

PRODUCT SPECIFICATION

新弘智

SPEC. NO: T-0638-005P

DATE: Aug. 7, 2018

CUSTOMER'S PRODUCT NAME:

EMTEK PRODUCT NAME:

LCD1008-Series

THIS SPECIFICATION IS:

- FULLY ACCEPTED
- DENIED
- ACCEPTED UNDER THE FOLLOWING CONDITIONS



SIGNATURE: _____

DATE: _____

NAME(PRINT): _____

TITLE: _____

 **EMTEK CO., LTD.**

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FACTORY:

39, Chingao Rd., (305)Hsinpu,
Hsinchu Hsien, Taiwan, R. O. C
TEL: 03-5894-433
FAX: 03-5894-523

PRODUCT SPECIFICATION

SPEC. NO.

T-0638-005P



1. Scope

This specification applies Wire Wound Power Inductors LCD1008-Series to be delivered to user.

2. Product Identification

LCD 1008 - 4R7 □ - T

(1) (2) (3) (4) (5)

(1) Product name

(2) Shapes and dimensions

(3) Inductance

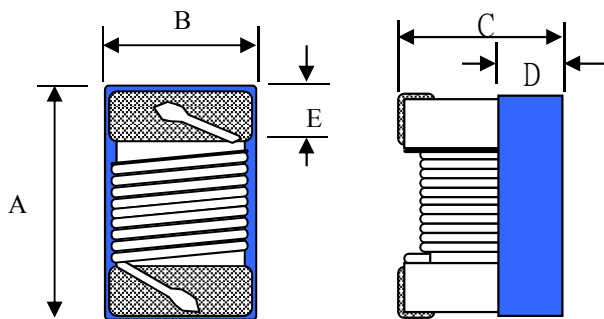
4R7 : 4.7 uH

(4) Tolerance

K=±10% , M=±20%

(5) Taping Type

3. Shapes and Dimensions



A max. : 2.90 mm

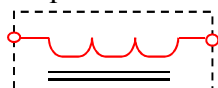
B max. : 2.54 mm

C max. : 2.06 mm

D ref. : 1.30 mm

E : 0.5 ± 0.1 mm

Equivalent circuit



No Polarity

Drawn by	Checked by	Approved by
Cindy Nov.14.2017	Zhang Nov.14.2017	<i>[Signature]</i> Nov.14.2017

PRODUCT SPECIFICATION

SPEC. NO.

T-0638-005P



4. Electrical Characteristics

Customer Part Number	Our Product Part Number	Inductance (uH)/MHz	Inductance Tolerance	Q/MHz Typ.	SRF Typ. (MHz)	Rdc ±20% (Ω)	Idc Typ.(mA)		Irms Typ.(mA)		Color Coding		
							L ↓ 10%	L ↓ 30%	T ↑ 25°C	T ↑ 40°C	1st	2nd	3rd
	LCD1008-R15□-T	0.15/25.2	K	10/25.2	800	0.025	2800	3200	2900	3300	Black	Brown	Green
	LCD1008-R33□-T	0.33/25.2	K	10/25.2	450	0.045	2500	2700	2600	2800	Black	Orange	Orange
	LCD1008-R90□-T	0.90/2.5	K M	24/2.5	345	0.08	1400	1600	1600	1700	Black	White	Brown
	LCD1008-1R0□-T	1.0/7.9	K M	24/7.9	345	0.125	1300	1600	1400	1700	Brown	Black	Red
	LCD1008-1R5□-T	1.5/7.9	K M	24/7.9	135	0.17	1100	1300	1200	1300	Brown	Red	Red
	LCD1008-2R2□-T	2.2/7.9	K M	21/7.9	128	0.155	900	1500	1100	1500	Red	Red	Red
	LCD1008-2R7□-T	2.7/7.9	K M	20/7.9	75	0.16	850	990	1000	1500	Red	Violet	Red
	LCD1008-3R3□-T	3.3/7.9	K M	20/7.9	54	0.18	800	900	1000	1500	Orange	Orange	Red
	LCD1008-4R7□-T	4.7/7.9	K M	23/7.9	67	0.32	670	750	800	1100	Yellow	Violet	Red
	LCD1008-6R8□-T	6.8/7.9	K M	18/7.9	56	0.40	550	640	650	1000	Blue	Gray	Red
	LCD1008-100□-T	10/2.5	K M	22/2.5	26	0.58	450	540	520	890	Brown	Black	Orange
	LCD1008-120□-T	12/2.52	K M	22/2.52	24	0.82	410	470	440	670	Brown	Red	Orange
	LCD1008-150□-T	15/2.52	K M	22/2.52	20	0.92	370	420	470	630	Brown	Green	Orange
	LCD1008-220□-T	22/2.52	K M	22/2.52	15	1.40	320	350	400	470	Red	Red	Orange
	LCD1008-330□-T	33/2.52	K M	22/2.52	12	2.10	300	330	360	380	Orange	Orange	Orange
	LCD1008-390□-T	39/2.52	K M	22/2.52	11	2.48	250	260	360	380	Orange	White	Orange
	LCD1008-470□-T	47/2.52	K M	21/2.52	8	3.25	230	250	270	330	Yellow	Violet	Orange
	LCD1008-680□-T	68/2.52	K M	21/2.52	7	4.80	160	180	200	290	Blue	Gray	Orange
	LCD1008-101□-T	100/1	K M	16/1	5	8.30	130	170	150	200	Brown	Black	Yellow
	LCD1008-221□-T	220/1	K M	16/1	3	16.0	100	120	140	160	Red	Red	Yellow
	LCD1008-471□-T	470/1	K M	16/1	3	22.50	60	80	90	140	Yellow	Violet	Yellow

