

# Sprague-Goodman

ENGINEERING BULLETIN

**SG-500D**

Supersedes SG-500C

## MICA DIELECTRIC COMPRESSION TRIMMER CAPACITORS

### FEATURES

- Very large capacitance ranges
- High Q
- Good RF current handling capability
- Many forms and mounting styles



### SPECIFICATIONS

**Operating Temperature Range:** -35°C to +85°C

**Maximum Capacitance:** When set at the tight position (tight defined as 28 oz-in/2.0 kg-cm), the maximum capacitance will be no less than the value indicated in the table.

**Minimum Capacitance:** When adjusting screw is rotated 3 turns from tight position (2 turns for types 1, 5, and 9), the minimum capacitance will be no greater than the value indicated in the table.

| Voltage:      | Working (VDC) | Dielectric Withstanding (VDC) |
|---------------|---------------|-------------------------------|
| Type 1        | 250           | 500                           |
| Types 2, 3, 4 | 175           | 350                           |
| Type 5        | 500           | 1000                          |
| Types 6, 7, 8 | 250           | 500                           |
| Type 9        | 2000          | 2700                          |

**Insulation Resistance:** 100,000 megohms min at 25°C

**Q:** Minimum Q at 1 MHz per graph (for units which have nominal maximum capacitance ≤ 1000 pF).

**Dissipation Factor:** Maximum DF = 0.004 at 1 kHz (for units which have nominal maximum capacitance > 1000 pF).

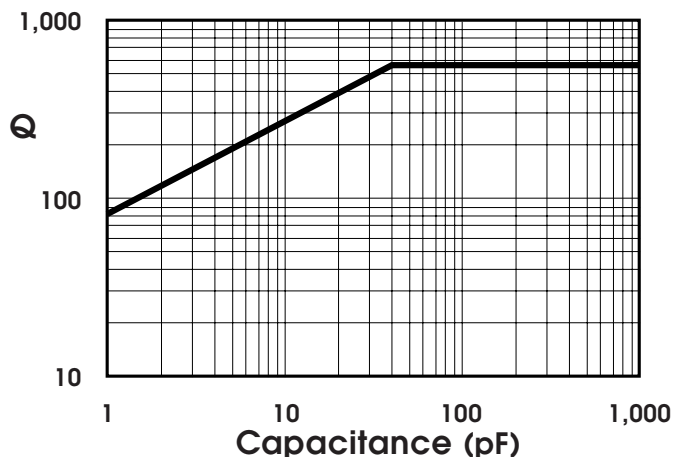
**Capacitance change with temperature** (capacitor set at 1/4 to 1/2 turn from the tight position):

Types 1, 5, 9 = ± (2.5% + 0.3 pF)  
Types 2, 3, 4, 6, 7, 8 = ± (1.5% + 0.3 pF)

**Capacitance drift with temperature** (capacitor set at 1/4 to 1/2 turn from the tight position):

Types 1, 5, 9 = ± (2.0% + 0.5 pF)  
Types 2, 3, 4, 6, 7, 8 = ± (1.5% + 0.5 pF)

