90xxxx Series

Chip Capacitors

Rev. V2

Features

- High Working Voltage: 50 V
- Wide Range of Capacitance: 2 - 600 pF
- Excellent Stability
- RoHS* Compliant

Description

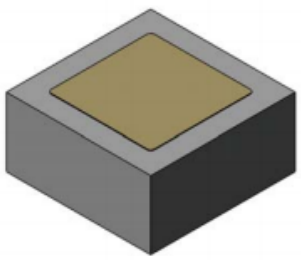
The 90 Series of chip capacitors features silicon nitride/silicon dioxide dielectric layers for high reliability and stable capacitance over time. These metal-insulator-semiconductor (MIS) capacitors have high insulation resistance and low dissipation factor for excellent high frequency performance and reliability. Capacitors are available with capacitance from 2 pF up to 600 pF. The working voltage of the 90 series is 50 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)
902R0 - 9010R	2 - 10
9011R - 9029R	11 - 29
9030R - 9049R	30 - 49
9050R - 9099R	50 - 99
90100 - 90199	100 - 199
90200 - 90399	200 - 399
90400 - 90600	400 - 600

Ordering Information[1]

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

1. The part number for the 90 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
   - "90" indicates working voltage is 50 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.

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Absolute Maximum Ratings[2,3]

Parameter	Absolute Maximum
DC Reverse Voltage	50 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:

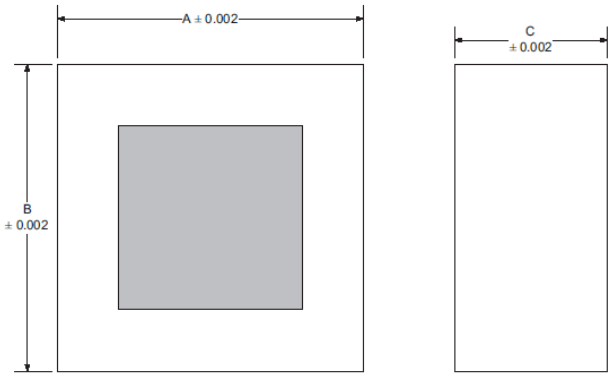
Static Sensitivity

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 90xxxx 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
902R0 - 9010R	0.010	0.005
9011R - 9029R	0.015	0.005
9030R - 9049R	0.020	0.006
9050R - 9099R	0.030	0.006
90100 - 90199	0.040	0.008
90200 - 90399	0.050	0.008
90400 - 90600	0.070	0.008

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