1. When ordering, please specify tolerance and packaging codes. Ex: LCD1008-4R7K-T

Tolerance : K = ±10% ,M = ±20%

Packaging : Clear tape and reel { standard }.

2. L , Q : Agilent/HP E4991A+ Agilent/HP16197A

(The electrical specification test by the smallest gap position) or HP16193A

PRODUCT SPECIFICATION

SPEC. NO.

T-0638-005P



3. SRF : Agilent/HP E4991A+ Agilent/HP 16197A

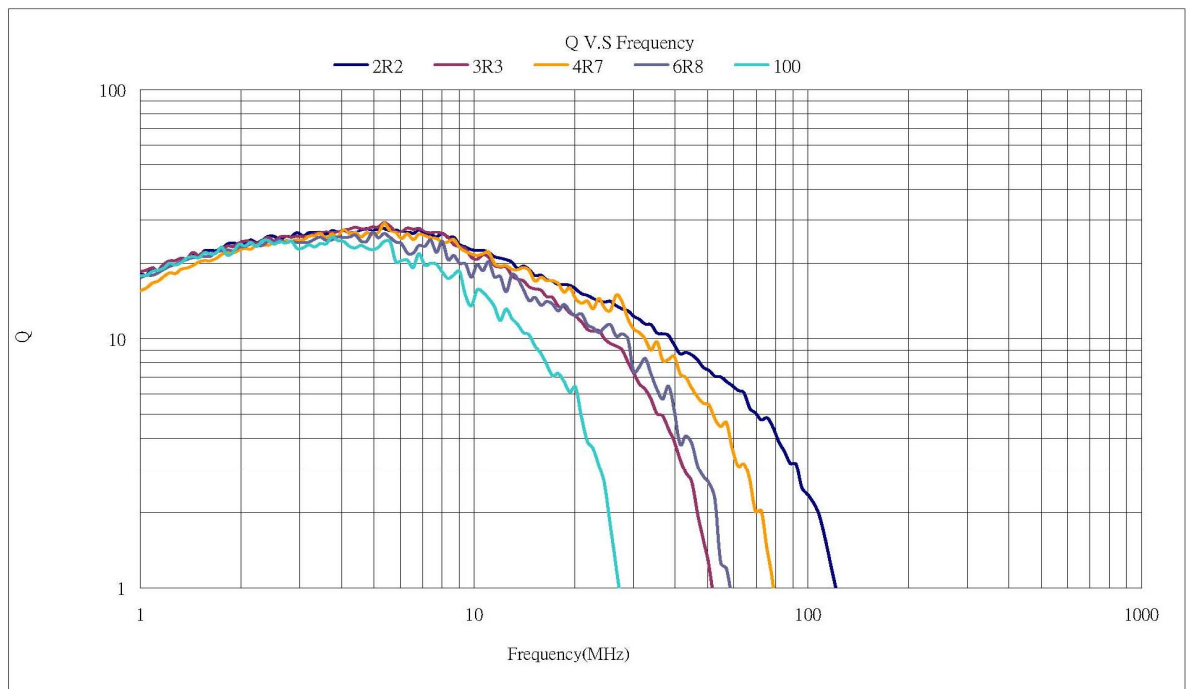
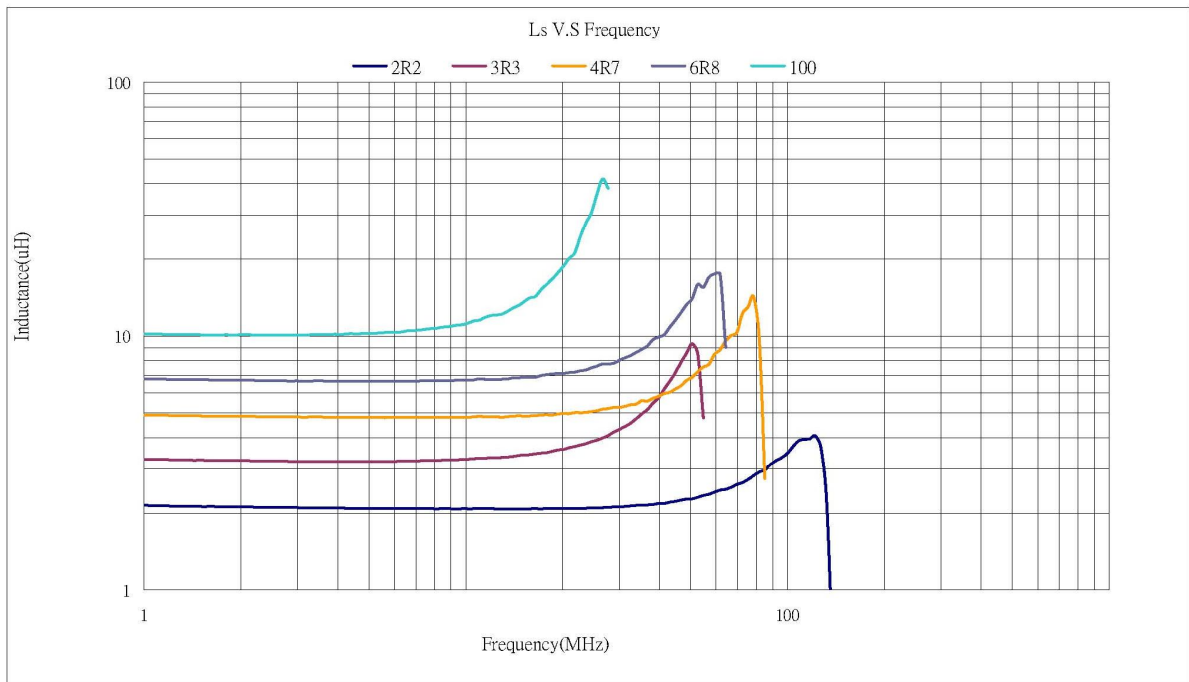
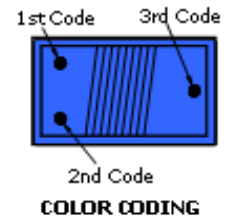
(The electrical specification test by the smallest gap position) or HP16193A