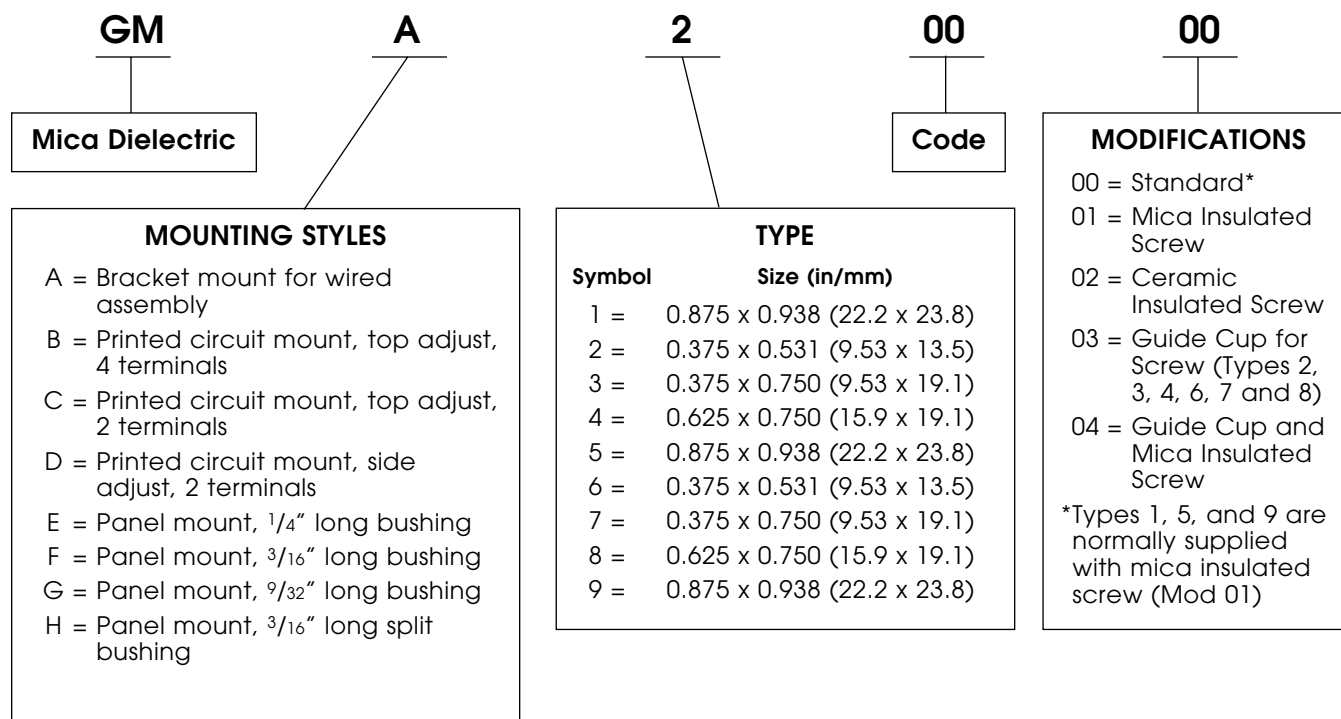
**Q vs Capacitance**  
(1 MHz)



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## PART NUMBERING SYSTEM



### Types 2 and 6

| Capacitance Range (pF) |     | Model No. <sup>1</sup> |
|------------------------|-----|------------------------|
| min                    | max |                        |
| 2.5                    | 7   | GM__20000              |
| 4                      | 20  | GM__20200              |
| 8                      | 45  | GM__20300              |
| 12                     | 65  | GM__20400              |
| 16                     | 90  | GM__20500              |
| 25                     | 115 | GM__20600              |
| 55                     | 285 | GM__20700              |
| 90                     | 340 | GM__20800              |

<sup>1</sup> Insert letter A, B, C, or D in blank space for mounting style required.  
 For type 6, substitute 6 for 2 in the fourth character of the catalog number.  
 Example: GMA20200 becomes GMA60200

### Types 3 and 7

| Capacitance Range (pF) |     | Model No. <sup>2</sup> |
|------------------------|-----|------------------------|
| min                    | max |                        |
| 2.5                    | 12  | GM__30000              |
| 3.5                    | 25  | GM__30100              |
| 7.0                    | 40  | GM__30200              |
| 16.0                   | 100 | GM__30300              |
| 25.0                   | 150 | GM__30400              |
| 40.0                   | 200 | GM__30500              |
| 56.0                   | 250 | GM__30600              |
| 75.0                   | 300 | GM__30700              |
| 95.0                   | 350 | GM__30800              |
| 115.0                  | 400 | GM__30900              |
| 130.0                  | 450 | GM__31000              |
| 150.0                  | 500 | GM__31100              |
| 170.0                  | 550 | GM__31200              |
| 200.0                  | 600 | GM__31300              |
| 220.0                  | 650 | GM__31400              |
| 240.0                  | 700 | GM__31500              |

