

## Film Dielectric Trimmers

### TEST VOLTAGE (DC) FOR 1 MINUTE:

600 V

### MAXIMUM CONTACT RESISTANCE:

5 mΩ

### MINIMUM INSULATION RESISTANCE BETWEEN STATOR AND ROTOR:

10 000 MΩ

### 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:

**$C_{\max} < 3.5 \text{ pF}$**

1 to 15 mNm

**$C_{\max} \geq 3.5 \text{ pF}$**

1 to 20 mNm

### MAXIMUM AXIAL THRUST:

2 N

### FEATURES

- High temperature type
- Housing dimensions:  
6 mm x 8 mm x 9 mm
- For a basic grid of 2.54 mm
- Top and bottom adjustment
- Round head
- Vertical version

### 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 coloured dot indicates the maximum capacitance.

Cleaning with solvents is not advised.

Versions are available with either a round head or hexagonal head.

Both versions have top adjustment by means of a screwdriver or trimming key and bottom adjustment by means of a key.

### 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  $C_{\min}$  and is also subjected to the full test voltage.

**$C_{\min}/C_{\max}$ :**

0.5/2 to 2/18 pF

### RATED VOLTAGE (DC):

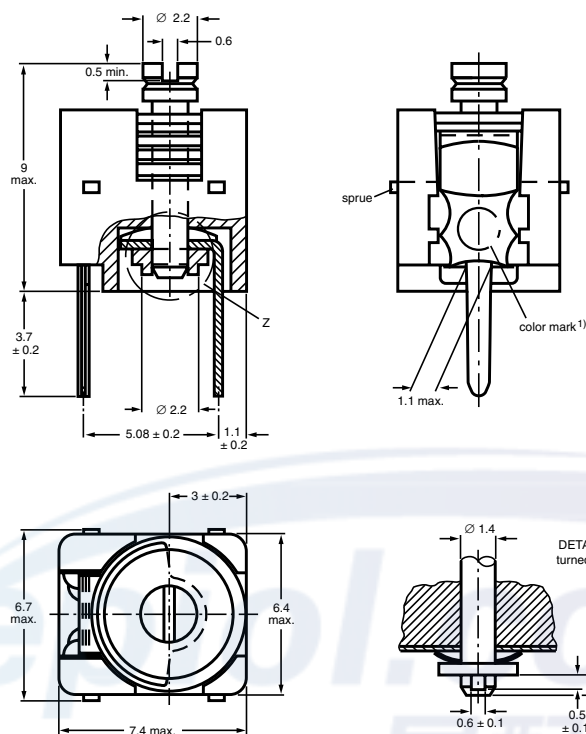
300 V

### LIFE OF TRIMMER:

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



**RoHS**  
COMPLIANT

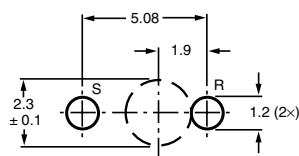


Trimmers BFC2 809 05... series, with round heads

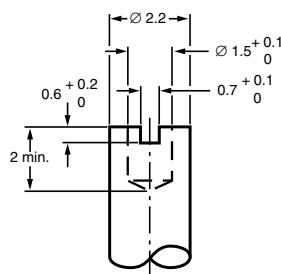
Dimensions in millimeters

**ADJUSTMENT**

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



Hole pattern



Bottom adjustment key



## ORDERING INFORMATION

| $C_{\min}/C_{\max}$<br>(pF) | CATALOG NUMBER BFC2 809 05... |                              |
|-----------------------------|-------------------------------|------------------------------|
|                             | TOP AND BOTTOM ADJUSTMENT     |                              |
|                             | ROUND HEAD                    | ROUND HEAD AND<br>FLUX GUARD |
| 0.5/2                       | 011                           | -                            |
| 1.2/3.5                     | 215                           | 001                          |
| 1.8/10                      | 216                           | 002                          |
| 2/18                        | 217                           | 003                          |

## MOUNTING

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

## PACKAGING

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

## ELECTRICAL DATA

| GUARANTEED<br>MAX. $C_{\min}/$<br>MIN. $C_{\max}$<br>AT 200 kHz<br>(pF) | SHAPE<br>OF HEAD | FIG. | TAN $\delta$ AT<br>$C_{\max} \times 10^{-4}$ |           | TEMP.<br>COEFF. <sup>1)</sup><br>( $10^{-6}/K$ ) | MIN. $f_{\text{res}}$<br>AT $C_{\max}$<br>(MHz) | COL.<br>OF<br>DOT | SPQ | CATALOG<br>NUMBER<br>BFC2 ... .. |
|-------------------------------------------------------------------------|------------------|------|----------------------------------------------|-----------|--------------------------------------------------|-------------------------------------------------|-------------------|-----|----------------------------------|
|                                                                         |                  |      | 1 MHz                                        | 100 MHz   |                                                  |                                                 |                   |     |                                  |
| 0.5/2                                                                   | round            | 1    | $\leq 10$                                    | $\leq 20$ | $-250 \pm 350$                                   | 1200                                            | none              | 700 | .... 809 05011                   |
| 1.2/3.5                                                                 | round            | 1    | $\leq 10$                                    | $\leq 20$ | $-250 \pm 350$                                   | 850                                             | orange            | 700 | .... 809 05001                   |
|                                                                         |                  |      |                                              |           |                                                  |                                                 |                   | 700 | .... 809 05215                   |
| 1.8/10                                                                  | round            | 1    | $\leq 10$                                    | $\leq 20$ | $-250 \pm 350$                                   | 1200                                            | none              | 700 | .... 809 05002                   |
|                                                                         |                  |      |                                              |           |                                                  | 580                                             | white             | 700 | .... 809 05216                   |
| 2/18                                                                    | round            | 1    | $\leq 10$                                    | $\leq 25$ | $-250 \pm 350$                                   | 360                                             | red               | 700 | .... 809 05217                   |
|                                                                         |                  |      |                                              |           |                                                  |                                                 |                   | 700 | .... 809 05003                   |