4. Rdc : DIGITAL MILLIOHM METER Chroma 16502, or equivalent.

5. Idc for Inductance drop 10% and 30% from its value without current.

6. Operating temperature range from -25°C to 105°C.

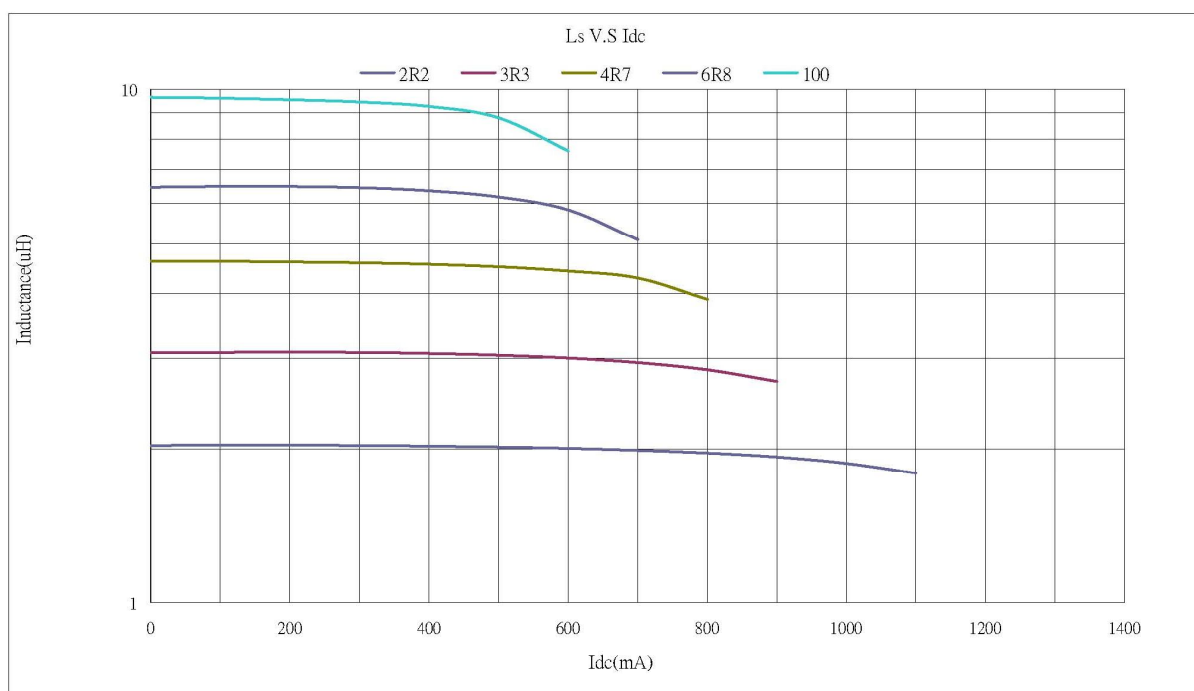
7. Irms for a 25°C rise and a 40°C rise above 25°C ambient.



PRODUCT SPECIFICATION

SPEC. NO.

T-0638-005P



5. Material list

Item	Material
Core	Ferrite core
Wire	Copper wire
Epoxy	UV Epoxy

PRODUCT SPECIFICATION

SPEC. NO.

T-0638-005P



6. Reliability Test

Item	Specifications	Test conditions
Solderability	The metalized area must have 90% minimum solder coverage.	Dip pads in flux and dip in solder pot(96.5 Sn/3.5 Ag solder) at 255°C ±5°C.
Resistance to soldering heat	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be reflowed onto a PC board using 96.5 Sn/3.5 Ag solder paste. Solder process shall be at a maximum temperature of 260°C. For 96.5 Sn/3.5 Ag solder paste:>217°C for 90 seconds
Vibration	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Solder specimen inductor on the test printed circuit board. Apply vibrations in each of the x,y and z directions for 2 hours for a total of 6 hours. Frequency : 10~50 Hz Amplitude : 1.5mm
High temperature resistance	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature 105±2°C for 500±12 hours. Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.
Static Humidity	Inductors must not have a shorted or openwinding.	Inductors shall be subjected to temperature 85±2°C and 90 to 95%RH. for ten 24-hours. Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.
Component adhesion (push test)	Inductors shall be subjected to 1.8Kg	Inductors shall be reflow soldered (255°C ±5°C for 10 seconds) to a tinned copper substrate. A force gauge shall be applied to the side of the component. The device must withstand the stated force without a failure of the termination.

PRODUCT SPECIFICATION

SPEC. NO.

T-0638-005P



Item	Specifications	Test conditions
Low temperature resistance	<p>There must be no case deformation or change in dimensions.</p> <p>Inductance must not change more than the stated tolerance.</p>	<p>Inductors shall be subjected to temperature $-25\pm 2^{\circ}\text{C}$ for 500 ± 12 hours.</p> <p>Measure the test items after leaving the inductors at room temperature and humidity for 1 to 2 hours.</p>
Resistance to solvent	<p>There must be no case deformation, change in dimensions, or obliteration of marking.</p>	<p>Inductors must withstand 6 minutes of alcohol or water.</p>
Thermal Cycle	<p>There must be no case deformation or change in dimensions.</p> <p>Inductance must not change more than the stated tolerance.</p>	<p>Inductors shall be subjected to 10 cycles to the the following temperature cycle:</p> <div data-bbox="938 981 1362 1279" style="text-align: center;"> <p>The diagram illustrates a temperature cycle between 105°C and -25°C. The cycle consists of a 30-minute dwell at 105°C, a 3-minute ramp down to -25°C, a 30-minute dwell at -25°C, and a 3-minute ramp up to 105°C. The total duration of one cycle is 1 cycle.</p> </div> <p>Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.</p>

PRODUCT SPECIFICATION

SPEC. NO.

