

## Ø 10 mm Film Dielectric Trimmers



### FEATURES

- Housing diameter 10 mm
- For a basic grid of 2.54 mm (0.1") or 2.50 mm
- Top and bottom or top adjustment
- Round head
- Mounting: radial
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

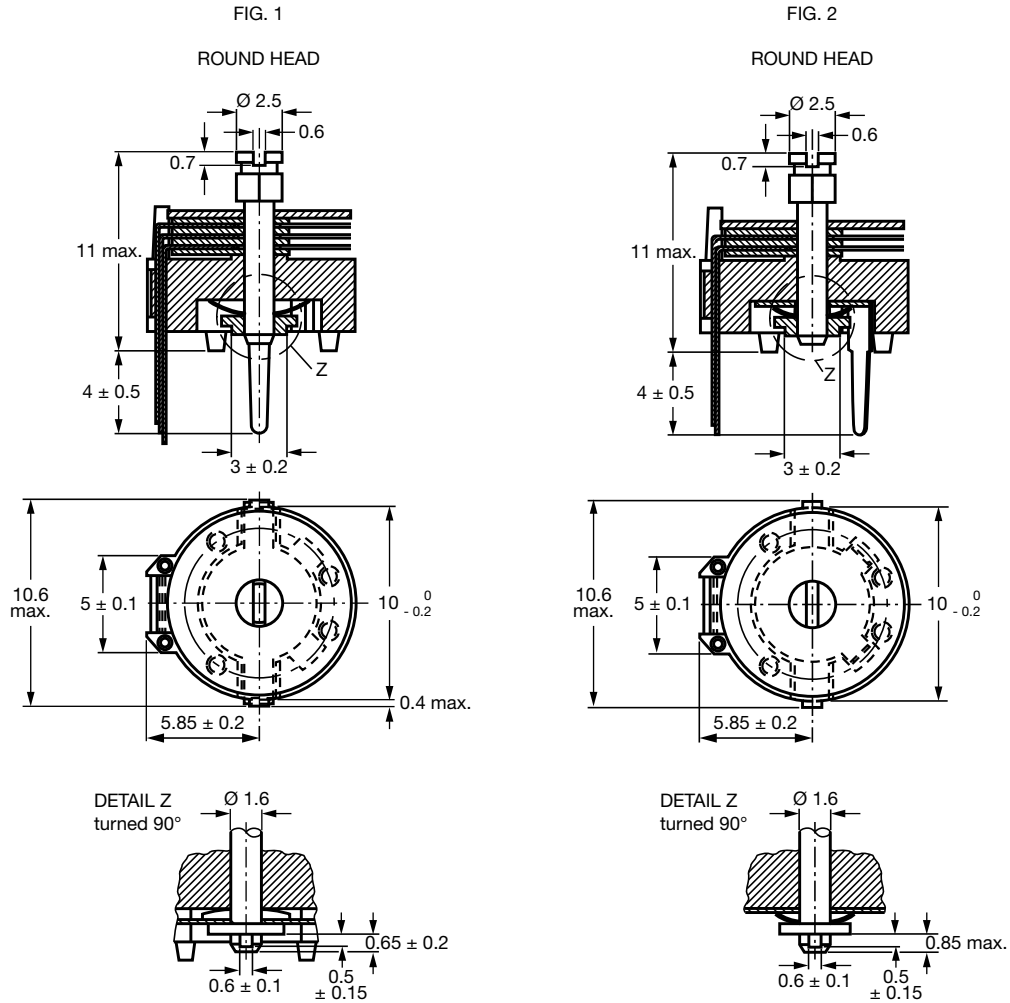

**RoHS**  
COMPLIANT

### APPLICATIONS

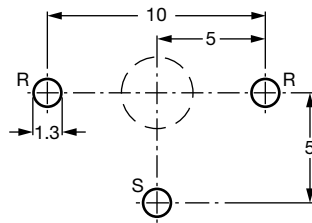
- Antennas
- Impedance matching circuits
- Medical
- RF
- For consumer and industrial equipment

| QUICK REFERENCE DATA                                       |   |                  |
|--|---|------------------|
| Rated DC voltage   | 150 V <sub>DC</sub>   |                  |
| Test DC voltage for 1 min                                  | 300 V <sub>DC</sub>   |                  |
| Maximum contact resistance                                 | 10 mΩ   |                  |
| Minimum insulation resistance                              | 10 000 MΩ   |                  |
| Category temperature range                                 | PP  | -40 °C to +70 °C |
|  | PTFE  | -40 °C to +85 °C |
| Climatic category (IEC 60068)                              | PP  | 40/070/21        |
|  | PTFE  | 40/085/21        |
| Minimum storage temperature                                | -55 °C  |                  |
| Related specification                                      | IEC 60418-1 and 4   |                  |
| Effective angle of rotation                                | 180° (rotation in 180° only, see "Life of trimmer")   |                  |
| Operating torque   | 2 mNm to 25 mNm   |                  |
| Maximum axial thrust                                       | 2 N   |                  |
| Capacitance range (C <sub>min.</sub> / C <sub>max.</sub> ) | 2.5 pF / 15 pF to 5.5 pF / 65 pF  |                  |
| Life of trimmer  | Maximum 10 cycles: rotation in 180° only (the electrical and mechanical performance is not guaranteed if rotated beyond 10 cycles)  |                  |
| Quality level  | Sampling and data evaluation for quality level in accordance with "MIL-STD-105D" and "IEC 60410":<br>< 0.15 % major defects<br>< 0.65 % minor defects<br><br>Each capacitor is tested for minimum C <sub>max.</sub> and is also subjected to the full test voltage. |                  |

