

Film Dielectric Trimmers

TEST VOLTAGE (DC) FOR 1 MINUTE:

500 V

MAXIMUM CONTACT RESISTANCE:5 m Ω **MINIMUM INSULATION RESISTANCE:**10 000 M Ω **CATEGORY TEMPERATURE RANGE:**

- 40 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 to 25 mNm

MAXIMUM AXIAL THRUST:

2 N

FEATURES

- High temperature type
- Housing dimensions:
10 mm x 11 mm x 11 mm
- For a basic grid of 2.54 mm
- Vertical version with a round head
- Top and bottom adjustment

**APPLICATIONS**

- For fine adjustment in professional applications

DESCRIPTION:

The trimmers consist of a polysulphone housing, brass rotor and plated brass stator with PTFE film as the dielectric. The stator plate tags are heat sealed to the housing.

The rotor contact surfaces are plated to ensure a long life and a stable contact even under severe climatic conditions. A colored dot indicates the maximum capacitance.

Flux absorption between the vanes is prevented.

Cleaning with solvents is not advised.

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.

 C_{min}/C_{max} :

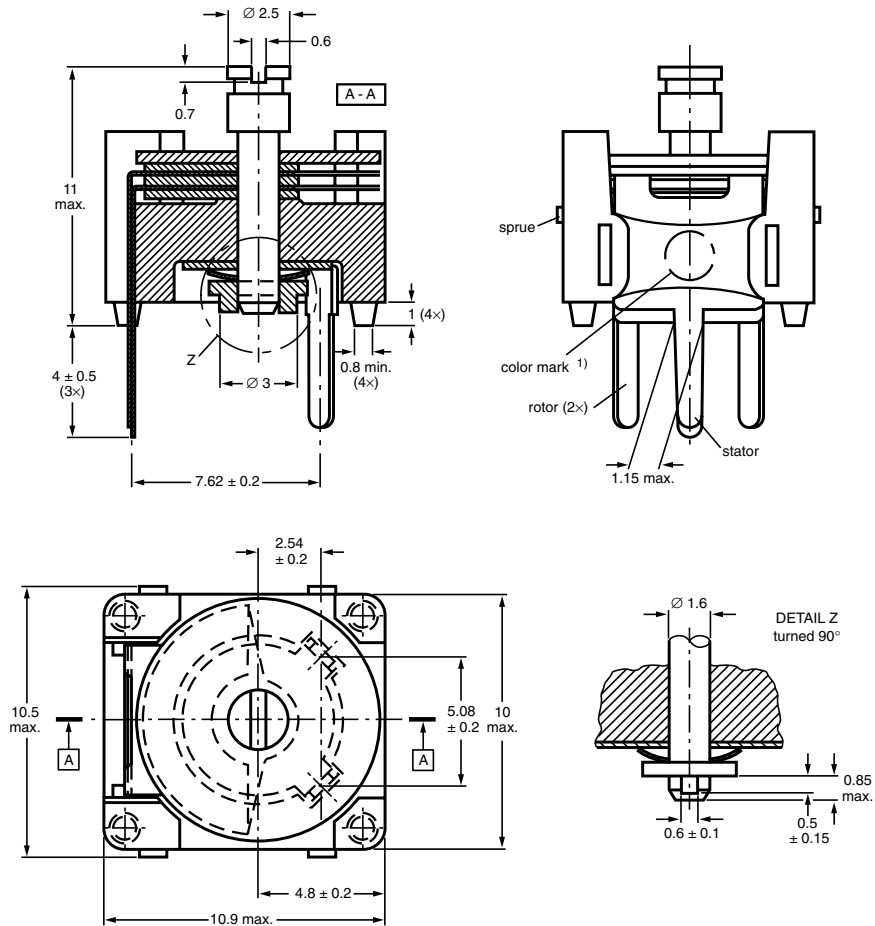
4/38 to 5/57 pF

RATED VOLTAGE (DC):

250 V

LIFE OF TRIMMER:

Maximum 10 cycles: rotation in 180° only (the electrical and mechanical performance is not guaranteed if rotated beyond 10 cycles)

