SCOPE：

This specification applies to the Pb Free Wire Wound Ferrite Chip Inductors for MLCD-161008-SERIES

PRODUCT INDENTIFICATION

MLCD - 161008 - 8R2 K

① ② ③ ④

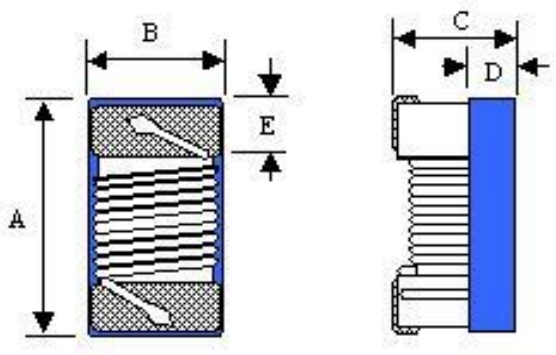
① Product Code

② Dimensions Code

③ Inductance Code

④ Tolerance Code

(1) SHAPES AND DIMENSIONS(mm)



A: 1.80 Max. mm
B: 1.20 Max. mm
C: 1.00 Max. mm
D: 0.45 Ref. mm
E: 0.33 Ref. mm

(2) ELECTRICAL SPECIFICATIONS

SEE TABLE 1

TEST INSTRUMENTS

L,Q,SRF : HP 4291B IMPEDANCE ANALYZER (or equivalent)

RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)

(3) CHARACTERISTICS

(3)-1 Operate temperature range ..... －40℃～＋125℃

(Including self temp. rise)

(3)-2 Storage temperature range ..... －40℃～＋125℃

TABLE 1

MAGLAYERS PT/NO.	Inductance L(μH)	Percent Tolerance	Quality Typ.	L,Q Freq. (MHz)	SRF (MHz)Typ.	DCR (Ω) ±30%	Rated DC Current		Color Coding
							Isat(mA) Typ.	Irms(mA) Typ.	
MLCD-161008-R68□	0.68	K,M	13	7.9	650	0.27	920	800	Violet
MLCD-161008-R78□	0.78	K,M	16	7.9	410	0.28	920	800	Gray
MLCD-161008-1R0□	1.0	K,M	16	7.9	390	0.32	860	700	Black
MLCD-161008-1R5□	1.5	K,M	16	7.9	160	0.40	720	600	Brown
MLCD-161008-1R8□	1.8	K,M	16	7.9	121	0.43	640	580	Red
MLCD-161008-2R2□	2.2	K,M	16	7.9	103	0.56	600	580	Orange
MLCD-161008-2R7□	2.7	K,M	16	7.9	72	0.62	540	500	Yellow
MLCD-161008-3R3□	3.3	K,M	16	7.9	66	0.70	500	500	Green
MLCD-161008-3R9□	3.9	K,M	16	7.9	61	0.83	460	460	Blue
MLCD-161008-4R7□	4.7	K,M	16	7.9	51	0.97	400	420	Violet
MLCD-161008-5R6□	5.6	K,M	16	7.9	47	1.10	380	380	Gray
MLCD-161008-6R8□	6.8	K,M	16	7.9	43	1.50	340	340	White
MLCD-161008-8R2□	8.2	K,M	16	7.9	40	1.68	300	300	Black
MLCD-161008-100□	10	K,M	14	2.5	36	1.85	280	280	Brown
MLCD-161008-120□	12	K,M	14	2.5	32	2.28	260	260	Red
MLCD-161008-150□	15	K,M	14	2.5	29	2.60	240	240	Orange
MLCD-161008-180□	18	K,M	14	2.5	28	2.90	220	220	Yellow
MLCD-161008-220□	22	K,M	14	2.5	24	3.61	200	200	Green
MLCD-161008-270□	27	K,M	14	2.5	20	5.20	140	140	Blue
MLCD-161008-330□	33	K,M	14	2.5	15	6.60	120	120	Violet
MLCD-161008-470□	47	K,M	12	2.5	11	11.20	100	110	Gray

※ □ Specify the inductance tolerance, K(±10%),M(±20%)

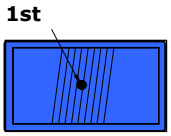
※ Isat： Based on inductance change (△L/L0:≦ drop 10%)

Irms： Based on temperature rise (△T：25℃ TYP.)

