

Ø 7.5 mm Film Dielectric Trimmers



FEATURES

- Housing diameter 7.5 mm
- For a basic grid of 2.54 mm (0.1") or 2.50 mm
- Top and bottom or top adjustment
- Vertical and horizontal versions
- Round head
- Mounting: radial
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

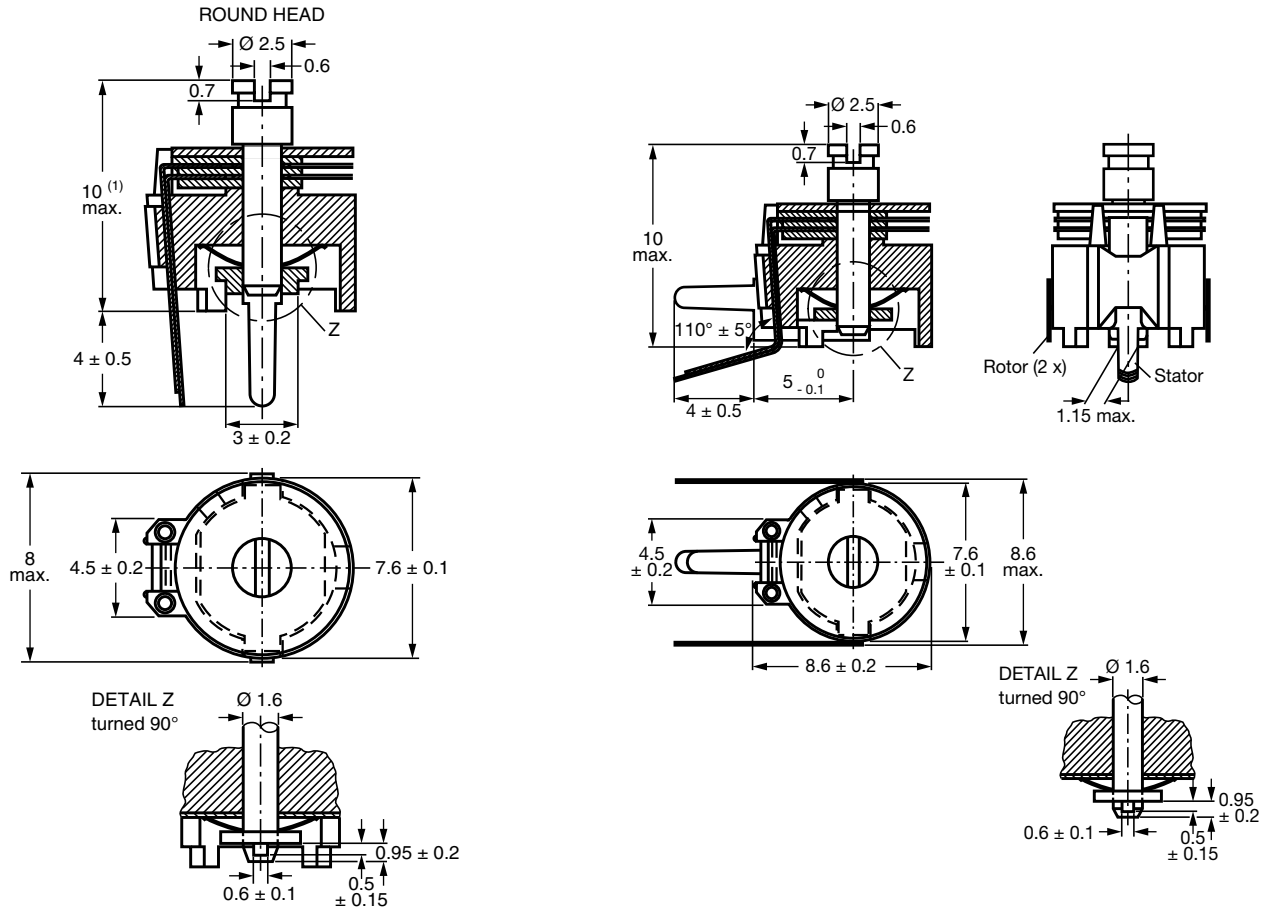

RoHS
COMPLIANT

APPLICATIONS

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

| QUICK REFERENCE DATA | | |
|--|---------------------------|---|
| Rated DC voltage | | 250 V _{DC} |
| Test DC voltage for 1 min | | 500 V _{DC} |
| Maximum contact resistance | | 10 mΩ |
| Minimum insulation resistance | | 10 000 MΩ |
| Category temperature range | PP | -40 °C to +70 °C |
| | PE, PTFE, PET | -40 °C to +85 °C |
| Climatic category (IEC 60068) | PP | 40/070/21 |
| | PE, PTFE, PET | 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 | C _{max.} < 33 pF | 1 mNm to 15 mNm |
| | C _{max.} ≥ 33 pF | 1 mNm to 25 mNm |
| Maximum axial thrust | | 2 N |
| Capacitance range (C _{min.} / C _{max.}) | | 1.4 pF / 5.5 pF to 3 pF / 33 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": < 0.15 % major defects < 0.65 % minor defects Each capacitor is tested for minimum C _{max.} and is also subjected to the full test voltage. |

DIMENSIONS in millimeters



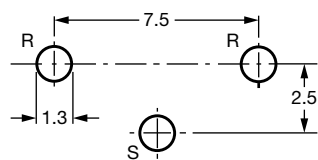
Trimmers BFC2 808 series, vertical version

Trimmers BFC2 808 series, horizontal version



R = Rotor, S = Stator

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

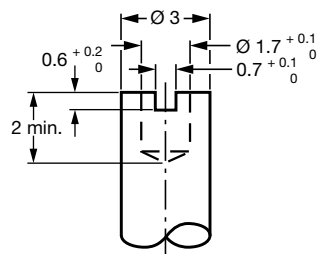


R = Rotor, S = Stator

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_{min.} / C_{max.} (pF) | CATALOG NUMBER BFC2 808 | | |
| | VERTICAL VERSION | | HORIZONTAL VERSION |
| | ROUND HEAD | | |
| | TOP AND BOTTOM ADJUSTMENT | TOP ADJUSTMENT ONLY | TOP AND BOTTOM ADJUSTMENT |
| 1.4 / 5.5 | 11558 | 00004 | 51558 |
| 2 / 9 | 00018 | - | - |
| 2 / 10 | 11109 | 00005 | 51109 |
| 2 / 10 | - | 11004 | - |
