

## Film Dielectric Trimmers



### 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
- Mounting: Radial
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

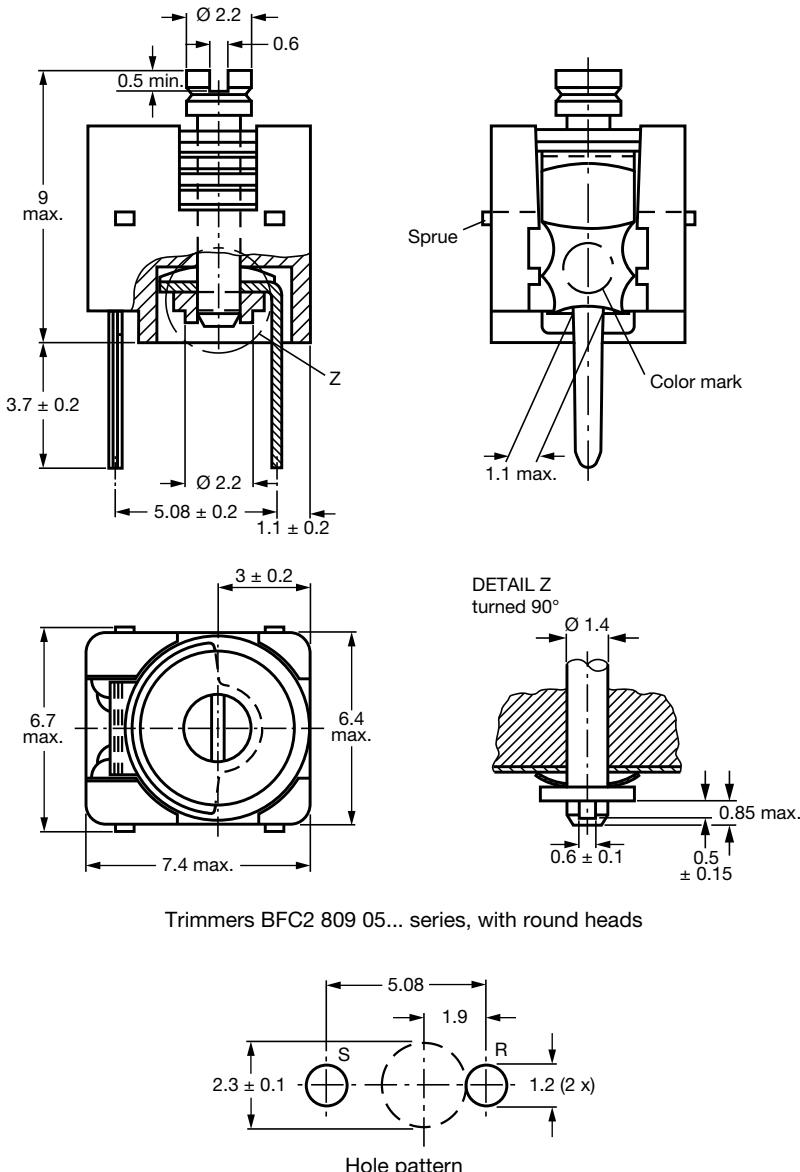


**RoHS**  
COMPLIANT

### APPLICATIONS

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

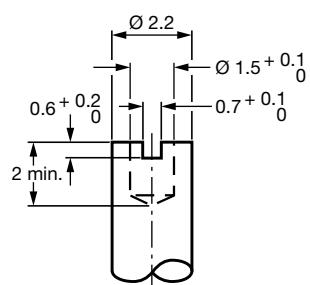
<b>QUICK REFERENCE DATA</b>	
Rated DC voltage	300 V <sub>DC</sub>
Test DC voltage for 1 min	600 V <sub>DC</sub>
Maximum contact resistance	5 mΩ
Minimum insulation resistance between stator and rotor	10 000 MΩ
Category temperature range	- 40 °C to + 125 °C
Climatic category (IEC 60068)	40/125/21
Minimum 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> < 3.5 pF
	C <sub>max.</sub> ≥ 3.5 pF
Maximum axial thrust	2 N
Capacitance range (C <sub>min.</sub> /C <sub>max.</sub> )	1.2 pF/3.5 pF to 2 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	<p>Sampling and data evaluation for quality level in accordance with "MIL-STD-105D" and "IEC 60410":</p> <p>&lt; 0.15 % major defects &lt; 0.65 % minor defects</p> <p>Each capacitor is tested for minimum C<sub>max.</sub> and is also subjected to the full test voltage.</p>

**DIMENSIONS** in millimeters


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

**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 <sub>min.</sub> /C <sub>max.</sub> (pF)	CATALOG NUMBER BFC2 809 05...	
	TOP AND BOTTOM ADJUSTMENT	
	ROUND HEAD	ROUND HEAD AND FLUX GUARD
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 MAX. C <sub>min.</sub> / MIN. C <sub>max.</sub> AT 200 kHz (pF)	SHAPE OF HEAD	FIG.	tan δ AT C <sub>max.</sub> x 10 <sup>-4</sup>		TEMP. COEFF. <sup>(1)</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					
1.2/3.5	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

<sup>(1)</sup> C: 60 % to 80 % of C<sub>max.</sub>; T<sub>amb</sub>: 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	ΔC/C: $\leq 2.5\%$ ; 4 % for 2 pF
19		Thrust	Axial thrust of 2 N	ΔC/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	ΔC/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	ΔC/C: $\leq 0.6\%$ ; 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	$\Delta C/C: \leq 0.6 \%$ ; no mechanical damage
26		Climatic sequence:		$\Delta C/C: \leq 2.5$
26.1	B	Dry heat	16 h at upper category temperature	$\tan \delta: \leq 10 \times 10^{-4}$ for $C_{max.} < 18 \text{ pF}$ ; $\tan \delta: \leq 40 \times 10^{-4}$ for $C_{max.} \geq 18 \text{ pF}$ $R_{ins.} \geq 10,000 \text{ M}\Omega$ ; rotor contact $R: \leq 5 \text{ m}\Omega$
26.2	D	Damp heat accelerated, first cycle	1 cycle; 24 h; + 40 °C; 95 % to 100 % RH	Voltage proof: 600 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	$\Delta C/C: \leq 2.5 \%$ $\tan \delta: \leq 10 \times 10^{-4}$ for $C_{max.} < 18 \text{ pF}$ ; $\tan \delta: \leq 25 \times 10^{-4}$ for $C_{max.} \geq 18 \text{ pF}$ $R_{ins.} \geq 10,000 \text{ M}\Omega$ ; rotor contact $R: \leq 5 \text{ m}\Omega$ Voltage proof: 600 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)	$\Delta C/C: \leq 0.3 \%$ ; $\leq 2.5 \%$ for 2 pF $\Delta C/C$ after axial thrust: $\leq 0.3 \%$ ; rotor contact $R: \leq 5 \text{ m}\Omega$ Voltage proof: 600 V for 1 min Visual examination: No mechanical damage Operating torque: 1 mNm to 20 mNm

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