

## 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)

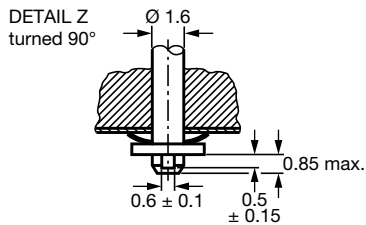
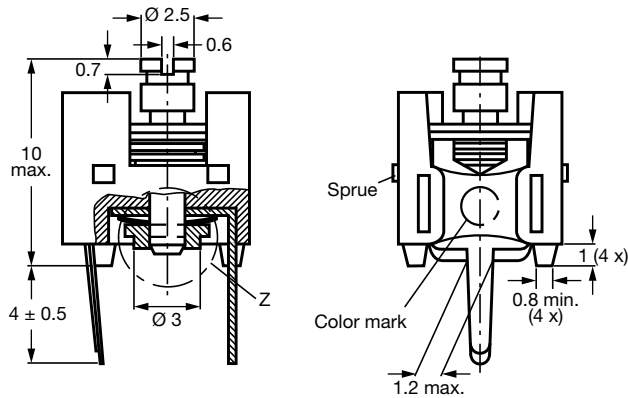

**RoHS**  
COMPLIANT

### APPLICATIONS

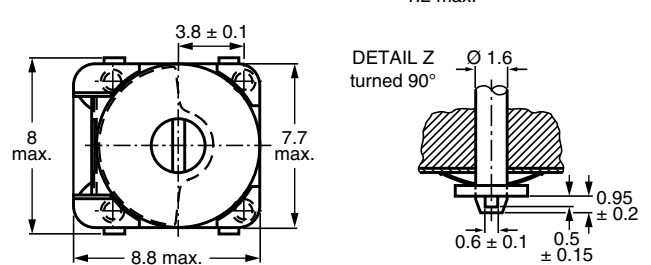
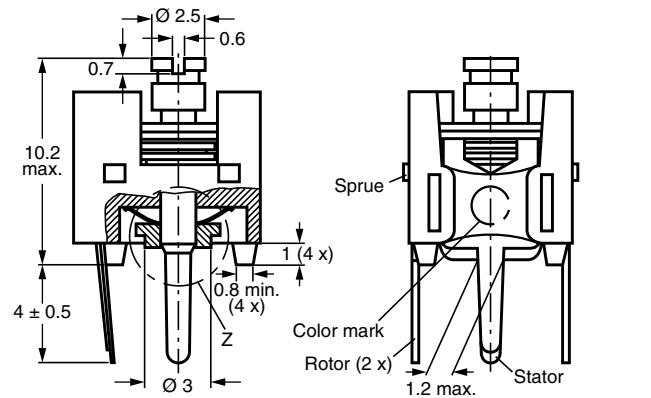
- Antennas
- Impedance matching circuits
- Medical
- RF
- For fine adjustment in professional applications

QUICK REFERENCE DATA		
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 <sub>max.</sub> = 5.5 pF	1 mNm to 15 mNm
	C <sub>max.</sub> = 9 pF and 18 pF	1 mNm to 20 mNm
Maximum axial thrust	2 N	
Capacitance range (C <sub>min.</sub> / C <sub>max.</sub> )	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 <sub>max.</sub> and is also subjected to the full test voltage.	

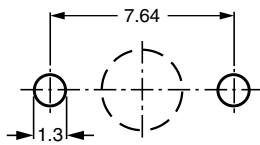
**DIMENSIONS** in millimeters



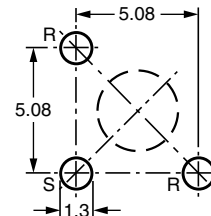
Trimmers BFC2 809 090.. series, with one rotor contact



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.

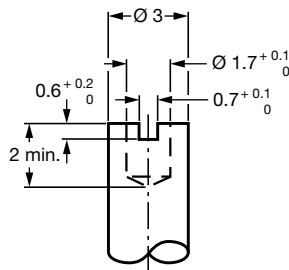


R = Rotor, S = Stator.  
The large hole is for bottom adjustment and the diameter is determined by user's requirements.

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

ELECTRICAL DATA									
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							525	.... 809 09005 <sup>(3)</sup>
	Round							525	.... 809 09002 <sup>(4)</sup>
3 / 18	Round							525	.... 809 09006 <sup>(3)</sup>
	Round							360	Red

**Notes**

- (1) PTFE = Polytetrafluorethylene.
- (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.

**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 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



TEST PROCEDURES AND REQUIREMENTS					
IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS	
25	Fc	Vibration	Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h	$\Delta C/C: \leq 0.3 \%$ ; no mechanical damage	
26	B	Climatic sequence:		$\Delta C/C: \leq 2.5 \%$	
26.1		Dry heat	16 h at upper category temperature	$\tan \delta: \leq 10 \times 10^{-4}$ $R_{ins.}: \geq 10\,000\,M\Omega$ ; Rotor contact R: $\leq 5\,m\Omega$	
26.2		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 20 mNm	
27	Ca	Damp heat steady state	21 days; +40 °C; 90 % to 95 % RH	$\Delta C/C: \leq 3 \%$ $\tan \delta: \leq 10 \times 10^{-4}$ $R_{ins.}: \geq 10\,000\,M\Omega$ ; rotor contact R: $\leq 5\,m\Omega$  Voltage proof: 500 V for 1 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)	$\Delta C/C: \leq 3 \%$  $\Delta C/C$ after axial thrust: $\leq 0.3 \%$ ; rotor contact R: $\leq 5\,m\Omega$  Voltage proof: 500 V for 1 min  Visual examination: no mechanical damage  Operating torque: 1 mNm to 20 mNm	



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