

## DESCRIPTION

The GC84000 series are silicon chip capacitors and utilize silicon nitride as the dielectric layer. These capacitors are preferred over MOS devices because of their improved reliability and ruggedness. In addition, they exhibit higher capacitance per unit area, resulting in smaller size.

Because MNS capacitors are high Q devices, they have superior insertion loss characteristics for high frequency applications as compared with ceramic chip capacitors. They are used from UHF through Ku-bands and exhibit less than 0.1 dB insertion loss over this range.

The working voltage rating is 100 V<sub>DC</sub> (140 V<sub>DC</sub>, typical). Special devices with breakdown ratings to 300 V<sub>DC</sub> and custom sizes are available. Contact factory for details.

This series of devices meets RoHS requirements per EU Directive 2002/95/EC. The standard terminal finish is gold unless otherwise specified. Consult the factory if you have special requirements.

## APPLICATIONS

The GC84000 chip capacitors are used in RF circuits for DC blocks, capacitive coupling and RF bypass. They are used for fixed capacitive tuning of oscillators, multipliers or filter elements.

## KEY FEATURES

- Excellent Q
- Superior Insertion Loss
- Suitable for application to 18Ghz
- RoHS Compliant<sup>1</sup>

## APPLICATIONS/BENEFITS

- RF Bias Networks
- DC Block
- RF Bypass
- Capacitive Coupling
- Fixed Tuning Elements

## ABSOLUTE MAXIMUM RATINGS AT 25° C (UNLESS OTHERWISE SPECIFIED)

| Rating                                 | Symbol           | Value       | Unit    |
|----------------------------------------|------------------|-------------|---------|
| Working Voltage                        | V <sub>R</sub>   | 100         | Volts   |
| Temperature Coefficient of Capacitance | T <sub>CC</sub>  | 190         | ppm/ °C |
| Storage Temperature                    | T <sub>STG</sub> | -65 to +200 | °C      |
| Operating Temperature                  | T <sub>OP</sub>  | -55 to +150 | °C      |

**IMPORTANT:** For the most current data, consult our website: [www.MICROSEMI.com](http://www.MICROSEMI.com)  
Specifications are subject to change, consult the factory for further information.



These devices are ESD sensitive and must be handled using ESD precautions.

<sup>1</sup> These devices are supplied with gold plated terminations.

**CHIP ELECTRICAL PARAMETERS @ 25°C**  
(unless otherwise specified)

| Model Number | C <sub>J</sub> (pF)<br>@V <sub>R</sub> =0V<br>(+/- 10%) | V <sub>R</sub> (V)<br>(Min) | OUTLINE |
|--------------|---------------------------------------------------------|-----------------------------|---------|
| GC84001-00   | 1                                                       | 100                         | A       |
| GC84002-00   | 2                                                       | 100                         | B       |
| GC84003-00   | 3                                                       | 100                         | B       |
| GC84004-00   | 4                                                       | 100                         | B       |
| GC84005-00   | 5                                                       | 100                         | B       |
| GC84006-00   | 6                                                       | 100                         | B       |
| GC84007-00   | 7                                                       | 100                         | B       |
| GC84008-00   | 8                                                       | 100                         | B       |
| GC84009-00   | 9                                                       | 100                         | B       |
| GC84010-00   | 10                                                      | 100                         | B       |
| GC84015-00   | 15                                                      | 100                         | B       |
| GC84020-00   | 20                                                      | 100                         | C       |
| GC84025-00   | 25                                                      | 100                         | C       |
| GC84030-00   | 30                                                      | 100                         | C       |
| GC84040-00   | 40                                                      | 100                         | C       |
| GC84050-00   | 50                                                      | 100                         | D       |
| GC84060-00   | 60                                                      | 100                         | D       |
| GC84080-00   | 80                                                      | 100                         | E       |
| GC84100-00   | 100                                                     | 100                         | E       |
| GC84150-00   | 150                                                     | 100                         | F       |
| GC84200-00   | 200                                                     | 100                         | F       |
| GC84300-00   | 300                                                     | 100                         | G       |

**MECHANICAL DIMENSIONS**

| OUTLINE | Chip<br>"A" X "B"<br>(Inches)<br>(Nominal) | Chip<br>Thickness "C"<br>(Inches)<br>(Nominal) | Bond Pad<br>"D" X "E"<br>(Inches)<br>(Nominal) |
|---------|--------------------------------------------|------------------------------------------------|------------------------------------------------|
| A       | 0.010 X 0.010                              | 0.007                                          | 0.005 X 0.005                                  |
| B       | 0.015 X 0.015                              | 0.007                                          | 0.010 X 0.010                                  |
| C       | 0.020 X 0.020                              | 0.007                                          | 0.015 X 0.015                                  |
| D       | 0.025 X 0.025                              | 0.007                                          | 0.020 X 0.020                                  |
| E       | 0.030 X 0.030                              | 0.007                                          | 0.025 X 0.025                                  |
| F       | 0.040 X 0.040                              | 0.007                                          | 0.035 X 0.035                                  |
| G       | 0.050 X 0.050                              | 0.007                                          | 0.045 X 0.045                                  |