**DIMENSIONS** in millimeters

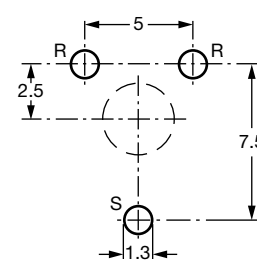


Trimmers BFC2 808 ..... series



R = Rotor, S = Stator

The large hole is for bottom adjustment and the diameter is determined by user's requirements.

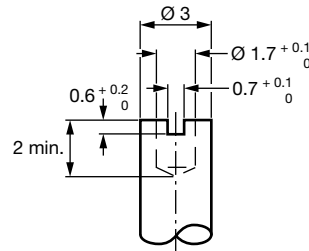


R = Rotor, S = Stator

Hole pattern

**ADJUSTMENT**

For top adjustment a screwdriver or trimming key can be used; for bottom adjustment a key is required as shown below.



Bottom adjustment key

| ORDERING INFORMATION                          |                               |                               |                |
|---|-------------------------------|-------------------------------|----------------|
| C <sub>min.</sub> / C <sub>max.</sub><br>(pF) | CATALOG NUMBER BFC2 808 ..... |                               |                |
|   | HOLE PATTERN<br>5 mm x 10 mm  | HOLE PATTERN<br>7.5 mm x 5 mm |                |
|   | ROUND HEAD                    | ROUND HEAD                    | ROUND HEAD     |
|   | TOP AND BOTTOM ADJUSTMENT     |                               | TOP ADJUSTMENT |
| 2.5 / 15                                      | 31159                         | 32159                         | -              |
| 3 / 22.5                                      | 31229                         | 32229                         | -              |
| 5.5 / 40                                      | 31409                         | 32409                         | -              |
| 5.5 / 50                                      | 01029                         | 01006                         | -              |
| 5.5 / 65                                      | 31659                         | 32659                         | 01001          |

**MOUNTING**

The trimmer can be mounted on printed-circuit boards with a grid of 2.50 mm or 2.54 mm and a minimum hole diameter of 1.25 mm.

**PACKAGING**

Bulk packaged in cardboard boxes lined with expanded plastic. For smallest packaging quantities (SPQ) see “Electrical Data” table.

| ELECTRICAL DATA  |                     |      |              |       |  |         |  |  |                    |         |                                  |
|--|---------------------|------|--------------|-------|--|---------|--|--|--------------------|---------|----------------------------------|
| GUARANTEED<br>MAX. C <sub>min.</sub> /<br>MIN. C <sub>max.</sub><br>AT 200 kHz<br>(pF) | SHAPE<br>OF<br>HEAD | FIG. | ADJ. MODE    | DIEL. | tan δ<br>AT C <sub>max.</sub> x 10 <sup>-4</sup> |         | TEMP.<br>COEFF.<br>(10 <sup>-6</sup> /K) | MIN. f <sub>res</sub><br>AT C <sub>max.</sub><br>(MHz) | COL.<br>OF<br>BASE | SP<br>Q | CATALOG<br>NUMBER<br>BFC2 ... .. |
|  |                     |      |              |       | 1 MHz  | 100 MHz |  |  |                    |         |                                  |
| 2.5 / 15   | Round               | 1    | Top + bottom | PP    | ≤ 10   | ≤ 25    | -200 ± 700                               | 420  | Blue               | 800     | .... 808 31159                   |
|  |                     | 2    |              |       |  |         |  |  |                    | 800     | .... 808 32159                   |
| 3 / 22.5   | Round               | 1    | Top + bottom | PP    | ≤ 10   | ≤ 25    | -200 ± 700                               | 200  | Green              | 800     | .... 808 31229                   |
|  |                     | 2    |              |       |  |         |  |  |                    | 800     | .... 808 32229                   |
| 5.5 / 40   | Round               | 1    | Top + bottom | PP    | ≤ 10   | ≤ 25    | -200 ± 400                               | 200  | Grey               | 800     | .... 808 31409                   |
|  |                     | 2    |              |       |  |         |  |  |                    | 800     | .... 808 32409                   |
| 5.5 / 50   | Round               | 1    | Top + bottom | PTFE  | ≤ 10   | ≤ 25    | -200 ± 400                               | 170  | Yellow             | 800     | .... 808 01029                   |
|  |                     | 2    |              |       |  |         |  |  |                    | 800     | .... 808 01006                   |
| 5.5 / 65   | Round               | 2    | Top          | PP    | ≤ 10   | ≤ 25    | -200 ± 500                               | 170  | Yellow             | 800     | .... 808 01001                   |
|  | Round               | 1    | Top + bottom |       |  |         |  |  |                    | 800     | .... 808 31659                   |
|  | Round               | 2    |              |       |  |         |  |  |                    | 800     | .... 808 32659                   |

