

I . SCOPE :

This specification applies to the Pb Free Ceramic Chip Inductors
for MHSC-120707-SERIES

PRODUCT IDENTIFICATION

MHSC -120707 - 30N J

① ② ③ ④

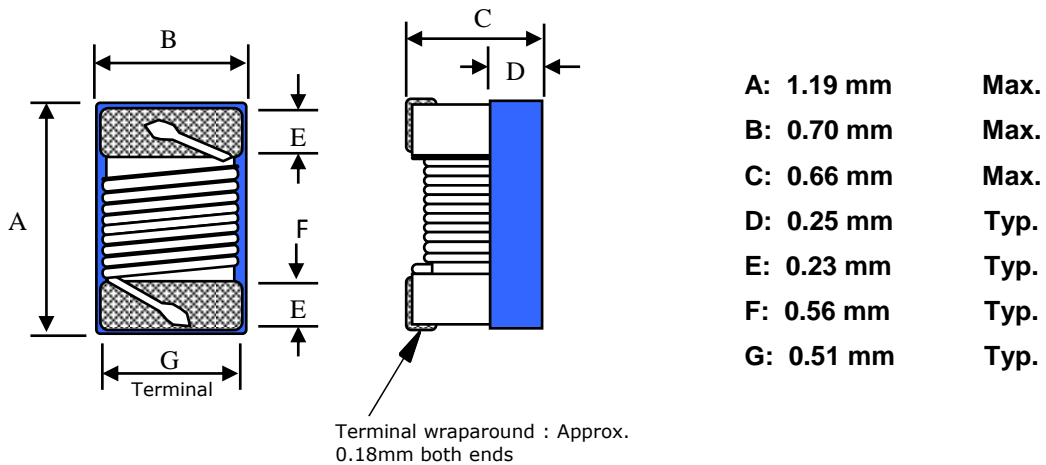
- ① Product Code
- ② Dimensions Code
- ③ Inductance Code
- ④ Tolerance Code

II . INDEX :

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9.STANDARD TEST CONDITIONS		
Unless otherwise specified, test condition should be Temp. = 20±5℃ , Humidity = 35~85%		
But if needed, then test condition should be Temp. = 20±2℃ , Humidity = 65±5%		
10.SHELF LIFE		
Storage Condition: The temperature should be within -40℃ ~105℃ and humidity should be less than 75%RH. The product should be used within 12 months from the time of delivery.		
In addition, suggest to use product within 6 months from the time of delivery.		



(1) SHAPES AND DIMENSIONS(mm)



(2) ELECTRICAL SPECIFICATIONS SEE TABLE 1

TEST INSTRUMENTS

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

SRF : ENA E5071B NETWORK ANALYZER (or equivalent)

RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)

(3) CHARACTERISTICS

(3)-1 Operate temperature range $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

(Including self temp. rise)

(3)-2 Storage temperature range $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

