

MICROWAVE SAPPHIRE PISTONCAP® TRIMMER CAPACITORS

FEATURES

- Sapphire dielectric
- Very high Q at UHF and microwave frequencies
- Subminiature – smallest PISTONCAP® types
- Choice of 2 configurations and 6 mounting styles to suit all RF structures
- Designed to meet MIL-C-14409D
- Precision high resolution adjustment:
 - 127 threads per inch for GU series, GW series and GN_1R2_ _
 - 169 threads per inch for GN_2R5_ _ to GN_8R0_ _
- Extremely stable over temperature, frequency, voltage, etc.

APPLICATIONS

Stable oscillators, frequency multipliers, filters, tuning cavities, coupling, etc.

SPECIFICATIONS

Operating temperature: -55°C to +125°C

Rated voltage: 500 VDC

Dielectric withstanding voltage: 1000 VDC

Contact resistance: 0.01 Ohms

Insulation resistance: 10⁶ Megohms min at 500 VDC



Torque: 0.1 to 1.0 oz-in (7.2 to 72 g-cm) for GU series and GN_1R2_ _
0.2 to 2.0 oz-in (14.4 to 144 g-cm) for GW and GN_2R5_ _ to GN_8R0_ _

PART NUMBERING SYSTEM

GU
Sapphire Dielectric

GN
GU
GW

C
Mount Type

C = PC Mount
F = Flange Mount
L = Horizontal Surface Mount
N = Leadless
R = Reverse Lead Mount
V = Vertical Surface Mount

1R2
Maximum Rated Capacitance (pF)

Three significant figures with R used as decimal point, e.g. 1R2 = 1.2 pF

00
Modification Suffix

00 = +350 ±100 ppm/°C (no marking)
01 = as above, with PTFE protective cap (GN and GW series)
50 = NPO ± 50 ppm/°C (± 75 for 8 pF models) (dimple or red ID mark on adjustment screw)
51 = as above, with PTFE protective cap (GN and GW series)



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Fig. 1

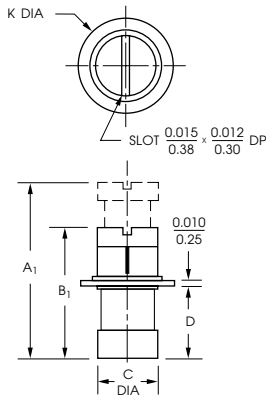
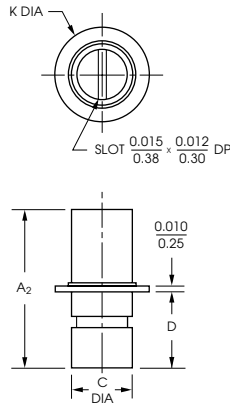


Fig. 2



**Type F -
Flange Mount**



| Capacitance (pF) | | Q min (250 MHz) | A ₁ | B ₁ | C ±0.005 0.1 | D | K ±0.005 0.1 | A ₂ | Model No. Fig. 1 | Model No. Fig.2 |
|------------------|-----|--------------------|--------------------|--------------------|----------------------|--------------------|----------------------|--------------------|----------------------|----------------------|
| min | max | | | | | | | | | |
| 0.3 | 1.2 | 4000 | $\frac{0.20}{5.2}$ | $\frac{0.17}{4.4}$ | $\frac{0.075}{1.9}$ | $\frac{0.09}{2.3}$ | $\frac{0.145}{3.68}$ | $\frac{0.23}{5.8}$ | GUF1R200 GUF1R250 | GNF1R200 GNF1R250 |
| 0.4 | 2.5 | 3000 | $\frac{0.20}{5.2}$ | $\frac{0.17}{4.4}$ | $\frac{0.118}{3.00}$ | $\frac{0.09}{2.3}$ | $\frac{0.185}{4.70}$ | $\frac{0.23}{5.8}$ | GWF2R500 GWF2R550 | GNF2R500 GNF2R550 |
| 0.6 | 4.5 | 2000 | $\frac{0.33}{8.4}$ | $\frac{0.25}{6.5}$ | $\frac{0.118}{3.00}$ | $\frac{0.15}{3.8}$ | $\frac{0.185}{4.70}$ | $\frac{0.31}{7.9}$ | GWF4R500 GWF4R550 | GNF4R500 GNF4R550 |
| 0.8 | 8.0 | 1000 | $\frac{0.57}{14}$ | $\frac{0.41}{11}$ | $\frac{0.118}{3.00}$ | $\frac{0.25}{6.4}$ | $\frac{0.185}{4.70}$ | $\frac{0.47}{12}$ | GWF8R000 GWF8R050 | GNF8R000 GNF8R050 |

