91xxxx Series

Chip Capacitors

Rev. V1

Features

- High Working Voltage: 100 V
- Wide Range of Capacitance: 0.1 - 399 pF
- Excellent Stability
- RoHS* Compliant

Description

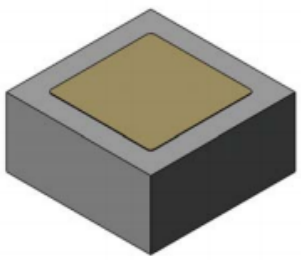
The 91 Series of chip capacitors features silicon nitride/silicon dioxide dielectric layers for high reliability and stable capacitance over time. These metal-insulator-semiconductor (MIS) capacitors have high insulation resistance and low dissipation factor for excellent high frequency performance and reliability. Capacitors are available with capacitance from 0.1 pF up to 399 pF. The working voltage of the 90 series is 100 V.

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.

The 90 series 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.

Die



Capacitance Values, 50 V

Model #	Capacitance (pF)
910R1 - 911R9	0.1 - 1.9
912R0 - 919R9	2 - 9.9
9110R - 9129R	10 - 29
9130R - 9149R	30 - 49
9150R - 9199R	50 - 99
91100 - 91199	100 - 199
91200 - 91399	200 - 399

Ordering Information[1]

Part #	Packaging
(Model #)(tolerance)-W	400 pc Waffle Pack

1. The part number for the 91 family of chip capacitors consists of 6 characters. The left most two characters identify the product family. Characters in positions 3, 4 and 5 indicate the nominal capacitance value of the capacitor, in pF. The rightmost character indicates the capacitance tolerance.
   For example: 9010RK
   - "91" indicates working voltage is 100 V.
   - "10R" indicates the nominal capacitance value is 10.0 pF (the character "R" represents the radix point).
   - "K" indicates the capacitance tolerance is +10% of the nominal value.

Capacitance Tolerance

Indicator	Value
A	±0.05
B	±0.10
C	±0.25
D	±0.50
F	±1%
G	±2%
J	±5%
K (standard tolerance value)	±10%
M	±20%

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
https://www.macom.com/support

Absolute Maximum Ratings[2,3]

Parameter	Absolute Maximum
DC Reverse Voltage	100 V
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +200°C

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

Handling Procedures

Please observe the following precautions to avoid damage:

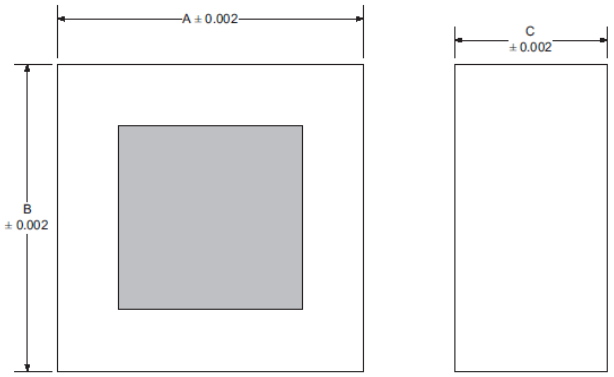
Static Sensitivity

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 Class 0 (HBM) devices.

Assembly Instructions

Die attach of the 91xxxx 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.

Die Outline



Dimensions are in inches

Die Dimensions

Model #	Dimensions (±0.002)	
	A & B	C
910R1 - 911R9	0.010	0.005
912R0 - 919R9	0.015	0.005
9110R - 9129R	0.020	0.006
9130R - 9149R	0.030	0.006
9150R - 9199R	0.040	0.008
91100 - 91199	0.050	0.008
91200 - 91399	0.070	0.008

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
https://www.macom.com/support

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.