Rated DC Current： The less value which is Isat or Irms.

Color coding is not necessarily same position,

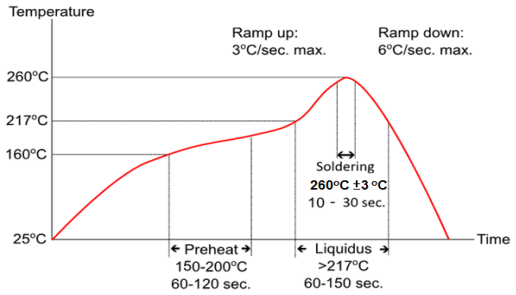
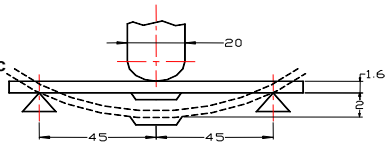
and Color coding non-directional printing.



COLOR CODING

(4) RELIABILITY TEST METHOD

MECHANICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
Solder ability	The electrodes shall be at least 90% covered with new solder coating	Refer to J-STD-002 Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245±5℃(Pb-Free) Immersion Time: 4±1sec
Resistance to Soldering heat (reflow soldering)	There shall be no damage or problems. Inductance change shall be within ±10%. Q change:within±30% of initial value	Refer to MIL-STD-202 Method 210 Temperature profile of reflow soldering  The specimen shall be passed through the reflow oven with the condition shown in the above profile for 1 time. The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.
Terminal strength	The terminal electrode and the ferrite must not damaged.	Refer to AEC-Q200-006 Test device shall be soldered on the substrate Force 0.5lbs for 60±1 seconds for 0201 series Force 1lbs for 60±1 seconds for 0402 series Force 2lbs for 60±1 seconds for 0603 series Force 1.8Kg for 60±1 seconds for the other series.
Board Flex	The terminal electrode and the ferrite must not damaged.	Refer to AEC-Q200-005 Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 60sec 
High temperature resistance (Storage)	Appearance:No damage (for microscope of CASTOR MZ-420X)Inductance change shall Inductance change shall be within ±10%. Q change:within±30% of initial value	Refer to MIL-STD-202 Method 108 Temperature: 125±3℃ / Relative Humidity: 0% Time: 100hrs Measured after exposure in the room condition for 24hrs
Biased Humidity	Appearance:No damage (for microscope of CASTOR MZ-420X)Inductance change shall Inductance change shall be within ±10%. Q change:within±30% of initial value	Refer to MIL-STD-202 Method 103 Temperature: 85±2℃ Relative Humidity:85% / Time: 100hrs Measured after exposure in the room condition for 24hrs

(4) RELIABILITY TEST METHOD

MECHANICAL

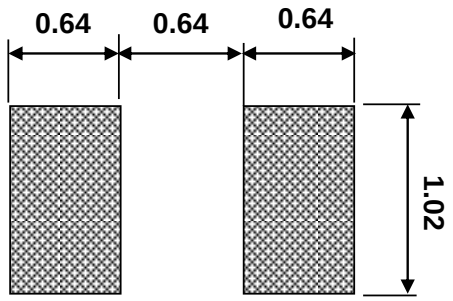
TEST ITEM	SPECIFICATION	TEST DETAILS
Thermal shock	Appearance:No damage (for microscope of CASTOR MZ-420X)Inductance change shall Inductance change shall be within ±10%. Q change:within±30% of initial value	Refer to JESD Method JA-104 Total cycles: 100 cycles Temperature Cycling Test Conditions : -40 to +125 ℃ -40 ℃ Soak Mode Condition : 30 minutes 125 ℃ Soak Mode Condition : 30 minutes Measured after exposure in the room condition for 24hrs
Low temperature storage	There shall be no damage or problems. Inductance change shall be within ±10%. Q change:within±30% of initial value	After the samples shall be soldered onto the test circuit board,the test shall be done. Measurement : After placing for 24 hours min. Temperature : -40±2℃ Testing time : 100 hours
Vibration	There shall be no damage or problems. Inductance change shall be within ±10%. Q change:within±30% of initial value	Refer MIL-STD-202 Method 204 Vibration waveform: Sine waveform Vibration frequency: 10Hz~2000Hz Vibration acceleration: 5g Sweep rate: 0.764386otcave/minute Duration of test: 12 cycles each of 3 orientations, 20 minutes for each cycle Vibration axes: X, Y & Z
Resistance to Solvent	There must be no change in appearance or obliteration of marking	Refer to MIL-STD-202 Method 215 Inductors must withstand 6 mimutes of alcohol or water.
Operational Life	No apparent damage Inductance change shall be within ±10%.	Refer to MIL-STD-202 Method 108 Temperature: 125±3℃ Applied Current : Rated Current Time: 100hrs Measured after exposure in the room condition for 24hrs