Fig. 1

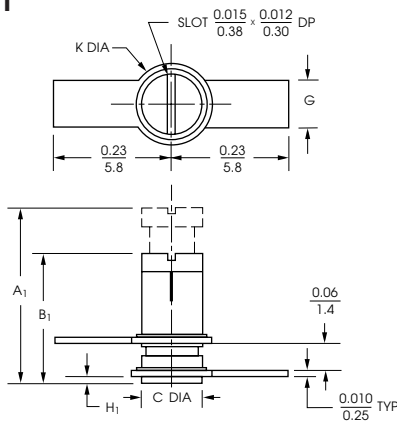
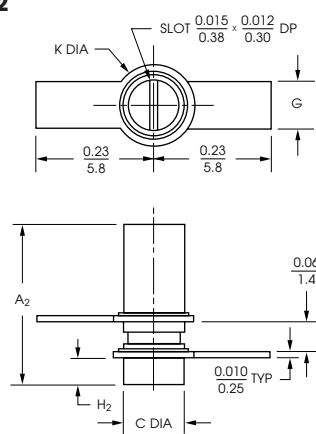
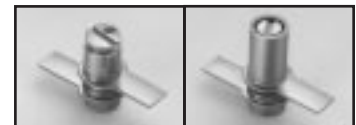


Fig. 2



**Type R -
Reverse Lead Mount**



| Capacitance (pF) | | Q min (250 MHz) | A ₁ | B ₁ | C ±0.005 0.1 | G | H ₁ | K ±0.005 0.1 | A ₂ | H ₂ | Model No. Fig. 1 | Model No. Fig.2 |
|------------------|-----|--------------------|--------------------|--------------------|----------------------|--------------------|--------------------|----------------------|--------------------|----------------------|----------------------|----------------------|
| min | max | | | | | | | | | | | |
| 0.3 | 1.2 | 4000 | $\frac{0.20}{5.2}$ | $\frac{0.17}{4.4}$ | $\frac{0.075}{1.9}$ | $\frac{0.04}{1.0}$ | - | $\frac{0.114}{2.90}$ | $\frac{0.23}{5.8}$ | $\frac{0.015}{0.38}$ | GUR1R200 GUR1R250 | GNR1R200 GNR1R250 |
| 0.4 | 2.5 | 3000 | $\frac{0.20}{5.2}$ | $\frac{0.17}{4.4}$ | $\frac{0.118}{3.00}$ | $\frac{0.09}{2.4}$ | - | $\frac{0.16}{4.0}$ | $\frac{0.23}{5.8}$ | $\frac{0.015}{0.38}$ | GWR2R500 GWR2R550 | GNR2R500 GNR2R550 |
| 0.6 | 4.5 | 2000 | $\frac{0.33}{8.4}$ | $\frac{0.25}{6.5}$ | $\frac{0.118}{3.00}$ | $\frac{0.09}{2.4}$ | - | $\frac{0.16}{4.0}$ | $\frac{0.31}{7.9}$ | $\frac{0.050}{1.3}$ | GWR4R500 GWR4R550 | GNR4R500 GNR4R550 |
| 0.8 | 8.0 | 1000 | $\frac{0.57}{14}$ | $\frac{0.41}{11}$ | $\frac{0.118}{3.00}$ | $\frac{0.09}{2.4}$ | $\frac{0.14}{3.5}$ | $\frac{0.16}{4.0}$ | $\frac{0.47}{12}$ | $\frac{0.14}{3.5}$ | GWR8R000 GWR8R050 | GNR8R000 GNR8R050 |

Dimensions are in/mm. Unless otherwise specified, tolerance is ±0.01/0.3, except slot tolerance is +0.001/0.03, -0.002/0.05 and lead thickness tolerance is ±0.002/0.05.

Fig. 1

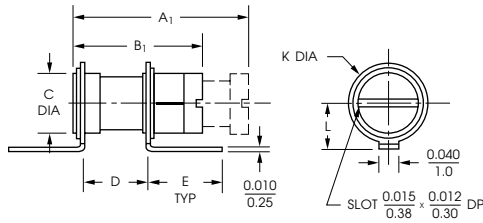
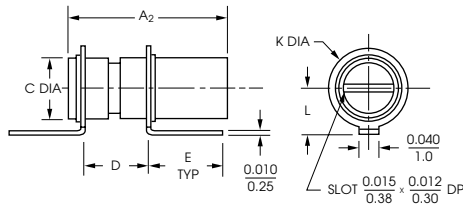