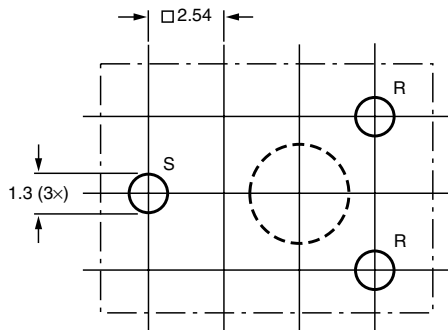


Trimmers BFC2 809 080.. series, with round heads

Dimensions in millimeters

ADJUSTMENT

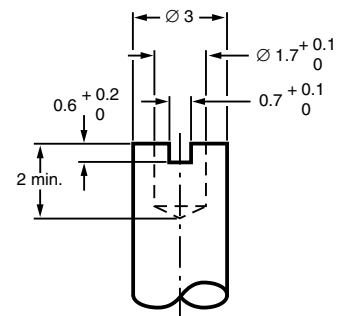
For top adjustment a screwdriver or trimming key can be used; for bottom adjustment a key is required as shown below



R = rotor, S = stator.

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

Hole pattern



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} (pF) | CATALOG NUMBER BFC2 809 080.. | |
|---------------------------|-------------------------------|--|
| | TOP AND BOTTOM ADJUSTMENT | |
| 4/38 | 02 | |
| 5/57 | 03 | |

ELECTRICAL DATA

| GUARANTEED MAX. $C_{min}/$ MIN. C_{max} at 200 kHz (pF) | SHAPE OF HEAD | DIEL. | $\tan \delta$ at $C_{max} \times 10^{-4}$ | | TEMP. COEFF. ²⁾ ($10^{-6}/K$) | MIN. f_{res} at C_{max} (MHz) | COL. OF DOT | SPQ | CATALOG NUMBER BFC2 |
|---|------------------|--------------------|--|-----------|--|---|-------------------|-----|----------------------------------|
| | | | 1 MHz | 100 MHz | | | | | |
| 4/38 | round | PTFE ¹⁾ | ≤ 10 | ≤ 25 | - 200 \pm 250 | 170 | yellow | 350 | 809 08002 |
| 5/57 | round | | 150 | blue | | 350 | 809 08003 | | |

Note:

1. PTFE = polytetrafluorethylene
2. C: 60 % to 80 % of C_{max} ; T_{amb} : from + 20 °C to + 125 °C

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 | $\Delta C/C: \leq 2.0 \%$ |
| 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 hours at lower and 0.5 hours 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 to 55 Hz; amplitude 0.35 mm; 1.5 hours | $\Delta C/C: \leq 0.2 \%$; no mechanical damage |

| IEC 60418-1 CLAUSE | IEC 60068 TEST METHOD | TEST | PROCEDURE | REQUIREMENTS |
|--------------------|-----------------------|---|---|--|
| 26 26.1 | B | climatic sequence: dry heat | 16 hours at upper category temperature | $\Delta C/C: \leq 2.5$ $\tan \delta: \leq 10 \times 10^{-4}$ $R_{ins}: \geq 10\,000\,M\Omega$; rotor contact R: $\leq 5\,m\Omega$ |
| 26.2 | D | damp heat accelerated, first cycle | 1 cycle; 24 hours; + 40 °C; 95 to 100 % RH | voltage proof: 500 V for 1 minute |
| 26.3 | Aa | cold | 16 hours; - 40 °C | visual examination: no mechanical damage |
| 26.5 | | damp heat accelerated, remaining cycles | 1 cycle; 24 hours; + 40 °C; 95 to 100 % RH | operating torque: 1 to 25 mNm |
| 27 | Ca | damp heat steady state | 21 days; + 40 °C; 90 to 95 % RH | $\Delta C/C: \leq 2.5\%$ $\tan \delta: \leq 10 \times 10^{-4}$ $R_{ins}: \geq 10\,000\,M\Omega$; rotor contact R: $\leq 5\,m\Omega$ voltage proof: 500 V for 1 minute visual examination: no mechanical damage operating torque: 1 to 25 mNm |
| 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) | $\Delta C/C: \leq 0.3\%$ $\Delta C/C$ after axial thrust: $\leq 0.3\%$; rotor contact R: $\leq 5\,m\Omega$ voltage proof: 500 V for 1 minute visual examination: no mechanical damage operating torque: 1 to 25 mNm |



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