| 2 / 15 | 11159 | - | - |
| 2 / 18 | 00016 | - | - |
| 2.5 / 20 | - | 11006 | - |
| 2.5 / 22 | 11229 | 00006 | 51229 |
| 3 / 33 | 11339 | - | - |

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 quantity (SPQ) see “Electrical Data” table.

| ELECTRICAL DATA | | | | | | | | | | | |
|---|----------------|------------------------------|----------------------|--------------|--|----------------|---|---|-----------------------------|------------|---|
| GUARANTEED MAX. C_{min.} / MIN. C_{max.} AT 200 kHz (pF) | SPINDLE | SHAPE OF HEAD | ADJ. MODE | DIEL. | tan δ AT C_{max.} x 10⁻⁴ | | TEMP. COEFF. (10⁻⁶/K) | MIN. f_{res} AT C_{max.} (MHz) | COL. OF BASE | SPQ | CATALOG NUMBER BFC2 |
| | | | | | 1 MHz | 100 MHz | | | | | |
| 1.4 / 5.5 | Vertical | Round | Top + bottom | PE | ≤ 10 | ≤ 25 | -250 ± 350 | 850 | Grey | 1400 | 808 11558 |
| | | | Top | | | | | | | 1400 | 808 00004 |
| | Horizontal | Round | Top + bottom | | | | | | | 1200 | 808 51558 |
| 2 / 9 | Vertical | Round | Top + bottom | PTFE | ≤ 10 | ≤ 15 | -150 ± 800 | 400 | Yellow | 1400 | 808 00018 |
| 2 / 10 | Vertical | Round | Top + bottom | PP | ≤ 10 | ≤ 25 | -250 ± 800 | 480 | Yellow | 1400 | 808 11109 |
| | | | Top | | | | | | | 1400 | 808 00005 |
| | Horizontal | Round | Top + bottom | | | | | | | 1200 | 808 51109 |
| 2 / 15 | Vertical | Round | Top + bottom | PP | ≤ 10 | ≤ 25 | -250 ± 600 | 450 | Blue | 1400 | 808 11159 |
| 2 / 18 | Vertical | Round | Top + bottom | PTFE | ≤ 10 | ≤ 15 | -250 ± 350 | 350 | Green | 1400 | 808 00016 |
| 2.5 / 20 | Vertical | Round | Top | PET | ≤ 160 | - | 0 ± 1100 | 250 | Green | 1000 | 808 11006 |
| 2.5 / 22 | Vertical | Round | Top + bottom | PP | ≤ 10 | ≤ 25 | -200 ± 500 | 350 | Green | 1400 | 808 11229 |
| | | | Top | | | | | | | 1400 | 808 00006 |
| | Horizontal | Round | Top + bottom | | | | | | | 1200 | 808 51229 |
| 3 / 33 | Vertical | Round | Top + bottom | PP | ≤ 10 | - | -250 ± 350 | 300 | Brown | 1400 | 808 11339 |



