

## Film Dielectric Trimmers



### FEATURES

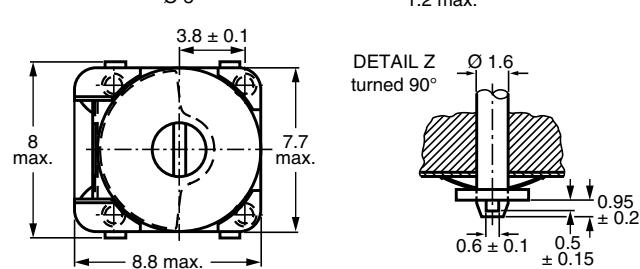
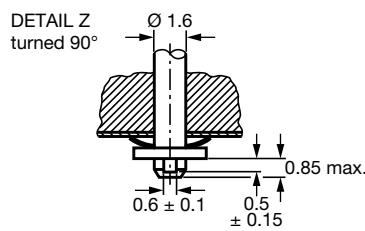
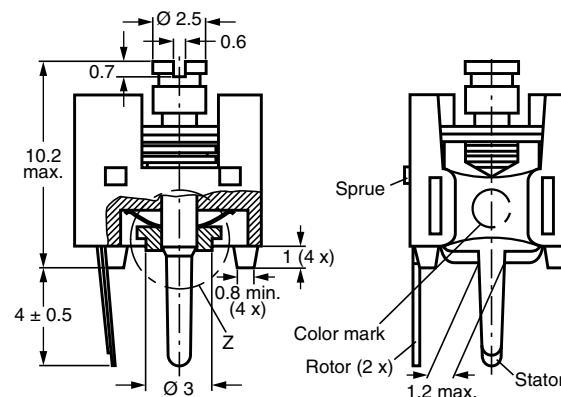
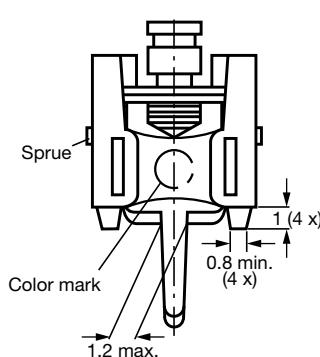
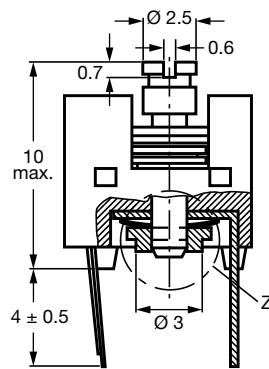
- High temperature type
- Housing dimensions:  
8 mm x 9 mm x 10 mm
- For a basic grid of 2.54 mm
- Versions available with 1 or 2 rotor contacts
- Top and bottom adjustment
- Mounting: Radial
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### APPLICATIONS

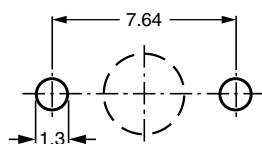
- Antennas
- Impedance matching circuits
- Medical
- RF
- For fine adjustment in professional applications

<b>QUICK REFERENCE DATA</b>	
Rated DC voltage	250 V <sub>DC</sub>
Test DC voltage for 1 min	500 V <sub>DC</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	$C_{max.} = 5.5 \text{ pF}$
	$C_{max.} = 9 \text{ pF}$ and 18 pF
Maximum axial thrust	2 N
Capacitance range ( $C_{min.}/C_{max.}$ )	1.4 pF/5.5 pF to 3 pF/18 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.	

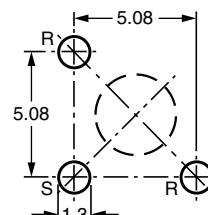
**DIMENSIONS** in millimeters


Trimmers BFC2 809 090.. series, with one rotor contact

Trimmers BFC2 809 090.. series, with two rotor contacts



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

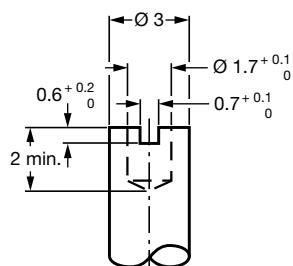


R = Rotor, S = Stator.  
The large hole is for bottom adjustment and the diameter is determined by user's requirements.