Fig. 2



**Type L -
Horizontal Surface Mount**



| Capacitance (pF) | | Q min (250 MHz) | A ₁ | B ₁ | C ±0.005 / 0.1 | D | E | K ±0.005 / 0.1 | L | A ₂ | Model No. Fig. 1 | Model No. Fig.2 |
|------------------|-----|-----------------|----------------|----------------|----------------|------|-------|----------------|------|----------------|------------------|-----------------|
| min | max | | | | | | | | | | | |
| 0.3 | 1.2 | 4000 | 0.20 | 0.17 | 0.075 | 0.08 | 0.171 | 0.114 | 0.07 | 0.23 | GUL1R200 | GNL1R200 |
| | | | 5.2 | 4.4 | 1.9 | 2.1 | 4.34 | 2.90 | 1.8 | 5.8 | | |
| 0.4 | 2.5 | 3000 | 0.20 | 0.17 | 0.118 | 0.08 | 0.147 | 0.158 | 0.09 | 0.23 | GWL2R500 | GNL2R500 |
| | | | 5.2 | 4.4 | 3.00 | 2.1 | 3.73 | 4.01 | 2.4 | 5.8 | | |
| 0.6 | 4.5 | 2000 | 0.33 | 0.25 | 0.118 | 0.13 | 0.147 | 0.158 | 0.09 | 0.31 | GWL4R500 | GNL4R500 |
| | | | 8.4 | 6.5 | 3.00 | 3.3 | 3.73 | 4.01 | 2.4 | 7.9 | | |
| 0.8 | 8.0 | 1000 | 0.57 | 0.41 | 0.118 | 0.25 | 0.147 | 0.158 | 0.09 | 0.47 | GWL8R000 | GNL8R000 |
| | | | 14 | 11 | 3.00 | 6.4 | 3.73 | 4.01 | 2.4 | 12 | | |

Fig. 1

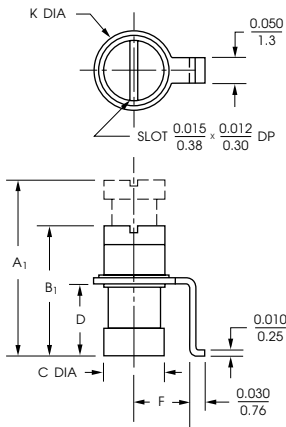
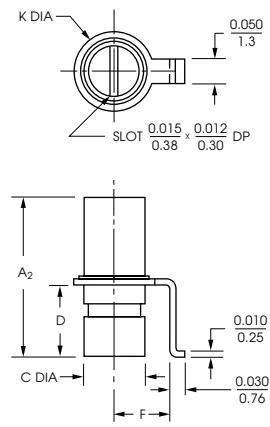


Fig. 2



**Type V -
Vertical Surface Mount**



| Capacitance (pF) | | Q min (250 MHz) | A ₁ | B ₁ | C ±0.005 / 0.1 | D | F | K ±0.005 / 0.1 | A ₂ | Model No. Fig. 1 | Model No. Fig.2 |
|------------------|-----|-----------------|----------------|----------------|----------------|------|------|----------------|----------------|------------------|-----------------|
| min | max | | | | | | | | | | |
| 0.3 | 1.2 | 4000 | 0.20 | 0.17 | 0.075 | 0.09 | 0.08 | 0.114 | 0.23 | GUV1R200 | GNV1R200 |
| | | | 5.2 | 4.4 | 1.9 | 2.3 | 1.9 | 2.90 | 5.8 | | |
| 0.4 | 2.5 | 3000 | 0.20 | 0.17 | 0.118 | 0.09 | 0.11 | 0.158 | 0.23 | GWV2R500 | GNV2R500 |
| | | | 5.2 | 4.4 | 3.00 | 2.3 | 2.8 | 4.01 | 5.8 | | |
| 0.6 | 4.5 | 2000 | 0.33 | 0.25 | 0.118 | 0.15 | 0.11 | 0.158 | 0.31 | GWV4R500 | GNV4R500 |
| | | | 8.4 | 6.5 | 3.00 | 3.8 | 2.8 | 4.01 | 7.9 | | |
| 0.8 | 8.0 | 1000 | 0.57 | 0.41 | 0.118 | 0.25 | 0.11 | 0.158 | 0.47 | GWV8R000 | GNV8R000 |
| | | | 14 | 11 | 3.00 | 6.4 | 2.8 | 4.01 | 12 | | |

Dimensions are in/mm. Unless otherwise specified, tolerance is ±0.01/0.3, except slot tolerance is +0.001/0.03, -0.002/0.05 and lead thickness tolerance is ±0.002/0.05.