MATERIALS

NO.	ITEM	DESCRIPTION & TYPE
1	CORE	Ceramic
2	WIRE	Copper wire
3	Epoxy	UV Epoxy



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TABLE 1

MAGLAYERS PT/NO.	Inductance L(nH)	Percent Tolerance	L / Q Freq. (MHz)	Quality Min.	SRF (GHz)Min.	DCR (Ω) Max.	IDC (mA) Max.
MHSC-120707-1N0□	1.0	B,J,K	250	16	12.70	0.045	1360
MHSC-120707-1N2□	1.2	B,J,K	250	10	10.40	0.140	640
MHSC-120707-1N3□	1.3	B,K	250	10	10.40	0.140	640
MHSC-120707-1N9□	1.9	B,J,K	250	16	11.30	0.070	1040
MHSC-120707-2N0□	2.0	B,J,K	250	16	11.10	0.070	1040
MHSC-120707-2N2□	2.2	B,J,K	250	19	10.80	0.070	960
MHSC-120707-2N4□	2.4	B,J,K	250	15	10.50	0.068	790
MHSC-120707-2N5□	2.5	B,J,K	250	13	10.40	0.150	640
MHSC-120707-2N7□	2.7	B,J,K	250	16	10.40	0.120	640
MHSC-120707-3N3□	3.3	H,J,K	250	19	7.00	0.066	840
MHSC-120707-3N6□	3.6	H,J,K	250	19	6.80	0.066	840
MHSC-120707-3N9□	3.9	H,J,K	250	19	6.00	0.066	840
MHSC-120707-4N3□	4.3	H,J,K	250	18	6.00	0.091	700
MHSC-120707-4N7□	4.7	H,J,K	250	15	4.77	0.130	640
MHSC-120707-5N1□	5.1	H,J,K	250	20	4.80	0.083	800
MHSC-120707-5N6□	5.6	H,J,K	250	20	4.80	0.083	760
MHSC-120707-5N8□	5.8	H,J,K	250	20	4.80	0.083	760
MHSC-120707-6N2□	6.2	H,J,K	250	20	4.80	0.083	760
MHSC-120707-6N8□	6.8	H,J,K	250	20	4.80	0.083	680
MHSC-120707-7N3□	7.3	H,J,K	250	20	4.80	0.120	680
MHSC-120707-7N5□	7.5	H,J,K	250	22	4.80	0.100	680
MHSC-120707-8N2□	8.2	H,J,K	250	22	4.40	0.100	680
MHSC-120707-8N7□	8.7	H,J,K	250	18	4.10	0.200	480
MHSC-120707-9N0□	9.0	H,J,K	250	22	4.16	0.100	680
MHSC-120707-9N1□	9.1	H,J,K	250	22	4.16	0.100	680
MHSC-120707-9N5□	9.5	H,J,K	250	18	4.00	0.200	480
MHSC-120707-10N□	10	G,J,K	250	21	3.90	0.200	480
MHSC-120707-11N□	11	G,J,K	250	24	3.68	0.120	640
MHSC-120707-12N□	12	G,J,K	250	24	3.60	0.120	640
MHSC-120707-13N□	13	G,J,K	250	24	3.45	0.210	440
MHSC-120707-15N□	15	G,J,K	250	24	3.28	0.170	560
MHSC-120707-16N□	16	G,J,K	250	24	3.10	0.220	560
MHSC-120707-18N□	18	G,J,K	250	25	3.10	0.230	420
MHSC-120707-19N□	19	G,J,K	250	24	3.04	0.200	480
MHSC-120707-20N□	20	G,J,K	250	25	3.00	0.250	420
MHSC-120707-22N□	22	G,J,K	250	25	2.80	0.300	400
MHSC-120707-23N□	23	G,J,K	250	22	2.72	0.300	400
MHSC-120707-24N□	24	G,J,K	250	25	2.70	0.300	400
MHSC-120707-27N□	27	G,J,K	250	24	2.48	0.300	400
MHSC-120707-30N□	30	G,J,K	250	25	2.35	0.350	400
MHSC-120707-33N□	33	G,J,K	250	24	2.35	0.400	400
MHSC-120707-36N□	36	G,J,K	250	24	2.32	0.440	320
MHSC-120707-39N□	39	G,J,K	250	25	2.10	0.550	200
MHSC-120707-40N□	40	G,J,K	250	24	2.24	0.650	320
MHSC-120707-43N□	43	G,J,K	250	25	2.03	0.810	100
MHSC-120707-47N□	47	G,J,K	250	20	2.10	0.830	150
MHSC-120707-51N□	51	G,J,K	250	25	1.75	0.820	100
MHSC-120707-56N□	56	G,J,K	250	22	1.76	0.970	100
MHSC-120707-68N□	68	G,J,K	250	22	1.62	1.120	100
MHSC-120707-72N□	72	G,J,K	250	20	1.26	2.000	30
MHSC-120707-82N□	82	G,J,K	250	20	1.26	1.550	50
MHSC-120707-R10□	100	G,J,K	250	20	1.16	2.000	30
MHSC-120707-R18□	180	G,J,K	100	8	0.70	2.700	50
MHSC-120707-R22□	220	G,J,K	100	8	0.70	4.000	50

※ 1. □ Specify the inductance tolerance, B(±0.2nH),G(±2%),H(±3%),J(±5%),K(±10%)

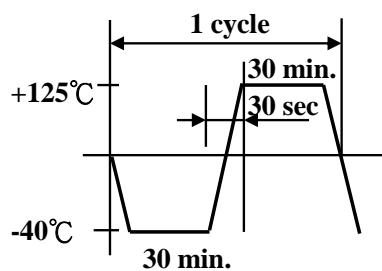
2.IDC:Based on temperature rise(ΔT:15°C Typ.)



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(4) RELIABILITY TEST METHOD

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 260°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 : 1.5 mm
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 125±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 open winding.	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 350g	Inductors shall be reflow soldered (260°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.

