SCOPE：

This specification applies to the Pb Free Ceramic Chip Inductors

for MWCS-252018-SERIES

PRODUCT INDENTIFICATION

MWCS - 252018 - 22N J

① ② ③ ④

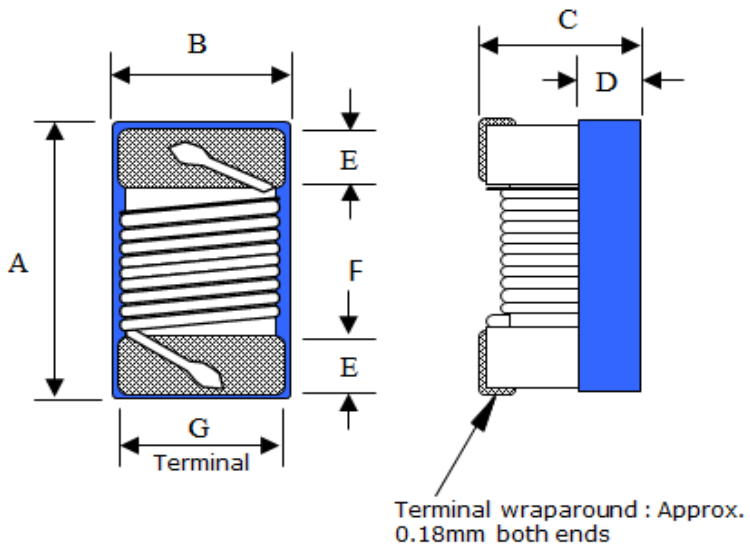
① Product Code

② Dimensions Code

③ Inductance Code

④ Tolerance Code

(1) SHAPES AND DIMENSIONS(mm)



A:	2.92	Max.
B:	2.79	Max.
C:	2.10	Max.
D:	1.16	Typ.
E:	0.51	Typ.
F:	1.52	Typ.
G:	2.03	Typ.

(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℃～＋125℃

(Including self temp. rise)

