTW0402IFR36□SC	J,K,M	360	7.9MHz	0.575	350	0.81
KTW0402IFR39□SC	J,K,M	390	7.9MHz	0.75	300	0.76
KTW0402IFR42□SC	J,K,M	420	7.9MHz	0.70	330	0.70
KTW0402IFR47□SC	J,K,M	470	7.9MHz	0.73	320	0.65
KTW0402IFR56□SC	J,K,M	560	7.9MHz	0.92	230	0.60

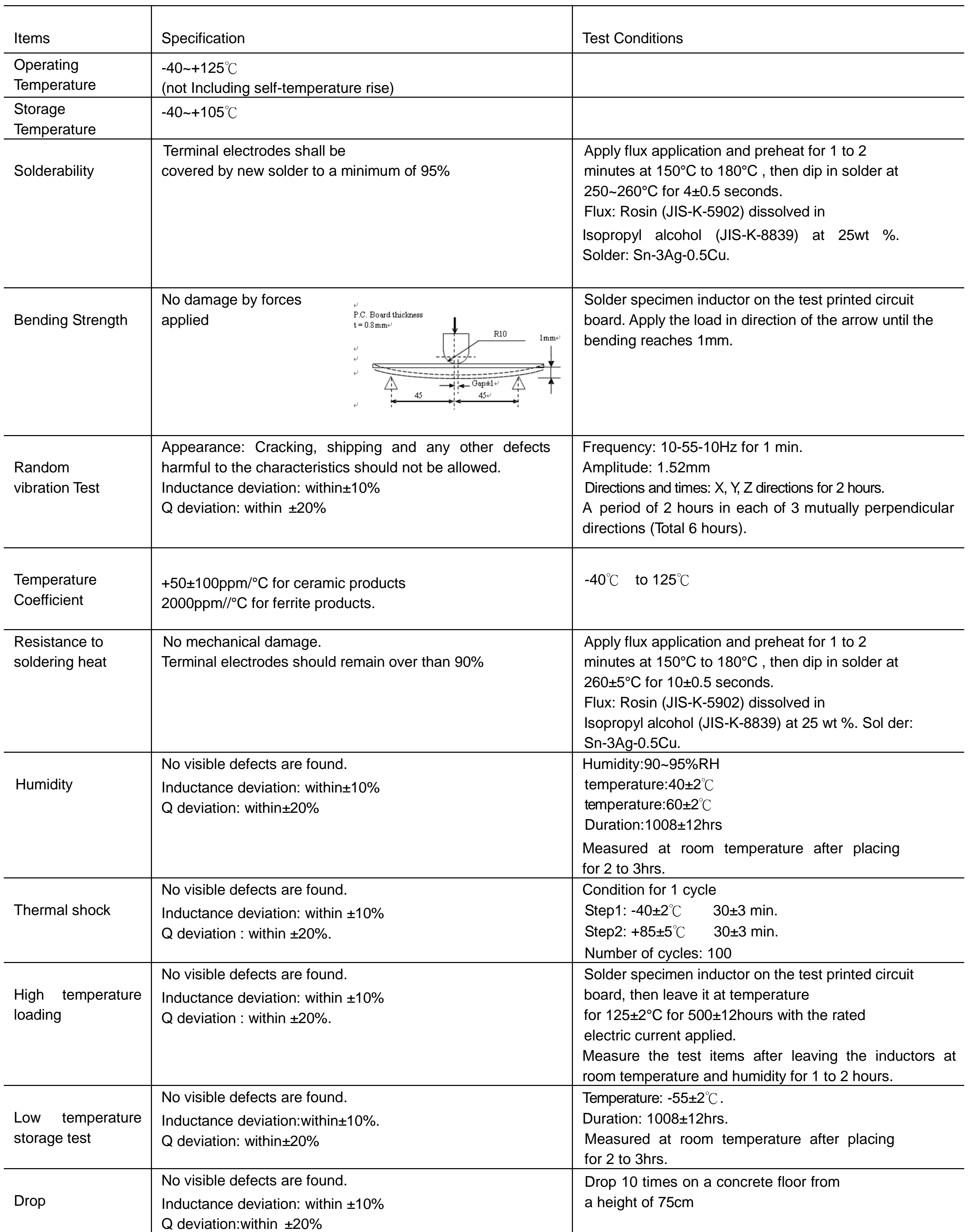
① Inductance tested using an Agilent/HP4286A or equivalent.

② DCR measured on a micro-ohmmeter.

③ Rated current: The DC current at which the temperature rise △t=40℃(Ta=20℃).

