FB2012Q1 Series(Multilayer Ferrite Chip Bead)

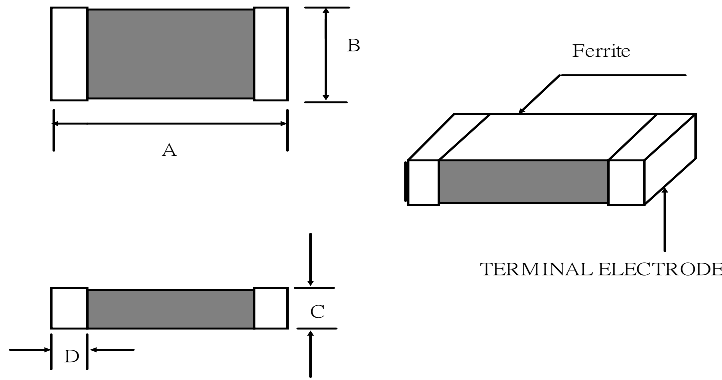
●FEATURE

1. Small size chips generating high impedance
2. High reliability due to an entirely monolithic structure
3. Low DC resistance structure of electrode prevents wasteful electric power consumption
4. Suppress EMI/RFI and to prevent self-oscillation in electronic products
5. AEC-Q200 Grade 1 qualified

●Applications

1. Cellular phones, Digital communication equipment, Various electronics equipment
2. Circuit where a stable ground is unavailable

●Shape and Dimension



●Specification

Dimension in mm

FB201209Q1	2.0±0.20	1.25±0.20	0.9±0.20	0.5±0.30
FB201212Q1	2.0±0.20	1.25±0.20	1.25±0.20	0.5±0.30

Note1: Test equipment: HP 4291A Impedance analyzer

●Electrical characteristics

Part Number	Impedance(Ω) ±25% at 100MHz	DC Resistance(Ω)Max	Rated Current (mA) Max
FB201209Q1U070	7	0.10	300
FB201209Q1U110	11	0.10	300
FB201209Q1U170	17	0.10	300
FB201209Q1U260	26	0.10	300
FB201209Q1U310	31	0.10	300
FB201209Q1U520	52	0.15	300
FB201209Q1U600	60	0.15	300
FB201209Q1U800	80	0.15	300
FB201209Q1U101	100	0.20	300
FB201209Q1U121	120	0.20	300
FB201209Q1U151	150	0.20	300
FB201209Q1U221	220	0.25	300
FB201209Q1U301	300	0.25	300
FB201209Q1U401	400	0.30	300
FB201209Q1U601	600	0.35	300
FB201209Q1U102	1000	0.45	300
FB201209Q1U102-0.5A	1000±25%	0.45	500
FB201209Q1U152	1500±25%	0.70	300
FB201209Q1U202	2000±25%	0.60	200
Part Number	Impedance(Ω) ±25% at 100MHz	DC Resistance(Ω)Max	Rated Current (mA) Max
FB201212Q1U222	2200	0.70	200

●Reliability Test

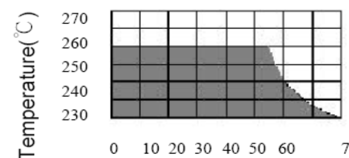
1. Reflow soldering conditions

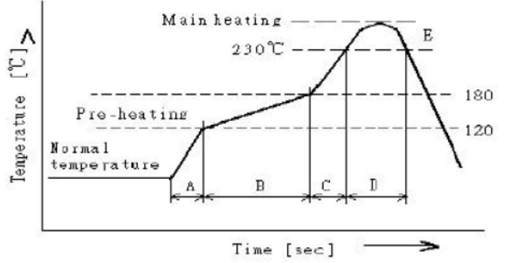
Pre－heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150℃ max.Also cooling into solvent after soldering should be in such a way that the temperature difference is limited to 100℃ max.

Unenough pre－heating may cause cracks on the ferrite, resulting in the deterioration of product quality.

Products should be soldered within the following allowable range indicated by the slanted line.

The excessive soldering conditions may cause the corrosion of the electrode, When soldering isrepeated, allowable time is the accumulated time.





A	Slope of temp. rise	1 to 5	℃/sec
B	Heat time	50 to 150	sec
	Heat temperature	120 to 180	℃
C	Slope of temp. rise	1 to 5	℃/sec
D	Time over 230℃	90~120	sec
E	Peak temperature	255~260	℃
	Peak hold time	10 max.	sec
	No. of mounting	3	times

1.1 Reworking with soldering iron

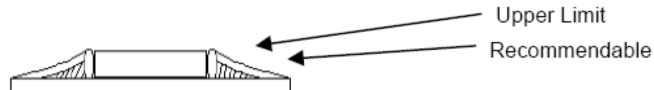
Preheating	150℃, lminute
Tip temperature	280℃ max
Soldering time	3seconds max.
Soldering iron output	30w max.
End of soldering iron	∮3mm max.