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

| 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 | $\Delta C/C: \leq 1\%$ for $C_{max.} < 40\text{ pF}$; $\Delta C/C: \leq 2.5\%$ 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 | $\Delta C/C: \leq 2\%$ |
| 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 | $\Delta C/C: \leq 0.6\%$; no mechanical damage |
| 25 | Fc | Vibration | Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h | $\Delta C/C: \leq 0.6\%$; no mechanical damage |
| 26 | | Climatic sequence: | | $\Delta C/C: \leq 4\%$ |
| 26.1 | B | Dry heat | 16 h at upper category temperature | $\tan \delta: \leq 10 \times 10^{-4}$ for $C_{max.} < 27\text{ pF}$; $\tan \delta: \leq 70 \times 10^{-4}$ for $C_{max.} \geq 27\text{ pF}$; $\tan \delta: \leq 80 \times 10^{-4}$ for $C_{max.} \geq 40\text{ pF}$ $R_{ins.} \geq 10\,000\text{ M}\Omega$; rotor contact R: $\leq 10\text{ m}\Omega$ |
| 26.2 | D | Damp heat accelerated, first cycle | 1 cycle; 24 h; +40 °C; 95 % to 100 % RH | Voltage proof: 500 V for 1 min |
| 26.3 | Aa | Cold | 16 h; -40 °C | Visual examination: no mechanical damage |
| 26.5 | | Damp heat accelerated, remaining cycles | 1 cycle; 24 h; +40 °C; 95 % to 100 % RH | Operating torque: 1 mNm to 15 mNm for $C_{max.} < 33\text{ pF}$; 1 mNm to 25 mNm for $C_{max.} \geq 33\text{ pF}$ |



| TEST PROCEDURES AND REQUIREMENTS | | | | |
|----------------------------------|-----------------------|------------------------|---|---|
| IEC 60418-1 CLAUSE | IEC 60068 TEST METHOD | TEST | PROCEDURE | REQUIREMENTS |
| 27 | Ca | Damp heat steady state | 21 days; +40 °C; 90 % to 95 % RH | $\Delta C/C: \leq 5 \%$ $\tan \delta: \leq 30 \times 10^{-4}$ for $C_{max.} < 27 \text{ pF}$; $\tan \delta: \leq 70 \times 10^{-4}$ for $C_{max.} \geq 27 \text{ pF}$; $\tan \delta: \leq 80 \times 10^{-4}$ for $C_{max.} \geq 40 \text{ pF}$ $R_{ins.}: \geq 10\,000 \text{ M}\Omega$; rotor contact R: $\leq 10 \text{ m}\Omega$ Voltage proof: 500 V for 1 min Visual examination: no mechanical damage Operating torque: 1 mNm to 15 mNm for $C_{max.} < 33 \text{ pF}$; 1 mNm to 25 mNm for $C_{max.} \geq 33 \text{ pF}$ |
| 29 | | Mechanical endurance | 10 cycles Maximum 10 cycles: rotation in 180° only (the electrical and mechanical performance is not guaranteed if rotated beyond 10 cycles) | $\Delta C/C: \leq 1.5 \%$ $\Delta C/C$ after axial thrust: $\leq 0.3 \%$; rotor contact R: $\leq 10 \text{ m}\Omega$ Voltage proof: 500 V for 1 min Visual examination: no mechanical damage Operating torque: 1 mNm to 15 mNm for $C_{max.} < 33 \text{ pF}$; 1 mNm to 25 mNm for $C_{max.} \geq 33 \text{ pF}$ |



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