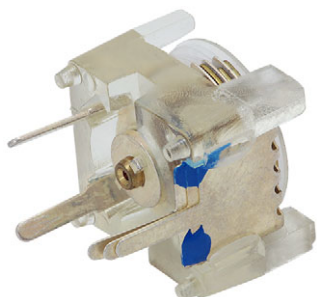


## Film Dielectric Trimmers



### FEATURES

- High temperature type
- Housing dimensions:  
10 mm x 11 mm x 11 mm
- For a basic grid of 2.54 mm
- Round head
- Top and bottom adjustment
- Mounting: radial
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

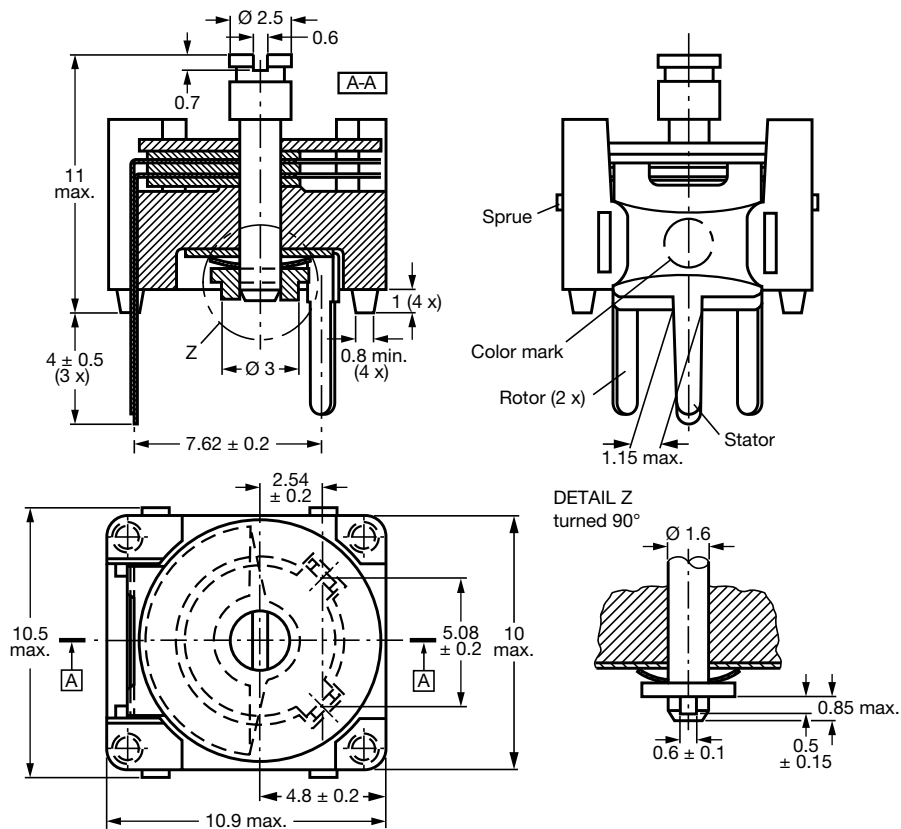
### APPLICATIONS

- Antennas
- Impedance matching circuits
- Medical
- RF
- For fine adjustment in professional applications

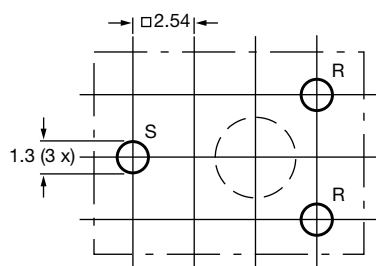
### QUICK REFERENCE DATA

|                                                            |                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated DC voltage                                           | 250 V <sub>DC</sub>                                                                                                                                                                                                                                                                                          |
| Test DC voltage for 1 min                                  | 500 V <sub>DC</sub>                                                                                                                                                                                                                                                                                          |
| Allowed maximum AC voltage                                 | 25 V <sub>AC</sub>                                                                                                                                                                                                                                                                                           |
| Maximum contact resistance                                 | 5 mΩ                                                                                                                                                                                                                                                                                                         |
| Minimum insulation resistance                              | 10 000 MΩ                                                                                                                                                                                                                                                                                                    |
| Category temperature range                                 | -40 °C to +125 °C                                                                                                                                                                                                                                                                                            |
| Climatic category (IEC 60068)                              | 40/125/21                                                                                                                                                                                                                                                                                                    |
| 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> ) | 4 pF / 38 pF to 5 pF / 57 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><div style="margin-left: 40px;"> &lt; 0.15 % major defects<br/> &lt; 0.65 % minor defects </div> Each capacitor is tested for minimum C <sub>max.</sub> and is also subjected to the full test voltage. |

**DIMENSIONS** in millimeters



Trimmers BFC2 809 080.. series, with round heads



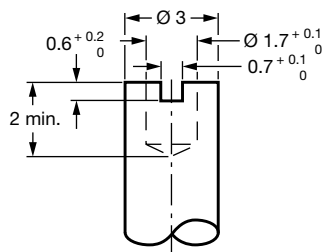
R = Rotor, S = Stator

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

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

**MOUNTING**

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

**PACKAGING**

Blister packs of 70 units each. For smallest packaging quantity (SPQ) see “Electrical Data” table.