(5) RECOMMENDED SOLDERING CONDITIONS

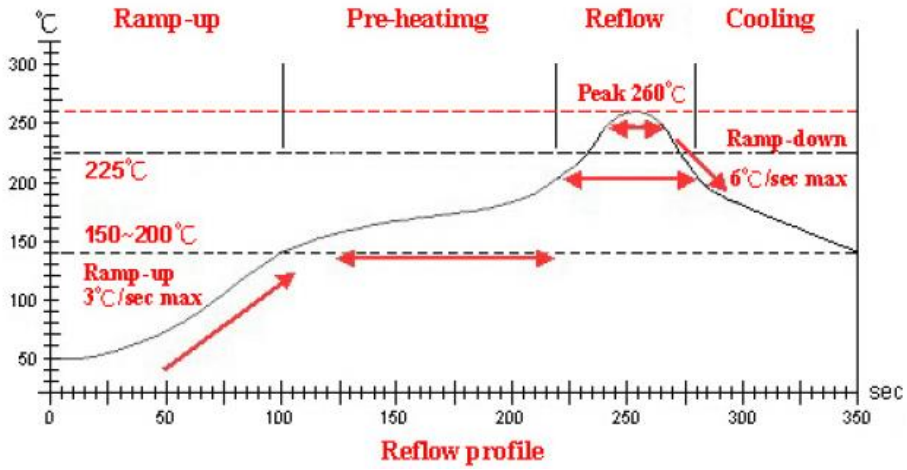
(Please use this product by reflow soldering)

(5)-1 RECOMMENDED FOOTPRINT

Unit: mm



(5)-2 RECOMMENED REFLOW PATTERN



Lead-Free(LF) **Refer to J-STD-020C**

Item	Ramp-up	Pre-heating	Reflow	Peak Temp.	Cooling
Temp. scope	R.T.~150℃	150℃~200℃	225℃	260±5℃	Peak Temp.~150℃
Time result	_	60~180 Sec.	20~60 Sec.	5~10 Sec.	_

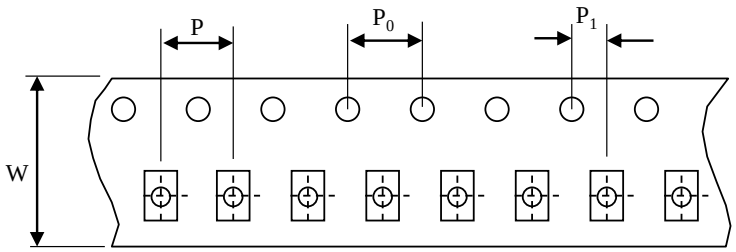
NOTE:

1. Re-flow possibile times:with in 2 times

2. Nitrogen adopted is recommended while in re-flow

(6) PACKAGING

(6)-1 CARRIER TAPE DIMENSIONS (mm)