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

TABLE 1

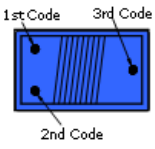
MAGLAYERS PT/NO.	Inductance L(nH)	Percent Tolerance	offset value(nH)	L/Q Freq. (MHz)	Quality Min.	SRF (MHz)Min.	DCR (Ω) Max.	Irms (mA) Max.	Color Coding		
									1st	2nd	3rd
MWCS-252018-10N□	10	G,J,K	-0.4	50/500	50	4100	0.08	1000	BRN	BLK	BLK
MWCS-252018-12N□	12	G,J,K	-0.6	50/500	50	3300	0.09	1000	BRN	RED	BLK
MWCS-252018-15N□	15	G,J,K	-0.9	50/500	50	2500	0.10	1000	BRN	GRN	BLK
MWCS-252018-18N□	18	G,J,K	-0.4	50/350	50	2500	0.11	1000	BRN	GRY	BLK
MWCS-252018-22N□	22	G,J,K	-0.9	50/350	55	2400	0.12	1000	RED	RED	BLK
MWCS-252018-27N□	27	G,J,K	-1.0	50/350	55	1600	0.13	1000	RED	VIO	BLK
MWCS-252018-33N□	33	G,J,K	-1.3	50/350	60	1600	0.14	1000	ORN	ORN	BLK
MWCS-252018-39N□	39	G,J,K	-1.4	50/350	60	1500	0.15	1000	ORN	WHT	BLK
MWCS-252018-47N□	47	G,J,K	-1.0	50/350	65	1500	0.16	1000	YEL	VIO	BLK
MWCS-252018-56N□	56	G,J,K	-3.5	50/350	65	1300	0.18	1000	GRN	BLU	BLK
MWCS-252018-68N□	68	G,J,K	-3.5	50/350	65	1300	0.20	1000	BLU	GRY	BLK
MWCS-252018-82N□	82	G,J,K	-3.6	50/350	60	1000	0.22	1000	GRY	RED	BLK
MWCS-252018-R10□	100	G,J,K	-6.0	25/350	60	1000	0.56	650	BRN	BLK	BRN
MWCS-252018-R12□	120	G,J,K	-5.0	25/350	60	950	0.63	650	BRN	RED	BRN
MWCS-252018-R15□	150	G,J,K	-5.0	25/100	45	850	0.70	580	BRN	GRN	BRN
MWCS-252018-R18□	180	G,H,J,K	-2.0	25/100	45	750	0.77	620	BRN	GRY	BRN
MWCS-252018-R20□	200	G,J,K	0	25/100	45	700	0.84	500	RED	BLK	BRN
MWCS-252018-R22□	220	G,J,K	-15	25/100	45	700	0.84	500	RED	RED	BRN
MWCS-252018-R27□	270	G,J,K	-15	25/100	45	600	0.91	500	RED	VIO	BRN
MWCS-252018-R33□	330	G,J,K	-20	25/100	45	570	1.05	450	ORN	ORN	BRN
MWCS-252018-R39□	390	G,J,K	-25	25/100	45	500	1.12	470	ORN	WHT	BRN
MWCS-252018-R47□	470	G,J,K	-35	25/100	45	450	1.19	470	YEL	VIO	BRN
MWCS-252018-R56□	560	G,J,K	-32	25/100	45	415	1.33	400	GRN	BLU	BRN
MWCS-252018-R62□	620	G,J,K	-40	25/100	45	375	1.40	300	BLU	RED	BRN
MWCS-252018-R68□	680	G,J,K	-50	25/100	45	375	1.47	400	BLU	GRY	BRN
MWCS-252018-R75□	750	G,J,K	-50	25/100	45	360	1.54	360	VIO	GRN	BRN
MWCS-252018-R82□	820	G,J,K	-55	25/100	45	350	1.61	400	GRY	RED	BRN
MWCS-252018-R91□	910	G,J,K	-80	25/50	35	320	1.68	380	WHT	BRN	BRN
MWCS-252018-1R0□	1,000	G,J,K	-80	25/50	35	290	1.75	370	BRN	BLK	RED
MWCS-252018-1R2□	1,200	G,J,K	-17.8	7.9/50	35	250	2.00	310	BRN	RED	RED
MWCS-252018-1R5□	1,500	G,J,K	-29.3	7.9/50	28	200	2.30	330	BRN	GRN	RED
MWCS-252018-1R8□	1,800	G,J,K	-42.2	7.9/50	28	160	2.60	300	BRN	GRY	RED
MWCS-252018-2R2□	2,200	G,J,K	-89.6	7.9/50	28	160	2.80	280	RED	RED	RED
MWCS-252018-2R7□	2,700	G,J,K	-75	7.9/25	22	140	3.20	290	RED	VIO	RED
MWCS-252018-3R3□	3,300	G,J,K	-145.6	7.9/25	22	110	3.40	290	ORN	ORN	RED
MWCS-252018-3R9□	3,900	G,J,K	-155.5	7.9/25	20	100	3.60	260	ORN	WHT	RED
MWCS-252018-4R7□	4,700	G,J,K	-227.7	7.9/25	20	90	4.00	260	YEL	VIO	RED
MWCS-252018-5R6□	5,600	G,J,K	0	7.9/7.9	18	45	4.00	240	GRN	BLU	RED
MWCS-252018-6R8□	6,800	G,J,K	0	7.9/7.9	18	40	4.90	200	BLU	GRY	RED
MWCS-252018-8R2□	8,200	G,J,K	0	7.9/7.9	18	25	6.00	170	GRY	RED	RED
MWCS-252018-100□	10,000	G,J,K	0	2.52/7.9	18	25	8.00	150	BRN	BLK	ORN
MWCS-252018-150□	15,000	G,J,K	0	2.52/7.9	15	20	11.00	100	BRN	GRN	ORN

※ 1. Please specify the inductance tolerance, G(±2%),H(±3%),J(±5%),K(±10%)