| ORDERING INFORMATION          |                               |
|-------------------------------|-------------------------------|
| $C_{min.} / C_{max.}$<br>(pF) | CATALOG NUMBER BFC2 809 080.. |
|                               | TOP AND BOTTOM ADJUSTMENT     |
| 4 / 38                        | 02                            |
| 5 / 57                        | 03                            |

| ELECTRICAL DATA                                                             |                  |                     |                                               |           |                                                   |                                          |                   |     |                                  |
|-----------------------------------------------------------------------------|------------------|---------------------|-----------------------------------------------|-----------|---------------------------------------------------|------------------------------------------|-------------------|-----|----------------------------------|
| GUARANTEED<br>MAX. $C_{min.} / \text{MIN. } C_{max.}$<br>AT 200 kHz<br>(pF) | SHAPE<br>OF HEAD | DIEL.               | $\tan \delta$<br>AT $C_{max.} \times 10^{-4}$ |           | TEMP.<br>COEFF. <sup>(2)</sup><br>( $10^{-6}/K$ ) | MIN. $f_{res}$<br>AT $C_{max.}$<br>(MHz) | COL.<br>OF<br>DOT | SPQ | CATALOG<br>NUMBER<br>BFC2 ... .. |
|                                                                             |                  |                     | 1 MHz                                         | 100 MHz   |                                                   |                                          |                   |     |                                  |
| 4 / 38                                                                      | Round            | PTFE <sup>(1)</sup> | $\leq 10$                                     | $\leq 25$ | $-200 \pm 250$                                    | 170                                      | Yellow            | 350 | .... 809 08002                   |
| 5 / 57                                                                      | Round            |                     |                                               |           |                                                   | 150                                      | Blue              | 350 | .... 809 08003                   |

**Notes**

<sup>(1)</sup> PTFE = Polytetrafluorethylene

<sup>(2)</sup> C: 60 % to 80 % of  $C_{max.}$ ;  $T_{amb.}$ : from +20 °C to +125 °C

**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<br>CLAUSE            | IEC 60068<br>TEST<br>METHOD | TEST                        | PROCEDURE                                                       | REQUIREMENTS                                     |
| 4.2                              |                             | Method of mounting          | Method A                                                        |                                                  |
| 14                               |                             | Capacitance drift           | After TC measurement                                            | $\Delta C/C: \leq 2.0 \%$                        |
| 19                               |                             | Thrust                      | Axial thrust of 2 N                                             | $\Delta C/C: \leq 0.2 \%$                        |
| 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 | $\Delta C/C: \leq 2.5 \%$                        |
| 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 $\pm$ 10 bumps; 40 g; 6 ms                                 | $\Delta C/C: \leq 0.5 \%$ ; no mechanical damage |
| 25                               | Fc                          | Vibration                   | Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h              | $\Delta C/C: \leq 0.2 \%$ ; no mechanical damage |

| TEST PROCEDURES AND REQUIREMENTS |                             |                                         |                                                                                                                                                     |                                                                                                                                                                                                                                                                            |
|----------------------------------|-----------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEC 60418-1<br>CLAUSE            | IEC 60068<br>TEST<br>METHOD | TEST                                    | PROCEDURE                                                                                                                                           | REQUIREMENTS                                                                                                                                                                                                                                                               |
| 26                               |                             | Climatic sequence:                      |                                                                                                                                                     | $\Delta C/C: \leq 2.5$                                                                                                                                                                                                                                                     |
| 26.1                             | B                           | Dry heat                                | 16 h at upper category temperature                                                                                                                  | $\tan \delta: \leq 10 \times 10^{-4}$<br>$R_{ins.}: \geq 10\,000\,M\Omega$ ;<br>rotor contact R: $\leq 5\,m\Omega$                                                                                                                                                         |
| 26.2                             | D                           | Damp heat accelerated, first cycle      | 1 cycle; 24 h; +40 °C; 95 % to 100 % RH                                                                                                             | Voltage proof:<br>500 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:<br>1 mNm to 25 mNm                                                                                                                                                                                                                                       |
| 27                               | Ca                          | Damp heat steady state                  | 21 days; +40 °C; 90 % to 95 % RH                                                                                                                    | $\Delta C/C: \leq 2.5\%$<br>$\tan \delta: \leq 10 \times 10^{-4}$<br>$R_{ins.}: \geq 10\,000\,M\Omega$ ;<br>rotor contact R: $\leq 5\,m\Omega$<br>Voltage proof:<br>500 V for 1 min<br>Visual examination:<br>no mechanical damage<br>Operating torque:<br>1 mNm to 25 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) | $\Delta C/C: \leq 0.3\%$<br>$\Delta C/C$ after axial thrust: $\leq 0.3\%$ ;<br>rotor contact R: $\leq 5\,m\Omega$<br>Voltage proof:<br>500 V for 1 min<br>Visual examination:<br>no mechanical damage<br>Operating torque:<br>1 mNm to 25 mNm                              |



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