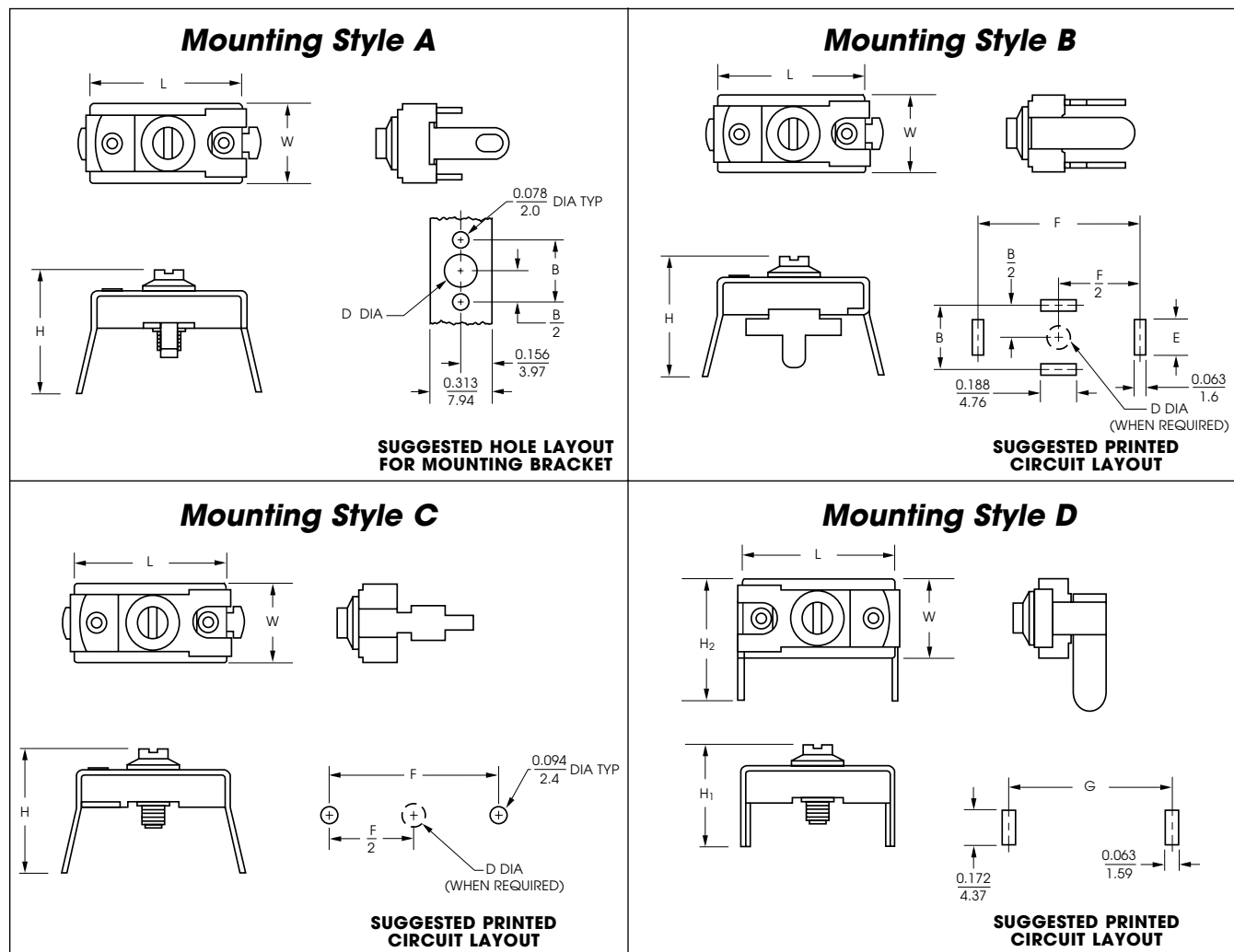
<sup>2</sup> Insert letter A, B, C, or D in blank space for mounting style required.  
 For type 7, substitute 7 for 3 in the fourth character of the catalog number.  
 Example: GMA30200 becomes GMA70200

### Types 4 and 8

| Capacitance Range (pF) |      | Model No. <sup>3</sup> |
|------------------------|------|------------------------|
| min                    | max  |                        |
| 3                      | 15   | GM__40000              |
| 5                      | 30   | GM__40100              |
| 10                     | 80   | GM__40200              |
| 20                     | 180  | GM__40300              |
| 45                     | 280  | GM__40400              |
| 75                     | 380  | GM__40500              |
| 105                    | 480  | GM__40600              |
| 140                    | 580  | GM__40700              |
| 175                    | 680  | GM__40800              |
| 215                    | 790  | GM__40900              |
| 260                    | 900  | GM__41000              |
| 300                    | 1000 | GM__41100              |
| 330                    | 1100 | GM__41200              |
| 360                    | 1200 | GM__41300              |
| 380                    | 1300 | GM__41400              |
| 420                    | 1400 | GM__41500              |