## Note:

1. C: 60 % to 80 % of  $C_{\max}$ ;  $T_{\text{amb}}$ : from + 20 °C to + 125 °C

## TEST PROCEDURES AND REQUIREMENTS

| IEC<br>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                                                          | $\Delta C/C: \leq 2.5 \%$ ; 4 % for 2 pF |
| 19                       |                             | thrust                                            | axial thrust of 2 N                                                           | $\Delta C/C: \leq 0.3 \%$                |
| 21<br>21.1<br>21.2       | Ua<br>Ub                    | robustness of terminations:<br>tensile<br>bending | 1 N<br>1 cycle                                                                | no damage<br>no damage                   |
| 22                       | Na                          | rapid change of temperature                       | 1 cycle; 0.5 hours at lower and<br>0.5 hours at upper category<br>temperature | $\Delta C/C: \leq 2.5 \%$                |

| IEC 60418-1<br>CLAUSE                  | IEC 60068<br>TEST<br>METHOD | TEST                                                                                                                                  | PROCEDURE                                                                                                                                                                | REQUIREMENTS                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 23                                     | T<br>Ta<br><br>Tb           | soldering:<br>solderability<br><br>resistance to heat                                                                                 | solder bath immersion 3 mm;<br>235 °C; 2 s<br>solder bath: 260 °C; 10 s                                                                                                  | good wetting<br>no mechanical damage<br>no mechanical damage                                                                                                                                                                                                                                                                                                                                               |
| 24                                     | Eb                          | impact bump                                                                                                                           | 4000 ± 10 bumps; 40 g; 6 ms                                                                                                                                              | $\Delta C/C: \leq 0.6 \%$ ;<br>no mechanical damage                                                                                                                                                                                                                                                                                                                                                        |
| 25                                     | Fc                          | vibration                                                                                                                             | frequency 10 to 55 Hz;<br>amplitude 0.35 mm;<br>1.5 hours                                                                                                                | $\Delta C/C: \leq 0.6 \%$ ;<br>no mechanical damage                                                                                                                                                                                                                                                                                                                                                        |
| 26<br>26.1<br><br>26.2<br>26.3<br>26.5 | B<br><br>D<br>Aa            | climatic sequence:<br>dry heat<br><br>damp heat accelerated,<br>first cycle<br>cold<br><br>damp heat accelerated,<br>remaining cycles | 16 hours at upper category<br>temperature<br><br>1 cycle; 24 hours; + 40 °C;<br>95 to 100 % RH<br>16 hours; - 40 °C<br><br>1 cycle; 24 hours; + 40 °C;<br>95 to 100 % RH | $\Delta C/C: \leq 2.5$<br>$\tan \delta: \leq 10 \times 10^{-4}$ for $C_{\max} < 18 \text{ pF}$ ;<br>$\tan \delta: \leq 40 \times 10^{-4}$ for $C_{\max} \geq 18 \text{ pF}$<br>$R_{\text{ins}}: \geq 10\,000 \text{ M}\Omega$ ;<br>rotor contact R: $\leq 5 \text{ m}\Omega$<br>voltage proof:<br>600 V for 1 minute<br>visual examination:<br>no mechanical damage<br>operating torque:<br>1 to 20 mNm    |
| 27                                     | Ca                          | damp heat steady state                                                                                                                | 21 days; + 40 °C;<br>90 to 95 % RH                                                                                                                                       | $\Delta C/C: \leq 2.5 \%$<br>$\tan \delta: \leq 10 \times 10^{-4}$ for $C_{\max} < 18 \text{ pF}$ ;<br>$\tan \delta: \leq 25 \times 10^{-4}$ for $C_{\max} \geq 18 \text{ pF}$<br>$R_{\text{ins}}: \geq 10\,000 \text{ M}\Omega$ ;<br>rotor contact R: $\leq 5 \text{ m}\Omega$<br>voltage proof:<br>600 V for 1 minute<br>visual examination:<br>no mechanical damage<br>operating torque:<br>1 to 20 mNm |
| 29                                     |                             | mechanical endurance                                                                                                                  | 10 cycles<br><br>Maximum 10 cycles: rotation in<br>180° only (the electrical and<br>mechanical performance is not<br>guaranteed if rotated beyond 10<br>cycles)          | $\Delta C/C: \leq 0.3 \%$ ; $\leq 2.5 \%$ for 2 pF<br>$\Delta C/C$ after axial thrust: $\leq 0.3 \%$ ;<br>rotor contact R: $\leq 5 \text{ m}\Omega$<br>voltage proof:<br>600 V for 1 minute<br>visual examination:<br>no mechanical damage<br>operating torque:<br>1 to 20 mNm                                                                                                                             |



### Disclaimer

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