**SOLDERING CONDITIONS**

For general soldering conditions and wave soldering profile, we refer to the application note “Soldering Guidelines for Film Capacitors”: [www.vishay.com/doc?28171](http://www.vishay.com/doc?28171)



| TEST PROCEDURES AND REQUIREMENTS |                       |   |   |  |
|----------------------------------|-----------------------|---|---|--|
| IEC 60418-1 CLAUSE               | IEC 60068 TEST METHOD | TEST                                    | PROCEDURE   | REQUIREMENTS   |
| 4.2                              |                       | Method of mounting                      | Method A  |  |
| 14                               |                       | Capacitance drift                       | After TC measurement  | $\Delta C/C: \leq 4.5\%$ for $C_{max.} < 40\text{ pF}$ ;<br>$\Delta C/C: \leq 2.5\%$ for $C_{max.} \geq 40\text{ pF}$  |
| 19                               |                       | Thrust                                  | Axial thrust of 2 N   | $\Delta C/C: \leq 0.3\%$   |
| 21                               |                       | Robustness of terminations:             |   |  |
| 21.1                             | Ua                    | Tensile                                 | 1 N   | No damage  |
| 21.2                             | Ub                    | Bending                                 | 1 cycle   | No damage  |
| 22                               | Na                    | Rapid change of temperature             | 1 cycle; 0.5 h at lower and 0.5 h at upper category temperature   | $\Delta C/C: \leq 1.5\%$   |
| 23                               | T                     | Soldering:                              |   |  |
|                                  | Ta                    | Solderability                           | Solder bath immersion 3 mm; 235 °C; 2 s   | Good wetting, no mechanical damage   |
|                                  | Tb                    | Resistance to heat                      | Solder bath: 260 °C; 10 s   | No mechanical damage   |
| 24                               | Eb                    | Impact bump                             | 4000 ± 10 bumps; 40 g; 6 ms   | $\Delta C/C: \leq 0.4\%$ ;<br>no mechanical damage   |
| 25                               | Fc                    | Vibration                               | Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h  | $\Delta C/C: \leq 0.8\%$ ;<br>no mechanical damage   |
| 26                               |                       | Climatic sequence:                      |   | $\Delta C/C: \leq 3\%$ for $C_{max.} < 80\text{ pF}$ ;<br>$\Delta C/C: \leq 6\%$ for $C_{max.} \geq 80\text{ pF}$  |
| 26.1                             | B                     | Dry heat                                | 16 h at upper category temperature  | $\tan \delta: \leq 15 \times 10^{-4}$ for $C_{max.} < 80\text{ pF}$ ;<br>$\tan \delta: \leq 80 \times 10^{-4}$ for $C_{max.} \geq 80\text{ pF}$<br><br>$R_{ins.}: \geq 10\,000\text{ M}\Omega$ ;<br>rotor contact R: $\leq 10\ \Omega$   |
| 26.2                             | D                     | Damp heat accelerated, first cycle      | 1 cycle; 24 h; +40 °C; 95 % to 100 % RH   | Voltage proof:<br>300 V for 1 min  |
| 26.3                             | Aa                    | Cold                                    | 16 h; -40 °C  | Visual examination:<br>no mechanical damage  |
| 26.5                             |                       | Damp heat accelerated, remaining cycles | 1 cycle; 24 h; +40 °C; 95 % to 100 % RH   | Operating torque: 2 mNm to 35 mNm  |
| 27                               | Ca                    | Damp heat steady state                  | 21 days; +40 °C; 90 % to 95 % RH  | $\Delta C/C:$<br>$\leq 3\%$ for $C_{max.} < 100\text{ pF}$ ;<br>$\leq 3\%$ for $C_{max.} \geq 100\text{ pF}$<br><br>$\tan \delta: \leq 20 \times 10^{-4}$ for $C_{max.} < 80\text{ pF}$ ;<br>$\tan \delta: \leq 80 \times 10^{-4}$ for $C_{max.} \geq 80\text{ pF}$<br><br>$R_{ins.}: \geq 10\,000\text{ M}\Omega$ ;<br>rotor contact R: $\leq 10\text{ m}\Omega$<br><br>Voltage proof:<br>300 V for 1 min<br><br>Visual examination:<br>no mechanical damage<br><br>Operating torque: 2 mNm to 35 mNm |
| 29                               |                       | Mechanical endurance                    | 10 cycles<br><br>Maximum 10 cycles: rotation in 180° only (the electrical and mechanical performance is not guaranteed if rotated beyond 10 cycles) | $\Delta C/C: \leq 1\%$<br><br>$\Delta C/C$ after axial thrust: $\leq 0.4\%$ ;<br>rotor contact R: $\leq 10\text{ m}\Omega$<br><br>Voltage proof:<br>300 V for 1 min<br><br>Visual examination:<br>no mechanical damage<br><br>Operating torque: 1.5 mNm to 37 mNm  |



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