<sup>3</sup> Insert letter A, B, C, or D in blank space for mounting style required.  
 For type 8, substitute 8 for 4 in the fourth character of the catalog number.  
 Example: GMA40200 becomes GMA80200

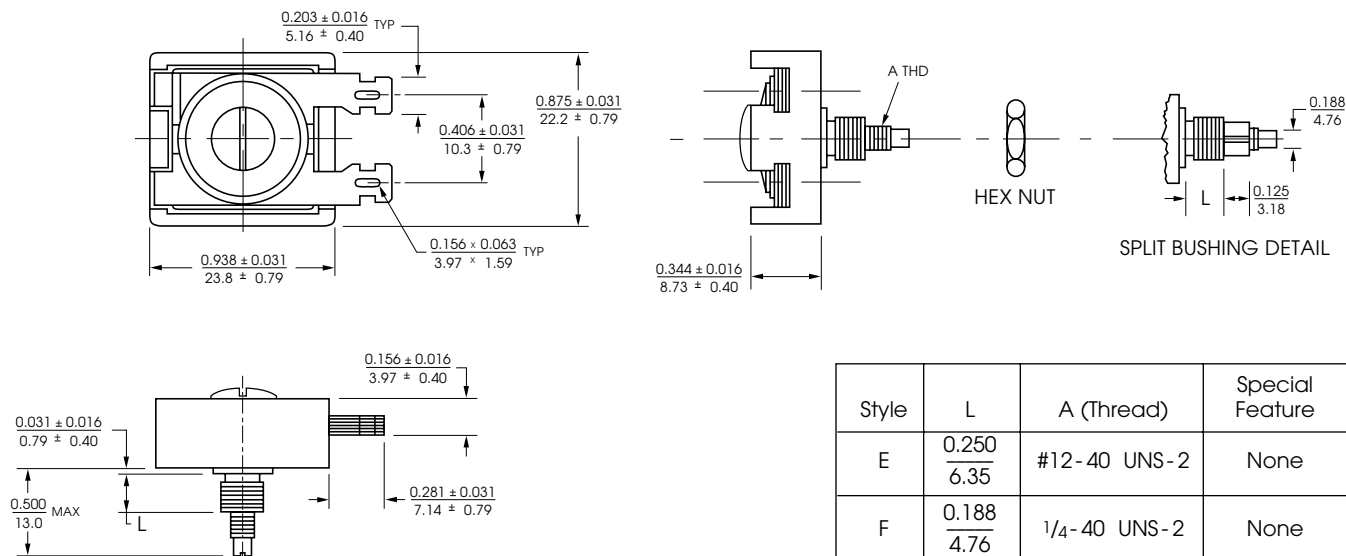
# SPRAGUE-GOODMAN MICA DIELECTRIC TRIMMER CAPACITORS TYPES 2, 3 and 4 (175 WVDC) TYPES 6, 7 and 8 (250 WVDC)



| Type  | L                    | W                    | H                    | H <sub>1</sub>       | H <sub>2</sub>       | B                    | D                    | E                    | F                    | G                    |
|-------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 2 & 6 | $\frac{0.531}{13.5}$ | $\frac{0.375}{9.53}$ | $\frac{0.719}{18.3}$ | $\frac{0.563}{14.3}$ | $\frac{0.719}{18.3}$ | $\frac{0.315}{8.00}$ | $\frac{0.175}{4.45}$ | $\frac{0.188}{4.76}$ | $\frac{0.563}{14.3}$ | $\frac{0.594}{15.1}$ |
| 3 & 7 | $\frac{0.750}{19.1}$ | $\frac{0.375}{9.53}$ | $\frac{0.781}{19.8}$ | $\frac{0.625}{15.9}$ | $\frac{0.625}{15.9}$ | $\frac{0.315}{8.00}$ | $\frac{0.175}{4.45}$ | $\frac{0.188}{4.76}$ | $\frac{0.813}{20.6}$ | $\frac{0.781}{19.8}$ |
| 4 & 8 | $\frac{0.750}{19.1}$ | $\frac{0.625}{15.9}$ | $\frac{0.781}{19.8}$ | $\frac{0.563}{14.3}$ | $\frac{0.969}{24.6}$ | $\frac{0.546}{13.9}$ | $\frac{0.206}{5.23}$ | $\frac{0.281}{7.14}$ | $\frac{0.813}{20.6}$ | $\frac{0.813}{20.6}$ |