④ □Represents the tolerance of inductance: J (±5%)， K (±10%)，M(±20%)

4. General Characteristics



Items	Specification	Test Conditions
Operating Temperature	-40~+125℃ (not Including self-temperature rise)	
Storage Temperature	-40~+105℃	
Solderability	Terminal electrodes shall be covered by new solder to a minimum of 95%	Apply flux application and preheat for 1 to 2 minutes at 150°C to 180°C , then dip in solder at 250~260°C for 4±0.5 seconds. Flux: Rosin (JIS-K-5902) dissolved in Isopropyl alcohol (JIS-K-8839) at 25wt %. Solder: Sn-3Ag-0.5Cu.
Bending Strength	No damage by forces applied P.C. Board thickness t=0.8mm; R10; 1mm; Gap±1; 45; 45	Solder specimen inductor on the test printed circuit board. Apply the load in direction of the arrow until the bending reaches 1mm.
Random vibration Test	Appearance: Cracking, shipping and any other defects harmful to the characteristics should not be allowed. Inductance deviation: within±10% Q deviation: within ±20%	Frequency: 10-55-10Hz for 1 min. Amplitude: 1.52mm Directions and times: X, Y, Z directions for 2 hours. A period of 2 hours in each of 3 mutually perpendicular directions (Total 6 hours).
Temperature Coefficient	+50±100ppm/°C for ceramic products 2000ppm//°C for ferrite products.	-40℃ to 125℃
Resistance to soldering heat	No mechanical damage. Terminal electrodes should remain over than 90%	Apply flux application and preheat for 1 to 2 minutes at 150°C to 180°C , then dip in solder at 260±5°C for 10±0.5 seconds. Flux: Rosin (JIS-K-5902) dissolved in Isopropyl alcohol (JIS-K-8839) at 25 wt %. Sol der: Sn-3Ag-0.5Cu.
Humidity	No visible defects are found. Inductance deviation: within±10% Q deviation: within±20%	Humidity:90~95%RH temperature:40±2℃ temperature:60±2℃ Duration:1008±12hrs Measured at room temperature after placing for 2 to 3hrs.
Thermal shock	No visible defects are found. Inductance deviation: within ±10% Q deviation : within ±20%.	Condition for 1 cycle Step1: -40±2℃ 30±3 min. Step2: +85±5℃ 30±3 min. Number of cycles: 100
High temperature loading	No visible defects are found. Inductance deviation: within ±10% Q deviation : within ±20%.	Solder specimen inductor on the test printed circuit board, then leave it at temperature for 125±2°C for 500±12hours with the rated electric current applied. Measure the test items after leaving the inductors at room temperature and humidity for 1 to 2 hours.
Low temperature storage test	No visible defects are found. Inductance deviation:within±10%. Q deviation: within±20%	Temperature: -55±2℃. Duration: 1008±12hrs. Measured at room temperature after placing for 2 to 3hrs.
Drop	No visible defects are found. Inductance deviation: within ±10% Q deviation:within ±20%	Drop 10 times on a concrete floor from a height of 75cm

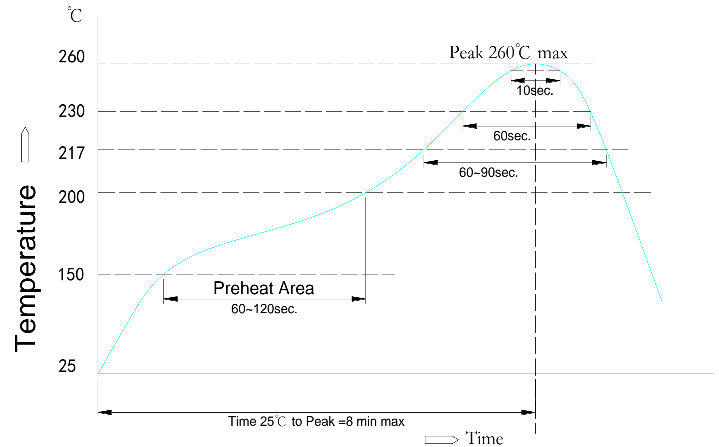
5. Reflow Profiles

Reflow Soldering Heat Endurance

Reflow profile parameters

(1) Preheat condition: 150 ~200℃/60~120sec.
(2) Ramp-up rate(T_L to T_P):3℃/sec. max.
(3) Allowed time above 217℃: 60~90sec.
(4) Allowed time above 230℃: 60sec.
(5) Peak temp: 260℃
(6) Max time at peak temp: 10sec.
but for wire wound products,5sec.
(7) Ramp-down rate(T_P to T_L):6 ℃/sec max.

Recommended solder paste: Sn/3.0Ag/0.5Cu
Liquidous temperature T_L=217℃



Note：

(1) No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.

(2) 2 times reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.

(3) This reflow profile is for classification/preconditioning and are not meant to specify board assembly profiles,Actual board assembly profile should be developed based on specific process needs and board designs and **should not exceed** the parameters listed above.

