91xRxK-x Series

Rev. V2

Features

- High Reliability Silicon Nitride/Oxide Dielectric
- Low Loss
- Long Term Reliability & Stability
- RoHS* Compliant

Description

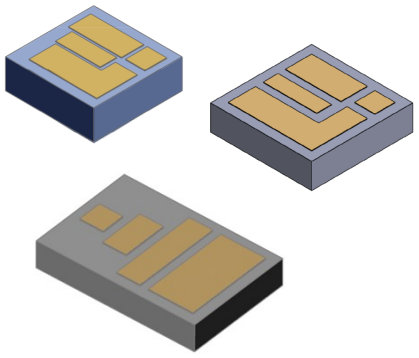
The 91xRxK-BOO and -BSP Series binary chip capacitors are designed to facilitate bread-boarding or to use where a trimming capability is required. These devices feature the same dielectric layer and bonding surfaces as our 9000 and 9100 Series chip capacitors. By connecting the pads in parallel, the capacitance values are additive, so many combinations are possible.

The BSP-1 chip offers the same capacitance values as BOO and BSP-3, but in a slightly larger chip with a more accommodating layout for ease of bonding.

The top contact and backside terminals are gold. Capacitors from this family of rugged devices are capable of reliable operation in all military, commercial and industrial applications.

These binary chip capacitors are capable of meeting the environmental requirements of MIL-STD-750 and MIL-STD-883.

Suitable for DC Block and RF bypass applications.



Ordering Information[1,2]

Part #
911R5K-BSP-3
913R0K-BSP-3
913R7K-BSP-3
915R6K-BSP-3
913R7K-BOO
917R5K-BOO
9115R0K-BOO
9122R5K-BOO
913R7K-BSP-1
917R5K-BSP-1
9115R0K-BSP-1
9122R5K-BSP-1

1. Packaging is available in waffle packs.
2. The part number for the 91 family of binary chip capacitors consists of 6 to 7 characters. The left most two characters identify the product family. Characters in between 91 and K indicate the nominal capacitance value of the capacitor, in pF. The rightmost character indicates the capacitance tolerance. Add the -package style
   For example: 911R5K-BSP-3
   "91" indicates working voltage is 100 V.
   "1R5" indicates the nominal capacitance value is 1.5 pF (the character "R" represents the radix point).
   "K" indicates the capacitance tolerance is +10% of the nominal value.
   -BSP-3 is the DIE configuration

* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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Capacitance Values

-BSP-3 (0.015” x 0.015”)

Part #	Capacitance (pF)				
	Pad 1	Pad 2	Pad 3	Pad 4	Total
911R5K-BSP-3	0.1	0.2	0.4	0.8	1.5
913R0K-BSP-3	0.2	0.4	0.8	1.6	3.0
913R7K-BSP-3	0.25	0.50	1.0	2.0	3.75
915R6K-BSP-3	0.35	0.75	1.5	3.0	5.6

-BOO (0.020” x 0.020”)

Part #	Capacitance (pF)				
	Pad 1	Pad 2	Pad 3	Pad 4	Total
913R7K-BOO	0.25	0.5	1.0	2.0	3.75
917R5K-BOO	0.5	1.0	2.0	4.0	7.5
9115R0K-BOO	1.0	2.0	4.0	8.0	15
9122R5K-BOO	1.5	3.0	6.0	12.0	22.5

-BSP-1 (0.020” x 0.030”)

Part #	Capacitance (pF)				
	Pad 1	Pad 2	Pad 3	Pad 4	Total
913R7K-BSP-1	0.25	0.5	1.0	2.0	3.75
917R5K-BSP-1	0.5	1.0	2.0	4.0	7.5
9115R0K-BSP-1	1.0	2.0	4.0	8.0	15
9122R5K-BSP-1	1.5	3.0	6.0	12.0	22.5

Capacitance Tolerance

Indicator	Value
K (standard tolerance value)	±10%

Absolute Maximum Ratings[3,4]

Parameter	Absolute Maximum
DC Reverse Voltage	100 V
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +200°C
Die Attached Temperature	<400°C for 5 seconds

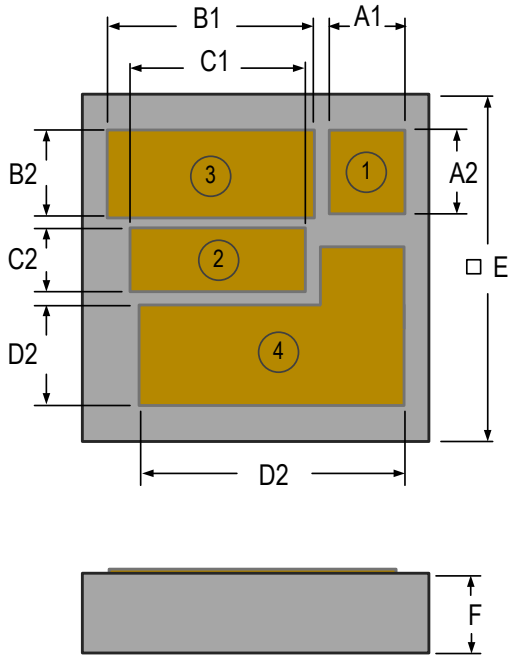
3. Exceeding any one or combination of these limits may cause permanent damage to this device.
4. MACOM does not recommend sustained operation near these survivability limits.