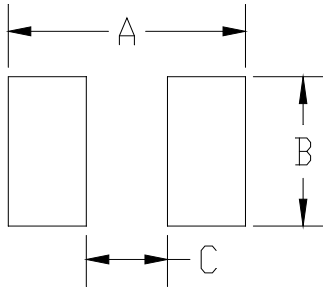
Item	Specifications	Test conditions
Low temperature storage	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature $-40\pm 2^{\circ}\text{C}$ for 48 ± 12 hours. Measure the test items after leaving the inductors at room temperature and humidity for 1 to 2 hours.
Resistance to solvent	There must be no case deformation, change in dimensions, or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.
Thermal shock	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to 10 cycles to the the following temperature cycle: <div style="text-align: center;">  <p>The diagram illustrates a temperature cycle. The vertical axis represents temperature in degrees Celsius, with markers at +125°C and -40°C. The horizontal axis represents time. The cycle consists of four segments: a cooling ramp from +125°C to -40°C, a dwell at -40°C for 30 minutes, a heating ramp from -40°C to +125°C (labeled as 30 sec), and a dwell at +125°C for 30 minutes. A bracket above the entire sequence is labeled '1 cycle'.</p> </div> Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.

(5) RECOMMENDED SOLDERING CONDITIONS

(Please use this product by reflow soldering)

(5)-1 RECOMMENDED FOOTPRINT

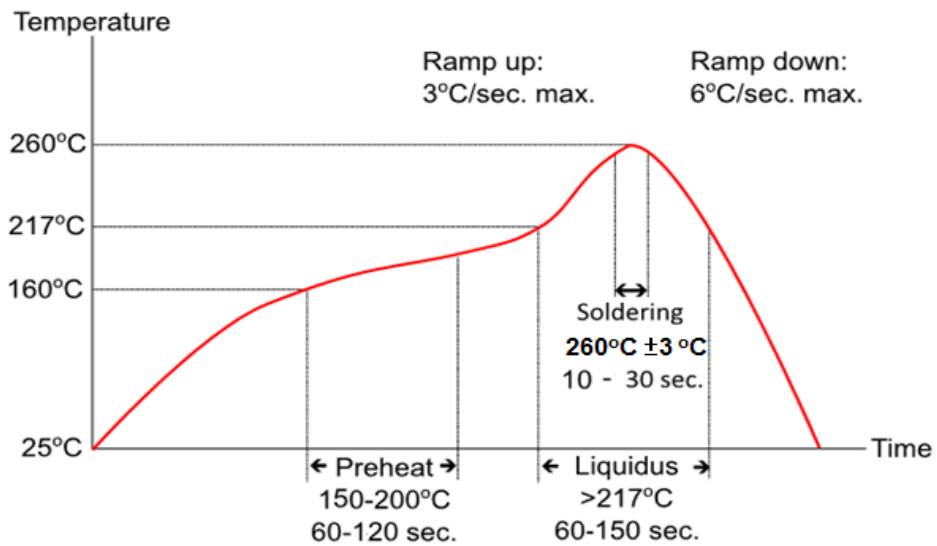
Unit: mm



A: 1.18
B: 0.66
C: 0.46

Typ.
Typ.
Typ.

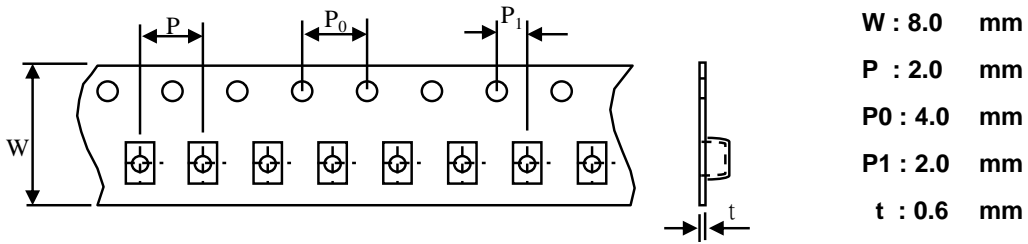
(5)-2 RECOMMENDED REFLOW PATTERN



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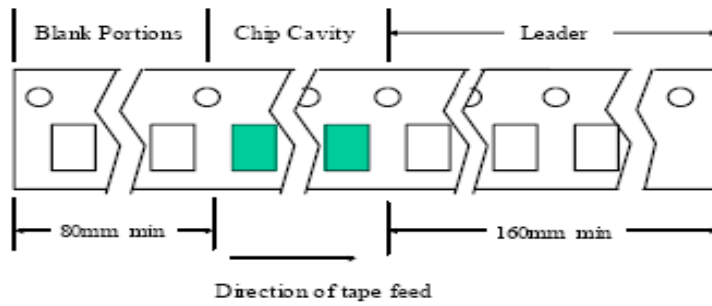
(6) PACKAGING

(6)-1 CARRIER TAPE DIMENSIONS (mm)