• Reworking should be limited to only one time.

Note：Do not directly touch the products with the tip of the soldering iron in order to prevent the crack on the ferrite material due to the thermal shock.

1.2 Solder Volume

Solder shall be used not to be exceed the upper limits as shown below.



Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance.

2. IMPEDANCE

2.1 Impedance shall be measured with HP－4291A impedance analyzer or equivalent system

1. MECHANICAL CHARACTERISTICS

ITEM	REWUIREMNTS	TEST CONDITIONS
TERMINAL STRENGTH	THE TERMINAL ELECTRODE AND THE FERRITE MUST NOT BE DAMAGED BY THE FORCE APPLIED ON THE RIGHT CONDITIONS.	AFTER SOLDERING A LEAD WIRE TO A TERMINAL ELECTRODE,APPLY A LOAD POWER IN THE ARROW DIRECTION. W(Kgf)
FLEXURE STRENGTH	THE TERMINAL ELECTRODE AND THE FERRITE MUST NOT BE DAMAGED BY THE FORCE APPLIED ON THE RIGHT CONDITIONS.	AFTER SOLDERING A CHIP TO A TEST SUBSTRATE,BEND THE SUBSTRATE BY 2m/m AND THEN RETURN.
BODY STRENGTH	THE FERRITE SHALL NOT BE DAMAGED BY FORCES APPLIED ON THE RIGHT SPECIFICATION ≧1.0W(Kgf)	R0.5mm 1.0mm A A : 0.9(mm) 0.04 (INCHES)
RESISTANCE TO SOLDER HEAT	THE CHIPS MUST HAVE NO CRACKS.MORE THAN 75% OF THE TERMINAL ELECTRODE MUST BE COVERED WITH NEW SOLDER. IMPEDANCE & RDC SHALL BE WITHIN ±30% OF THE INITIAL VALUE. INDUCTANCE: WITHIN ±20% OF INITIAL VALUE.	PREHEAT TEMP ： 100 TO 150℃ PREHEAT TIME ： 1 MINUTE SOLDER TEMP ： 275±5℃ DIPPING TIME ： 5±1sec
SOLDER ABILITY	MORE THAN 90% OF THE TERMINAL ELECTRODES SHALL BE COVERED WITH NEW SOLDER.	PREHEAT TEMP ： 100 TO 150℃ PREHEAT TIME ： 1 MINUTE SOLDER TEMP ： 215±5℃ DIPPING TIME ： 3±1sec

4. RELIABILITY AND TEST CONDITIONS

4.1 HIGH TEMPERATURE RESISTANCE

a. Performance specification

1. Appearance：no mechanical damage
2. Impedance shall be with ±30% of the initial value

b. Test condition

1. Temperature 125℃±2℃
2. Applied current：Rated current
3. Testing time：1008±12hrs (maximum value)
4. Measurement：After placing at room ambient temperature for 24 hours minimum

4.2 HUMIDITY RESISTANCE

a. Performance specification

1. Appearance：no mechanical damage
2. Impedance shall be with ±30% of the initial value

b. Test condition

1. Humidity：90 to 95% RH
2. Temperature：40±2℃
3. Applied current：Rated current (maximum value)
4. Testing tine：1008±12hours
5. Measurement：After placing at room ambient temperature for 24 hours minimum

4.3 TEMPERATURE CYCLE

a. Performance specification

1. Appearance：no mechanical damage
2. Impedance shall be with ±30% of the initial value

b. Test condition

1. Temperature -55℃,+125℃ kept stabilized for 30 minutes each
2. Cycle：100 cycles
3. Measurement：After placing for 24hours minimum at room ambient temperature
4. step1. -55℃ temp±3℃ 30±3 minutes
   step2. Room temperature 2to5 minutes
   step3. +125℃ temp±2℃ 30±3 minutes
   step4. room temperature 2to5 minutes

4.4 LOW TEMPERATURE STORAGE LIFE TEST

a. Performance specification

1. Appearance：no mechanical damage
2. Impedance shall be with ±30% of the initial value

b. Test condition

1.Temperature -55℃±2℃
2.Testing time：1008±12hours
3.Measurement：After placing for 24 hours minimum at room ambient temperature

5. STORAGE

5.1 The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to high humidity. Packages must be stored at 40℃ or less and 70% RH or less.

5.2 The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust or harmful gas (hydrogen chloride,sulfurous acid gas or hydrogen sulfide).

5.3 Packaging material may be deformed if packages are stored where they are exposed to heat or direct sun－light.

5.4 Minimum packages, such as polyvinyl heat－seal packages shall not be opened until just before they are used. If opened, use the reels as soon as possible.

5.5 Solderability specified in composite specification page.3 shall be for 12 months from the date of delivery on condition that they are stored at the environment specified clause 5-1 & 5-2.

For those parts which passed more than 12 months shall be checked solderability before it is used.