

## 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)

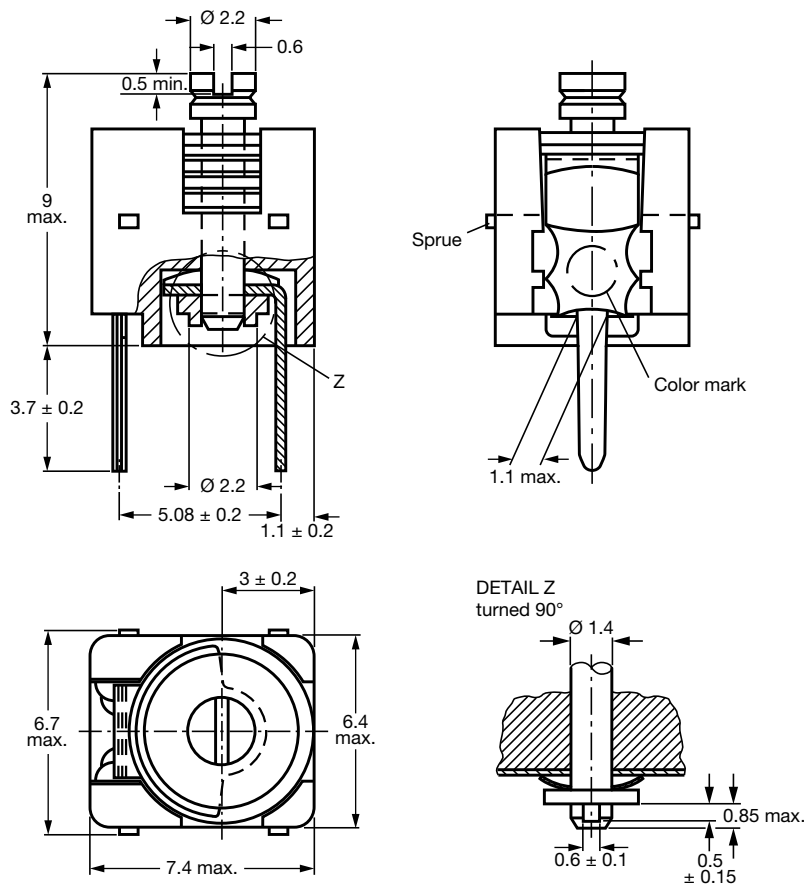

**RoHS**  
COMPLIANT

### APPLICATIONS

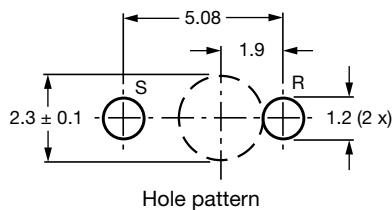
- Antennas
- Impedance matching circuits
- Medical
- RF
- For fine adjustment in professional applications

### QUICK REFERENCE DATA

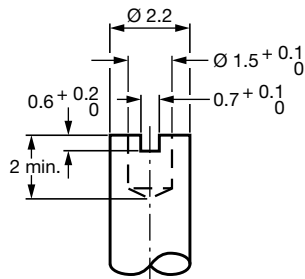
Rated DC voltage		300 V <sub>DC</sub>
Test DC voltage for 1 min		600 V <sub>DC</sub>
Maximum contact resistance		5 mΩ
Minimum insulation resistance between stator and rotor		10 000 MΩ
Category temperature range		-40 °C to +125 °C
Climatic category (IEC 60068)		40/125/21
Minimum storage temperature		-55 °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	1 mNm to 15 mNm
	C <sub>max.</sub> ≥ 3.5 pF	1 mNm to 20 mNm
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	≤ 10	≤ 20	-250 ± 350	850	Orange	700	.... 809 05001
								700	.... 809 05215
1.8 / 10	Round	1	≤ 10	≤ 20	-250 ± 350	1200	None	700	.... 809 05002
						580		700	.... 809 05216
2 / 18	Round	1	≤ 10	≤ 25	-250 ± 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

**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: ≤ 2.5 %; 4 % for 2 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: ≤ 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

TEST PROCEDURES AND REQUIREMENTS				
IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
24	Eb	Impact bump	4000 ± 10 bumps; 40 g; 6 ms	$\Delta C/C: \leq 0.6 \%$ ; no mechanical damage
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	B	Climatic sequence:		$\Delta C/C: \leq 2.5$
26.1		Dry heat	16 h at upper category temperature	$\tan \delta: \leq 10 \times 10^{-4}$ for $C_{\max.} < 18 \text{ pF}$ ; $\tan \delta: \leq 40 \times 10^{-4}$ for $C_{\max.} \geq 18 \text{ pF}$  $R_{\text{ins.}}: \geq 10\,000 \text{ M}\Omega$ ; rotor contact R: $\leq 5 \text{ m}\Omega$
26.2		Damp heat accelerated, first cycle	1 cycle; 24 h; +40 °C; 95 % to 100 % RH	Voltage proof: 600 V for 1 min
26.3		Cold	16 h; -40 °C	Visual examination: no mechanical damage
26.5	Aa	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 $C_{\max.} \geq 18 \text{ pF}$  $R_{\text{ins.}}: \geq 10\,000 \text{ M}\Omega$ ; 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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