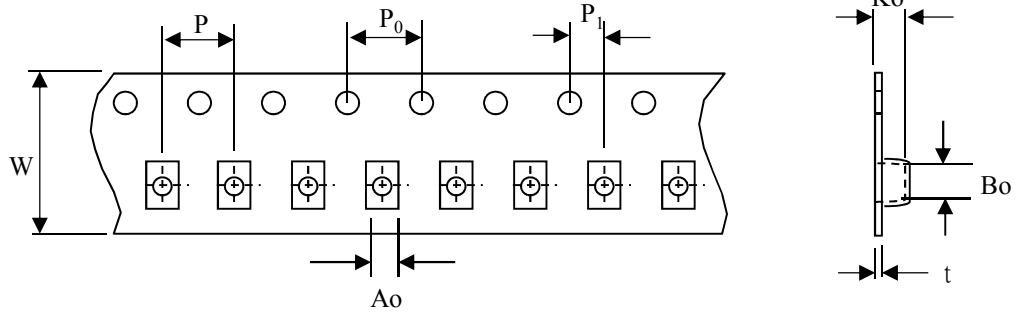
T-0638-005P



7. Packaging

The packaging must be done not to receive any damage during transporting and storing.

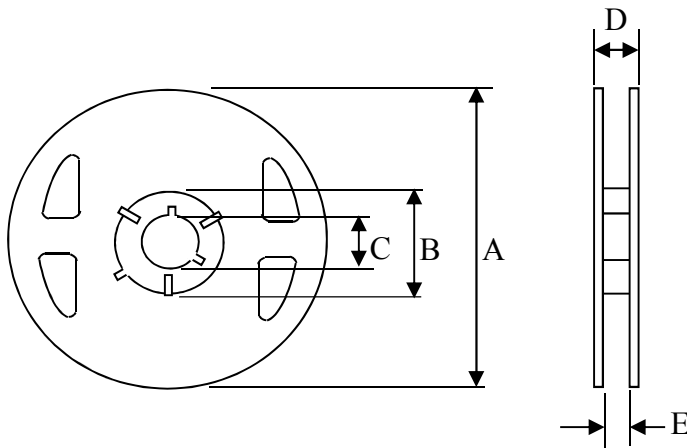
7-1 Tape dimensions



(Dimensions in mm; Tolerance : ±0.1)

Symbol	W	P	P ₀	P ₁	Ao	Bo	Ko	t
Dimension	8	4	4	2	2.5	2.85	2	0.22

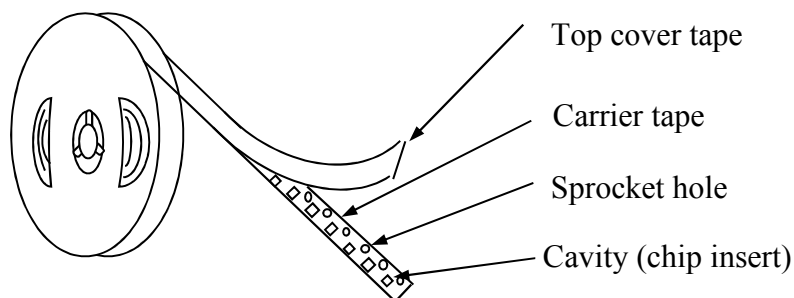
7-2 Reel dimensions



(Dimensions in mm)

Symbol	T
A	180
B	60
C	13
D	14.4
E	8.4

7-3 Tapping figure



PRODUCT SPECIFICATION

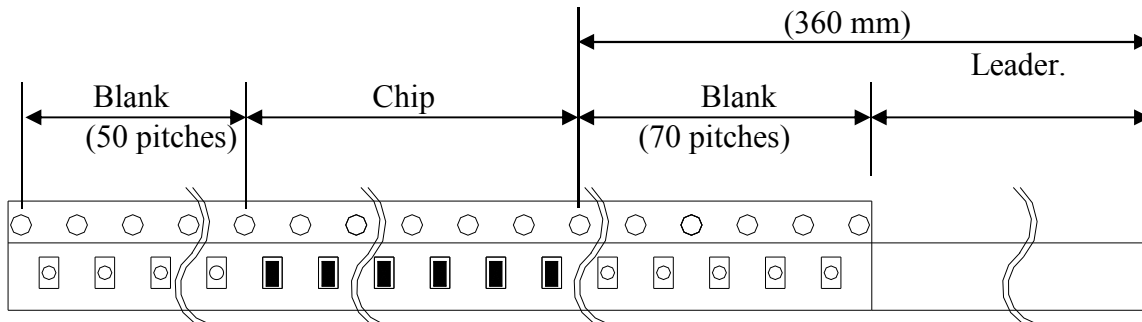
SPEC. NO.