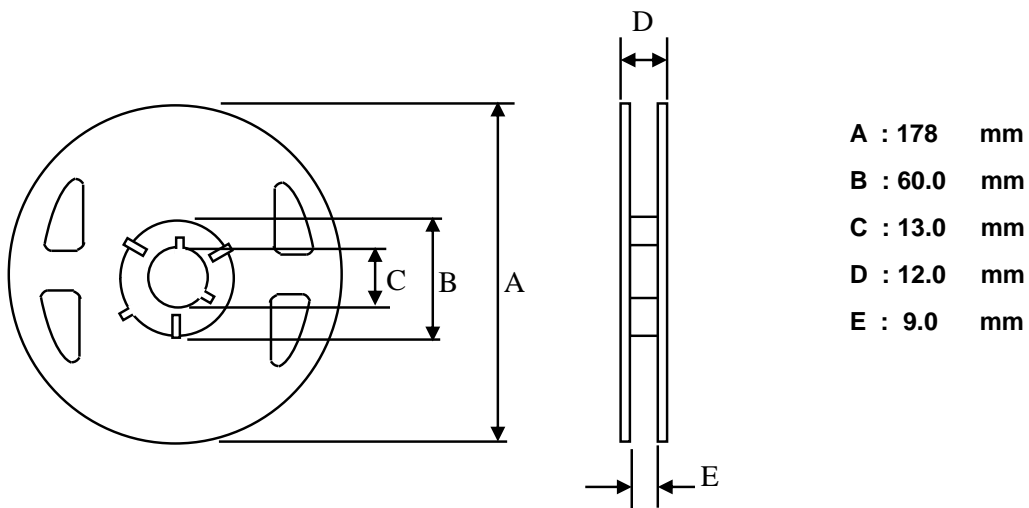


(6)-2 TAPING DIMENSIONS (mm)

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

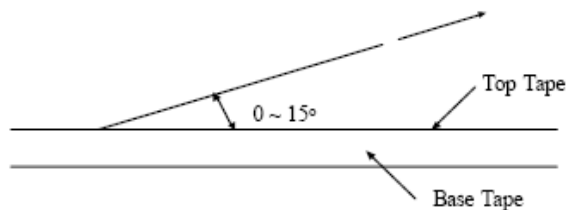


(6)-3 REEL DIMENSIONS



(6)-4 TOP TAPE PEEL STRENGTH

The top tape requires a peel-off force of 0.2 to 0.7N in the direction of the arrow as illustrated below.



(6)-5 QUANTITY

4,000 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.

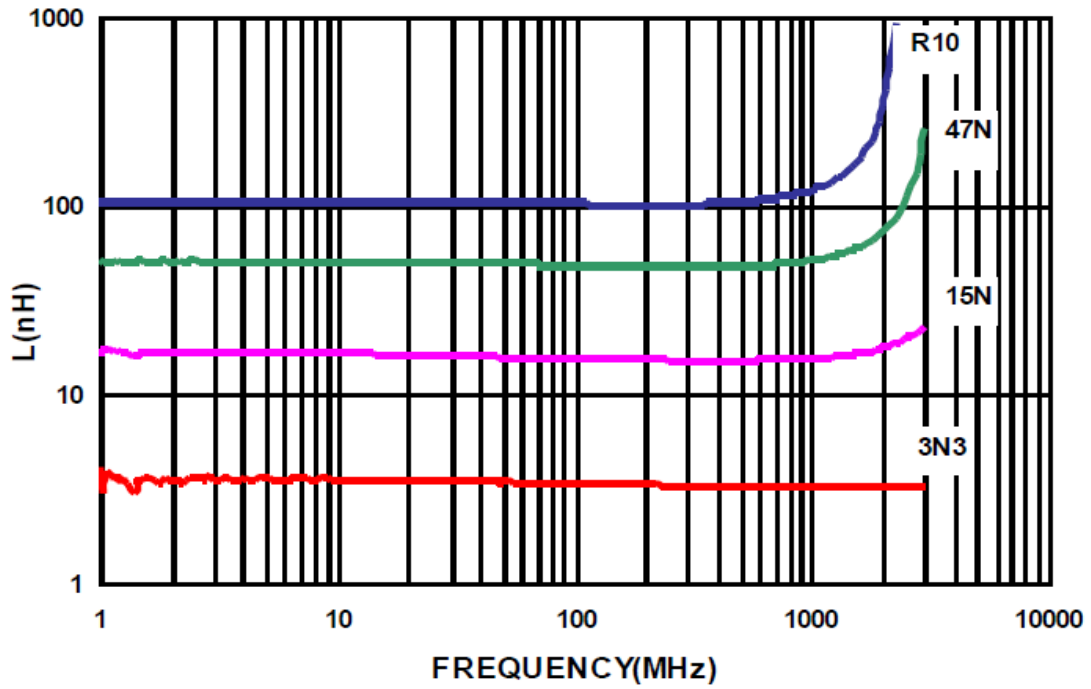
Please note that the contents may change without any prior notice due to reasons such as upgrading.



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TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE vs FREQUENCY



Q vs FREQUENCY