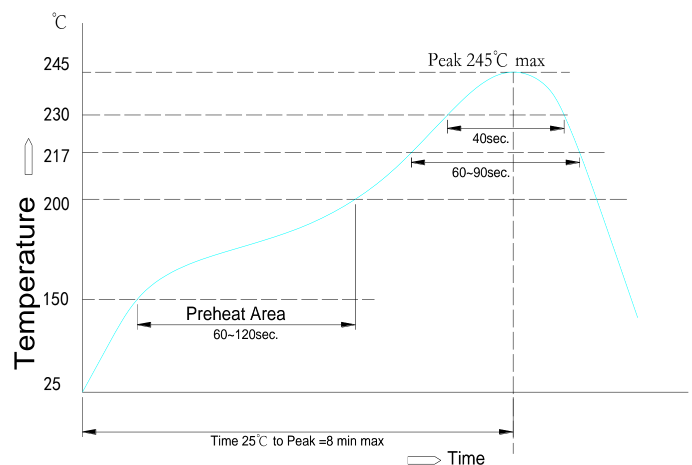
(4) The reflow test profile may vary with the testing instruments.

Recommended Reflow Conditions

Reflow profile parameters

(1) Preheat condition: 150 ~200℃/60~120sec.
(2) Ramp-up rate(T_L to T_P):3℃/sec. max.
(3) Allowed time above 217℃: 60~90sec.
(4) Allowed time above 230℃: 40sec.
(5) Peak temp: 245℃
(6) Ramp-down rate(T_P to T_L):6 ℃/sec. max.

Recommended solder paste: Sn/3.0Ag/0.5Cu
Liquidous temperature T_L=217℃

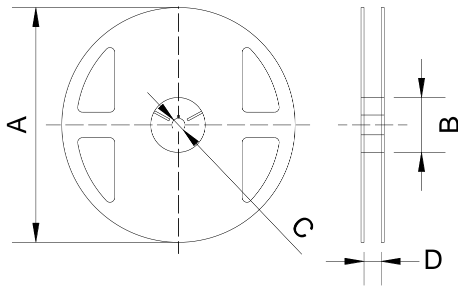


Note：

The recommended reflow profile here is for classification/preconditioning, ,Actual board assembly profile is based on the testing instruments used, **Solderability** depends on the testing equipments,reflow conditions, testing method,etc.so it is necessary to make a confirmation of them when the reflow conditions are set up.

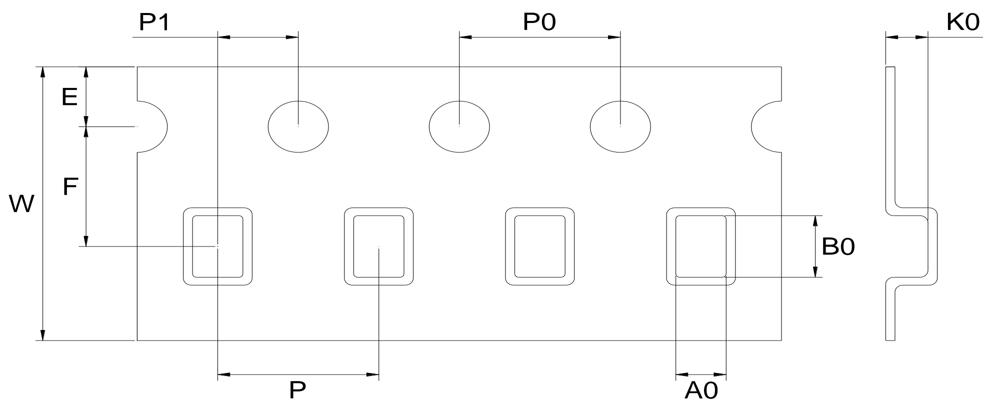
6.Packaging

Reel Dimensions (mm)

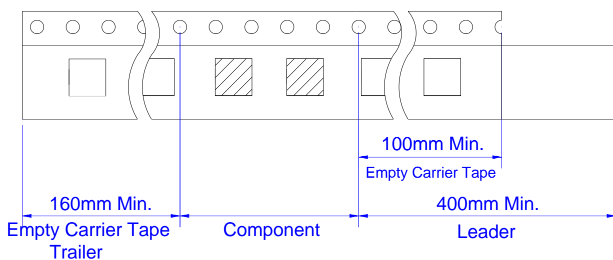


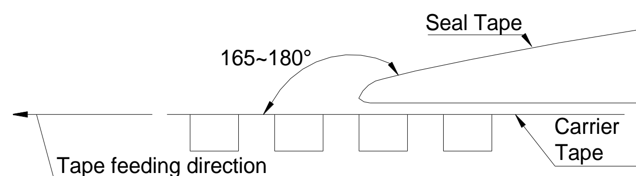
Symbol	Dimensions
A	178
B	60
C	13
D	8.4

Carrier Tape Dimensions (mm)



Symbol	W	A0	B0	K0	P	P0	P1	E	F
Dimension	8.0	0.74	1.23	0.68	2.0	4.0	2.0	1.75	3.5
Tolerance	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.05	±0.1	±0.05





The force to tear off cover tape: 15~60 grams

Packaging Quantity: 10000 pcs per Reel