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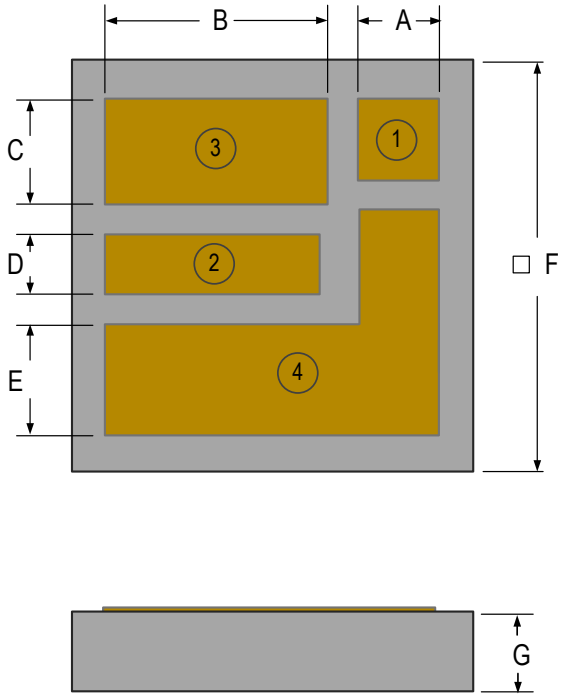
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Die Outlines

-BSP-3 (0.015” x 0.015”)



-BOO (0.020” x 0.020”)



Dimensions in Inches

Dim.	Min.	Nom.	Max.
A1	—	0.0033	—
A2	—	0.0037	—
B1	—	0.0090	—
B2	—	0.0038	—
C1	—	0.0076	—
C2	—	0.0028	—
D1	—	0.0115	—
C2	—	0.0045	—
E	0.0130	0.0150	0.0170
F	0.0030	0.0050	0.0070

Dimensions in Inches

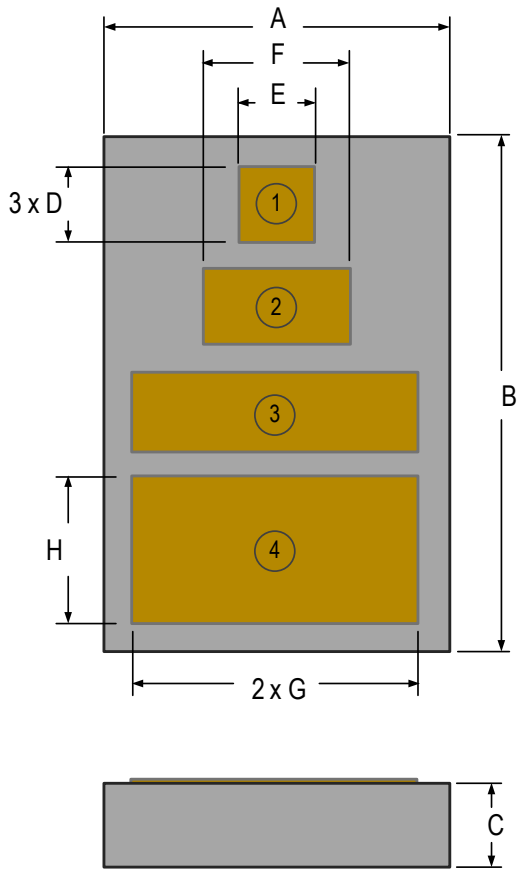
Dim.	Min.	Nom.	Max.
A	—	0.0040	—
B	—	0.0110	—
C	—	0.0052	—
D	—	0.0030	—
E	—	0.0054	—
F	0.0190	0.0200	0.0210
G	0.0030	0.0050	0.0070

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Die Outline

-BSP-1 (0.030” x 0.020”)



Dimensions in Inches

Dim.	Min.	Nom.	Max.
A	0.0180	0.0200	0.0220
B	0.0280	0.0300	0.0320
C	0.0050	0.0060	0.0070
D	—	0.0045	—
E	—	0.0045	—
F	—	0.0085	—
G	—	0.0165	—
H	—	0.0085	—

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these HBM Class 0 devices.

Assembly Instructions

Die attach of the binary chip capacitors may be accomplished with eutectic solder, such as Au 80 / Sn 20, or conductive epoxy. Au wire or ribbon may be bonded to the top contact using thermo compression bonding or thermal sonic bonding. The wire or ribbon should be attached at or near the center of the top contact.

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