Dimensions are in/mm.

# SPRAGUE-GOODMAN MICA DIELECTRIC TRIMMER CAPACITORS TYPES 1, 5 and 9



| Style | L                    | A (Thread)   | Special Feature |
|-------|----------------------|--------------|-----------------|
| E     | $\frac{0.250}{6.35}$ | #12-40 UNS-2 | None            |
| F     | $\frac{0.188}{4.76}$ | 1/4-40 UNS-2 | None            |
| G     | $\frac{0.281}{7.14}$ | 1/4-40 UNS-2 | None            |
| H     | $\frac{0.188}{4.76}$ | 1/4-40 UNS-2 | Split Bushing   |

Dimensions are in/mm.

## Type 1

|                          |      |                        |
|--------------------------|------|------------------------|
| Working Voltage: 250 VDC |      | Model No. <sup>4</sup> |
| Test Voltage: 500 VDC    |      |                        |
| Capacitance Range (pF)   |      | Model No. <sup>4</sup> |
| min                      | max  |                        |
| 15                       | 130  | GM__10201              |
| 65                       | 340  | GM__10301              |
| 115                      | 550  | GM__10401              |
| 190                      | 760  | GM__10501              |
| 275                      | 970  | GM__10601              |
| 350                      | 1180 | GM__10701              |
| 450                      | 1390 | GM__10801              |
| 550                      | 1600 | GM__10901              |
| 650                      | 1890 | GM__11001              |
| 780                      | 2110 | GM__11101              |
| 880                      | 2330 | GM__11201              |
| 1150                     | 2605 | GM__11301              |
| 1300                     | 2830 | GM__11401              |
| 1400                     | 3055 | GM__11501              |

## Type 5

|                          |      |                        |
|--------------------------|------|------------------------|
| Working Voltage: 500 VDC |      | 1000 VDC               |
| Test Voltage:            |      |                        |
| Capacitance Range (pF)   |      | Model No. <sup>4</sup> |
| min                      | max  |                        |
| 15                       | 120  | GM__50201              |
| 65                       | 320  | GM__50301              |
| 100                      | 500  | GM__50401              |
| 180                      | 690  | GM__50501              |
| 265                      | 880  | GM__50601              |
| 340                      | 1070 | GM__50701              |
| 425                      | 1260 | GM__50801              |
| 525                      | 1415 | GM__50901              |
| 615                      | 1600 | GM__51001              |
| 730                      | 1785 | GM__51101              |
| 800                      | 1970 | GM__51201              |
| 1000                     | 2155 | GM__51301              |
| 1100                     | 2340 | GM__51401              |
| 1200                     | 2525 | GM__51501              |

## Type 9

| Working Voltage: 2000 VDC |     | Model No. <sup>4</sup> |
|---------------------------|-----|------------------------|
| Test Voltage: 2700 VDC    |     |                        |
| Capacitance Range (pF)    |     | Model No. <sup>4</sup> |
| min                       | max |                        |
| 10                        | 48  | GM__90201              |
| 45                        | 105 | GM__90301              |
| 70                        | 160 | GM__90401              |
| 95                        | 230 | GM__90501              |
| 100                       | 270 | GM__90601              |
| 170                       | 350 | GM__90701              |
| 190                       | 380 | GM__90801              |
| 250                       | 480 | GM__90901              |

<sup>4</sup>Insert letter E, F, G or H in blank space for mounting style (Style H not available in Type 9). Model numbers are shown with the "01" modification, calling for a mica insulated screw, which is the way types 1, 5, and 9 are normally supplied.