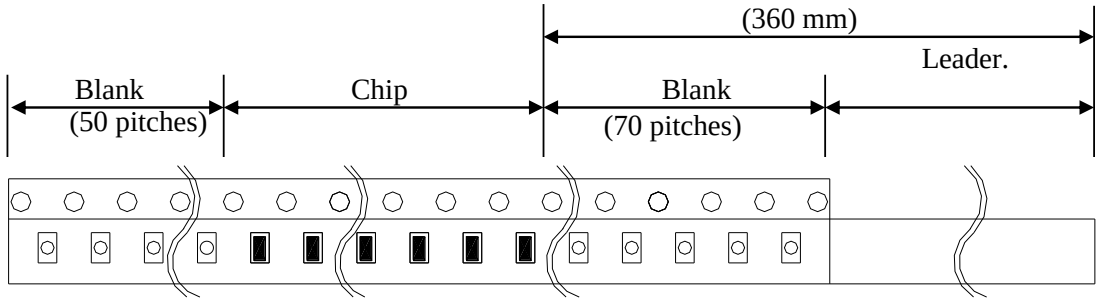


W : 8.0 mm
P : 4.0 mm
P0 : 4.0 mm
P1 : 2.0 mm

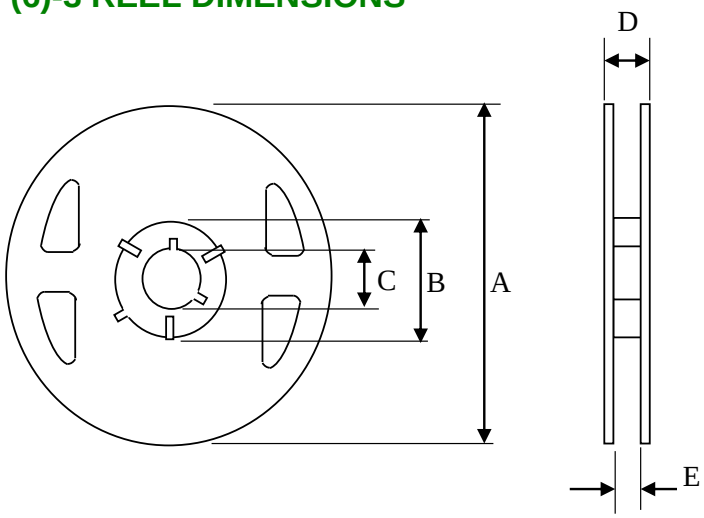
(6)-2 TAPING DIMENSIONS (mm)

There shall not continuation more than two vacancies of the product.

***Marking non-directional printing**



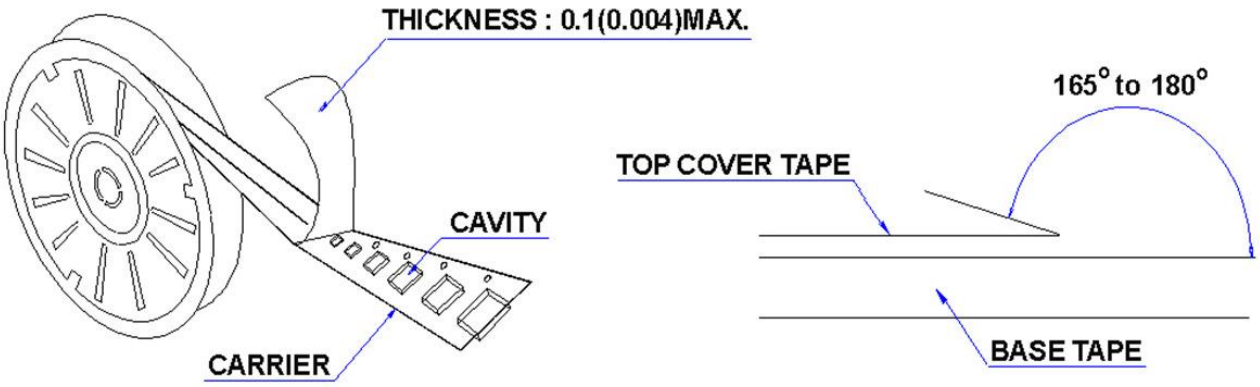
(6)-3 REEL DIMENSIONS



A : 178 mm
B : 60.0 mm
C : 13.0 mm
D : 12.0 mm
E : 9.0 mm

(6)-4 COVER TAPE PEEL STRENGTH

The force for tearing off cover tape is 10 to 100 grams in the arrow direction



(6)-5 QUANTITY

4000 pcs/Reel

(6)-6 The products are packaged so that no damage will be sustained.

(7) ATTENTION IN CASE OF USING

In case of using product ,please avoid following matters:

Splashing water or salt water

Dew condenses

Toxic gas (Hydrogen sulfide, Sulfurous acid ,Chlorine, Ammonia)

Vibrations or shocks which exceed the specified condition

Please be careful for the stress to this product by board flexure or something after the mounting.

Please note that the contents may change without any prior notice due to reasons such as upgrading.