**Type C -
PC Mount**

Fig. 1

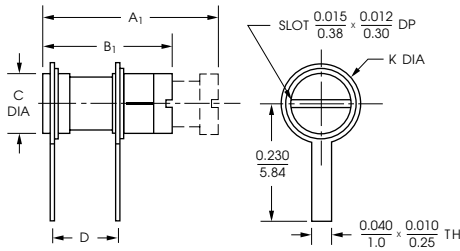
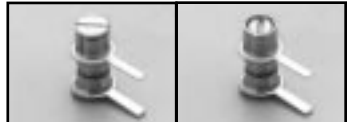
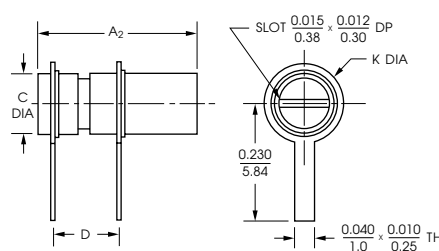


Fig. 2



| Capacitance (pF) | | Q min (250 MHz) | A ₁ | B ₁ | C ± 0.005 / 0.1 | D | K ± 0.005 / 0.1 | A ₂ | Model No. Fig. 1 | Model No. Fig. 2 |
|------------------|-----|-----------------|----------------|----------------|--------------------|------------|--------------------|----------------|---------------------|---------------------|
| min | max | | | | | | | | | |
| 0.3 | 1.2 | 4000 | 0.20 / 5.2 | 0.17 / 4.4 | 0.075 / 1.9 | 0.08 / 2.1 | 0.114 / 2.90 | 0.23 / 5.8 | GUC1R200 | GNC1R200 |
| | | | | | | | | | GUC1R250 | GNC1R250 |
| 0.4 | 2.5 | 3000 | 0.20 / 5.2 | 0.17 / 4.4 | 0.12 / 3.0 | 0.08 / 2.1 | 0.158 / 4.01 | 0.23 / 5.8 | GWC2R500 | GNC2R500 |
| | | | | | | | | | GWC2R550 | GNC2R550 |
| 0.6 | 4.5 | 2000 | 0.33 / 8.4 | 0.25 / 6.5 | 0.12 / 3.0 | 0.13 / 3.3 | 0.158 / 4.01 | 0.31 / 7.9 | GWC4R500 | GNC4R500 |
| | | | | | | | | | GWC4R550 | GNC4R550 |
| 0.8 | 8.0 | 1000 | 0.57 / 14 | 0.41 / 11 | 0.12 / 3.0 | 0.25 / 6.4 | 0.158 / 4.01 | 0.47 / 12 | GWC8R000 | GNC8R000 |
| | | | | | | | | | GWC8R050 | GNC8R050 |

Fig. 1

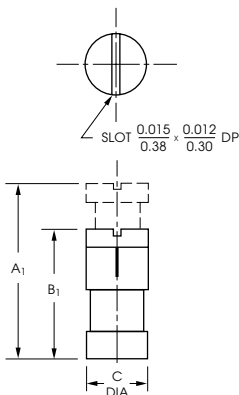
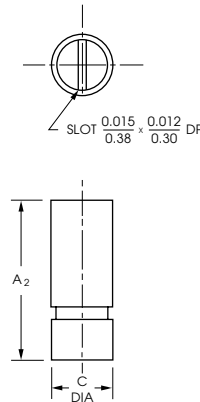


Fig. 2



**Type N -
Leadless**



| Capacitance (pF) | | Q min (250 MHz) | A ₁ | B ₁ | C ± 0.005 / 0.1 | A ₂ | Model No. Fig. 1 | Model No. Fig. 2 |
|------------------|-----|-----------------|----------------|----------------|--------------------|----------------|---------------------|---------------------|
| min | max | | | | | | | |
| 0.3 | 1.2 | 4000 | 0.20 / 5.2 | 0.17 / 4.4 | 0.075 / 1.9 | 0.23 / 5.8 | GNN1R200 | GNN1R200 |
| | | | | | | | GNN1R250 | GNN1R250 |
| 0.4 | 2.5 | 3000 | 0.20 / 5.2 | 0.17 / 4.4 | 0.12 / 3.0 | 0.23 / 5.8 | GWN2R500 | GNN2R500 |
| | | | | | | | GWN2R550 | GNN2R550 |
| 0.6 | 4.5 | 2000 | 0.33 / 8.4 | 0.25 / 6.5 | 0.12 / 3.0 | 0.31 / 7.9 | GWN4R500 | GNN4R500 |
| | | | | | | | GWN4R550 | GNN4R550 |
| 0.8 | 8.0 | 1000 | 0.57 / 14 | 0.41 / 11 | 0.12 / 3.0 | 0.47 / 12 | GWN8R000 | GNN8R000 |
| | | | | | | | GWN8R050 | GNN8R050 |

Dimensions are in/mm. Unless otherwise specified, tolerance is ±0.01/0.3, except slot tolerance is +0.001/0.03, -0.002/0.05 and lead thickness tolerance is ±0.002/0.05.

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