2. Irms for a 15℃ temperature rise from 25℃ ambient with current

3. Color coding is not necessarily same position,

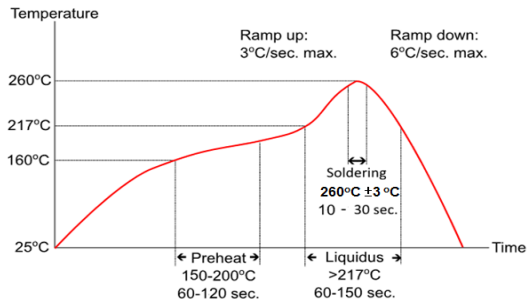
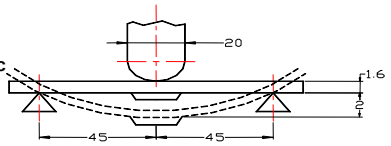
and Color coding non-directional printing.



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

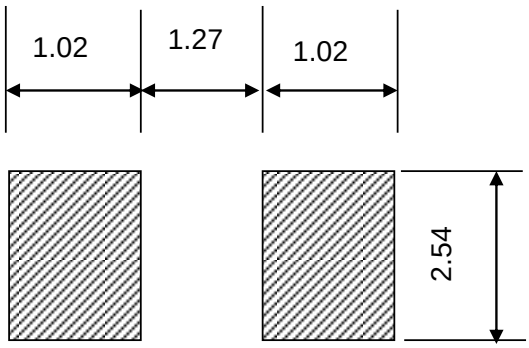
TEST ITEM	SPECIFICATION	TEST DETAILS
Thermal shock	Appearance:No damage (for microscope of CASTOR MZ-420X)Inductance change shall Inductance change shall be within ±10%. Q change:within±30% of initial value	Refer to JESD Method JA-104 Total cycles: 100 cycles Temperature Cycling Test Conditions : -40 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

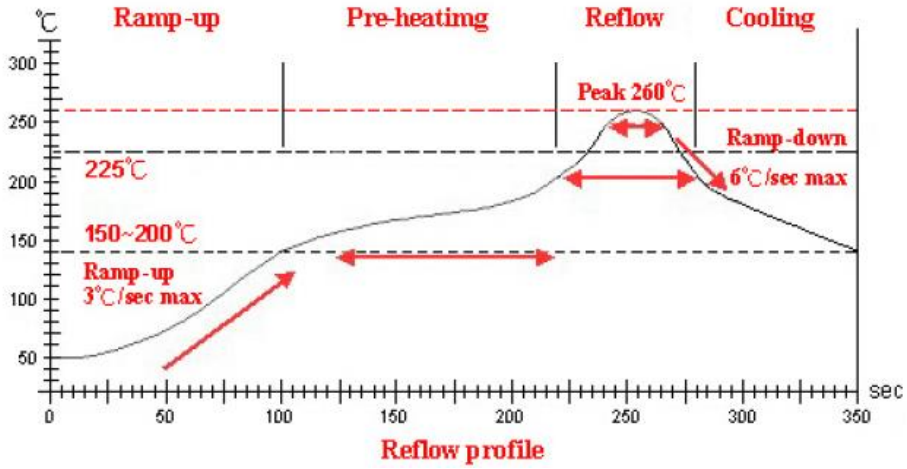
(Please use this product by reflow soldering)

(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.	_

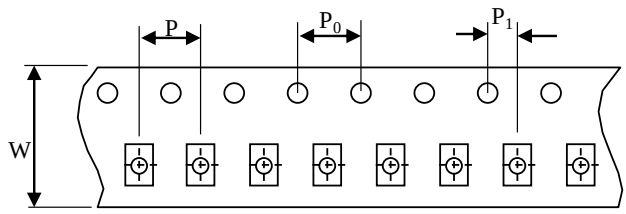
NOTE:

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

2. Nitrogen adopted is recommended while in re-flow

(6) PACKAGING

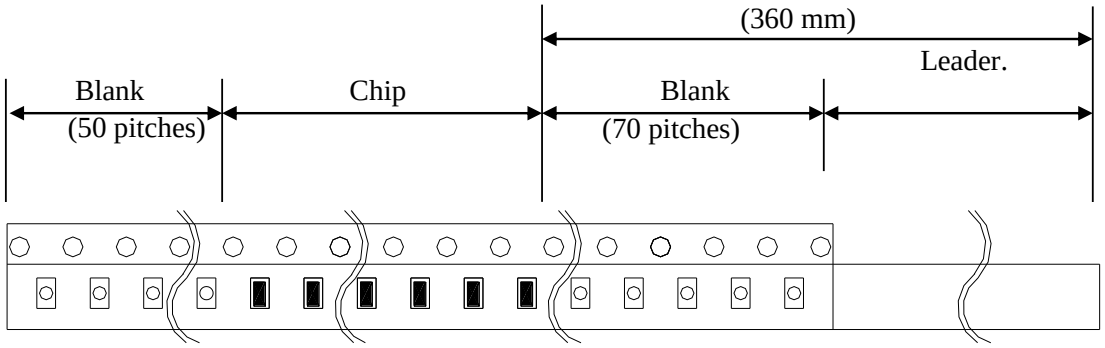
(6)-1 CARRIER TAPE DIMENSIONS (mm)



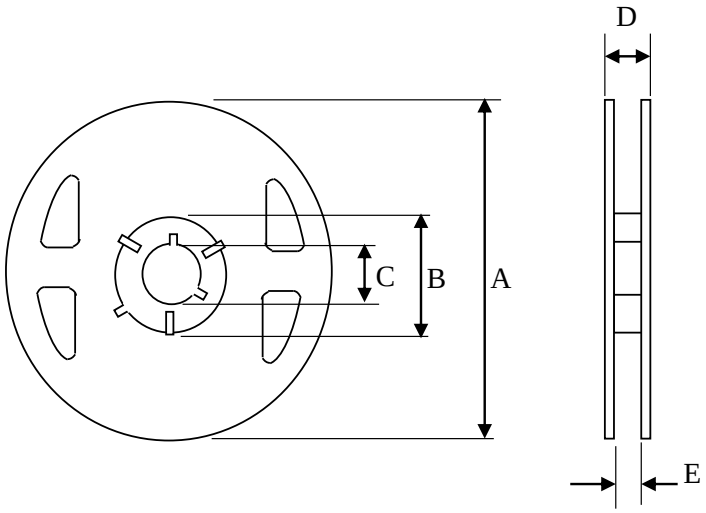
W : 8.0 mm
P : 4.0 mm
P0 : 4.0 mm
P1 : 2.0 mm

(6)-2 TAPING DIMENSIONS (mm)

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



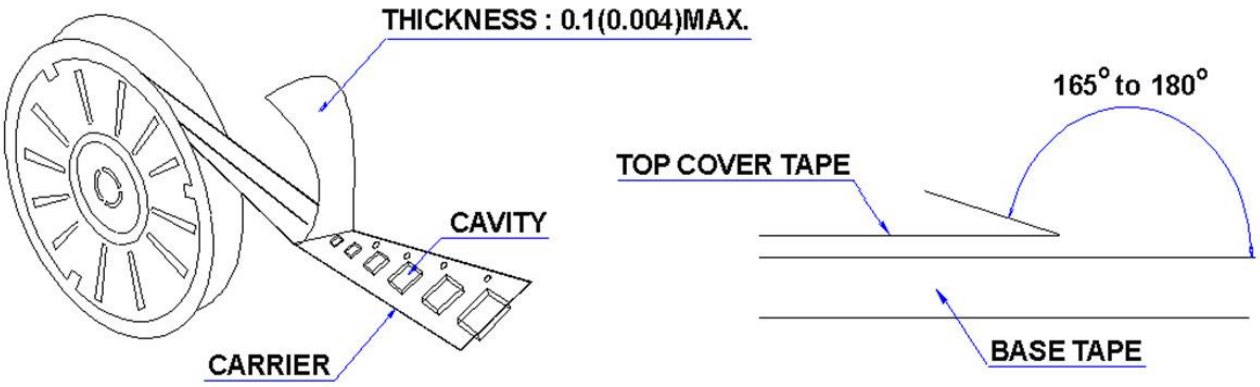
(6)-3 REEL DIMENSIONS



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

2000 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.