T-0638-005P



7-4 Packaging Form

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



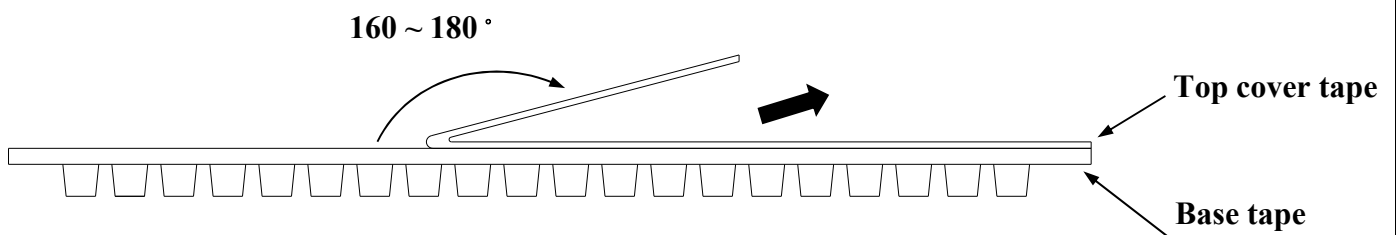
7-5 Cover Tape Peel Strength

The force for tearing off cover tape is 0.1~0.6(N) in the arrow direction at the following conditions:

Temperature : 5 ~ 35°C

Humidity : 45 ~ 85%

Atmospheric pressure : 860 ~ 1060 hpa



7-6 Packing Quantity

φ180 mm reel type : 2,000 pcs./reel

PRODUCT SPECIFICATION

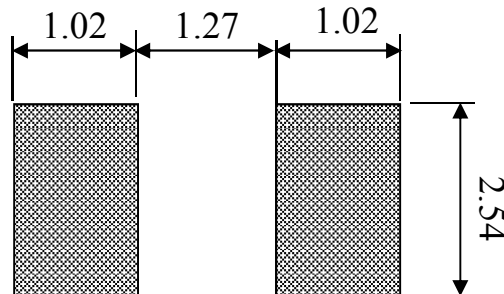
SPEC. NO.

T-0638-005P



8. Recommended Soldering Conditions (Please use this product by reflow soldering)

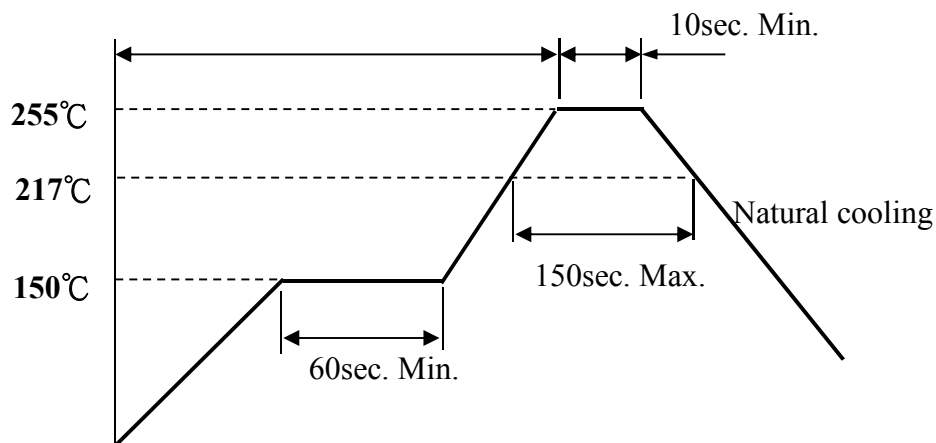
8-1 Recommended Footprint



Unit: mm

8-2 Recommended Reflow Pattern

Reflow at 260°C/3 Cycles



8-3 Iron Soldering

Use a solder iron of less than 30W when soldering, do not allow the soldering iron tip directly touch the Ceramic body outside of terminal electrode.

5 seconds max. at 260°C.

9. 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.

10. Others

10-1 Operating temperature range : Ferrite Series :-25~+105°C

10-2 Storage condition : Temperature 20°~25°C, Relative Humidity 40%~60%

10-3 Recommended wire wound inductors should be used within 6 months from the time of delivery.