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 basic grid of 2.54 mm and a minimum hole diameter of 1.25 mm.

**PACKAGING**

Blister packs of 105 units each. For smallest packaging quantity (SPQ) see "Electrical Data" table.

ORDERING INFORMATION		
C <sub>min.</sub> /C <sub>max.</sub> (pF)	CATALOG NUMBER BFC2 809 090..	
	ROUND HEAD TOP AND BOTTOM ADJUSTMENT	
	VERSION WITH 1 ROTOR CONTACT	VERSION WITH 2 ROTOR CONTACTS
1.4/5.5	04	01
2/9	05	02
3/18	06	03

GUARANTEED MAX. C <sub>min.</sub> / MIN. C <sub>max.</sub> AT 200 kHz (pF)	SHAPE OF HEAD	DIEL.	tan δ AT C <sub>max.</sub> x 10 <sup>-4</sup>		TEMP. COEFF. <sup>(2)</sup> (10 <sup>-6</sup> /K)	MIN. f <sub>res</sub> AT C <sub>max.</sub> (MHz)	COL. OF DOT	SPQ	CATALOG NUMBER BFC2 ... .....
			1 MHz	100 MHz					
1.4/5.5	Round	PTFE <sup>(1)</sup>	≤ 10	≤ 15	- 250 ± 350	850	Green	525	.... 809 09004 <sup>(3)</sup>
	Round							525	.... 809 09001 <sup>(4)</sup>
2/9	Round	PTFE <sup>(1)</sup>	≤ 10	≤ 15	- 250 ± 350	580	White	525	.... 809 09005 <sup>(3)</sup>
	Round							525	.... 809 09002 <sup>(4)</sup>
3/18	Round	PTFE <sup>(1)</sup>	≤ 10	≤ 15	- 250 ± 350	360	Red	525	.... 809 09006 <sup>(3)</sup>
	Round							525	.... 809 09003 <sup>(4)</sup>

**Notes**

(1) PTFE = Polytetrafluoroethylene.

(2) C: 60 % to 80 % of C<sub>max.</sub>; T<sub>amb</sub>: From + 20 °C to + 125 °C.

(3) Version with one rotor contact.

(4) Version with two rotor contacts.

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	ΔC/C: ≤ 2.0 %; ≤ 3.0 % for 9 pF
19		Thrust	Axial thrust of 2 N	ΔC/C: ≤ 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	ΔC/C: ≤ 3 %
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	ΔC/C: ≤ 0.5 %; no mechanical damage
25	Fc	Vibration	Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h	ΔC/C: ≤ 0.3 %; no mechanical damage

TEST PROCEDURES AND REQUIREMENTS				
IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
26	B	Climatic sequence:	16 h at upper category temperature  16 h; + 40 °C; 95 % to 100 % RH  16 h; - 40 °C  1 cycle; 24 h; + 40 °C; 95 % to 100 % RH	ΔC/C: ≤ 2.5 %  tan δ: ≤ 10 x 10 <sup>-4</sup>  $R_{ins.} \geq 10\,000\,M\Omega$ ; Rotor contact R: ≤ 5 mΩ
		Dry heat		Voltage proof: 500 V for 1 min
	D	Damp heat accelerated, first cycle		Visual examination: No mechanical damage
	Aa	Cold		Operating torque: 1 mNm to 20 mNm
		Damp heat accelerated, remaining cycles		
27	Ca	Damp heat steady state	21 days; + 40 °C; 90 % to 95 % RH	ΔC/C: ≤ 3 %  tan δ: ≤ 10 x 10 <sup>-4</sup>  $R_{ins.} \geq 10\,000\,M\Omega$ ; rotor contact R: ≤ 5 mΩ  Voltage proof: 500 V for 1 min  Visual examination: No mechanical damage  Operating torque: 1 mNm to 20 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)	ΔC/C: ≤ 3 %  ΔC/C after axial thrust: ≤ 0.3 %; rotor contact R: ≤ 5 mΩ  Voltage proof: 500 V for 1 min  Visual examination: No mechanical damage  Operating torque: 1 mNm to 20 mNm

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