

## RF Power Barrel Capacitors Class 1 and Class 2 Ceramic



| QUICK REFERENCE DATA  |                |            |      |
|-----------------------|----------------|------------|------|
| DESCRIPTION           | VALUE          |            |      |
| Ceramic Class         | 1              | 1          | 2    |
| Ceramic Dielectric    | NP0 (C0G)      | N750 (U2J) | X5U  |
| Type                  | 7FAA           | 7FAU       | 5FAE |
| Voltage ( $V_{DC}$ )  | 7500           | 7500       | 5000 |
| Min. Capacitance (pF) | 10             | 75         | 500  |
| Max. Capacitance (pF) | 50             | 100        | 1000 |
| Mounting              | Screw terminal |            |      |

### MATERIAL

Capacitor elements made from Class 1 or Class 2 ceramic dielectric with noble metal electrodes.

Connection terminals:

Thread terminal, brass, silver plated

Allowable torque: 1.47 Nm (13 lbf in)

### FINISH

Capacitor body completely protective laquered

### MARKING

Type designator, capacitance value and tolerance, rated peak voltage, ceramic material code, production date code, manufacturer logo

### FEATURES

- Small size
- Geometry minimizes inductance, optimizes voltage withstand and maximizes heat radiation

### APPLICATIONS

- Industrial and medical RF power supply
- Small broadcasting equipment
- Antenna couplers
- Induction heating equipment

### CAPACITANCE RANGE

10 pF to 1.0 nF

### CAPACITANCE TOLERANCE

$\pm 10\%$ ;  $\pm 20\%$

### CERAMIC DIELECTRICS

- Class 1: NP0 (C0G), N750 (U2J)
- Class 2: X5U

### RATED VOLTAGE

- 5.0 kV<sub>DC</sub>
- 7.5 kV<sub>DC</sub>

### DIELECTRIC STRENGTH TEST

150 % of rated DC voltage

### DISSIPATION FACTOR

- Class 1: Max. 0.2 % (1 MHz)
- Class 2: Max. 2.0 % (1 kHz)

### INSULATION RESISTANCE

- Class 1: 100 000 M $\Omega$  (at 25 °C)
- Class 2: 10 000 M $\Omega$  (at 25 °C)

### OPERATING TEMPERATURE RANGE

- Class 1: -55 °C to +100 °C
- Class 2: -55 °C to +85 °C

| SAP PART NUMBER AND ELECTRICAL DATA |            |                  |                                   |   |        |        |   |        |        |
|-------------------------------------|------------|------------------|-----------------------------------|---|--------|--------|---|--------|--------|
| PART NUMBER                         | CERAMIC    | CAP. VALUES (pF) | RATED VOLTAGE (kV <sub>DC</sub> ) | MAX. POWER RATING <sup>(1)</sup> (kvar) |        |        | MAXIMUM CURRENT RATING <sup>(1)</sup> (A <sub>RMS</sub> ) |        |        |
|                                     |            |                  |                                   | 1 MHz                                   | 10 MHz | 30 MHz | 1 MHz   | 10 MHz | 30 MHz |
| <b>TYPE 7FAA, 7FAU</b>              |            |                  |                                   |   |        |        |   |        |        |
| 7FAA100K                            | NP0 (C0G)  | 10               | 7.5                               | 1.7                                     | 10     | 10     | 0.3   | 2.5    | 4.5    |
| 7FAA200K                            |            | 20               |                                   | 3.2                                     | 10     | 10     | 0.8   | 3.5    | 7.0    |
| 7FAA250K                            |            | 25               |                                   | 4.4                                     | 10     | 10     | 0.9   | 4.0    | 7.0    |
| 7FAA300K                            |            | 30               |                                   | 5.3                                     | 10     | 10     | 1.0   | 2.4    | 7.5    |
| 7FAA500K                            |            | 50               |                                   | 8.8                                     | 10     | 7.6    | 1.7   | 5.7    | 8.0    |
| 7FAU750K                            | N750 (U2J) | 75               |                                   | 10                                      | 10     | 6.3    | 2.2   | 7.0    | 9.5    |
| 7FAU101K                            |            | 100              |                                   | 10                                      | 10     | 4.8    | 2.5   | 8.0    | 0.5    |
| <b>TYPE 5FAE</b>                    |            |                  |                                   |   |        |        |   |        |        |
| 5FAE501M                            | X5U        | 500              | 5.0                               | 0.4                                     | 0.4    | 0.2    | 0.9   | 1.9    | 1.9    |
| 5FAE801M                            |            | 800              |                                   | 0.6                                     | 0.3    | 0.2    | 1.7   | 3.5    | 3.5    |
| 5FAE102M                            |            | 1000             |                                   | 0.4                                     | 0.2    | 0.15   | 1.7   | 3.7    | 3.7    |

**Notes**

- # 8<sup>th</sup> digit of the part number: Capacitance tolerance code ± 10 % = K, ± 20 % = M
- <sup>(1)</sup> At rated voltage. Data presented is based on a minimum body temperature rise of 30 °C at +25 °C

| DIMENSIONS in millimeters (inches)        |                                       |
|---|---------------------------------------|
|   |                                       |
| <b>TYPE</b>                               | <b>5FAE, 7FAA, 7FAU</b>               |
| Diameter D <sub>max.</sub>                | 20.7 (0.813)                          |
| Thread size                               | 6-32 UNC-2B thread; 4.0 (0.156) depth |
| Length L <sub>1</sub> max. <sup>(1)</sup> | 22.6 (0.890)                          |
| Length L <sub>2</sub> max. <sup>(1)</sup> | 17.0 (0.670)                          |

**Note**

- <sup>(1)</sup> Dimension L will vary depending upon capacitance value



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