

Film Dielectric Trimmers



FEATURES

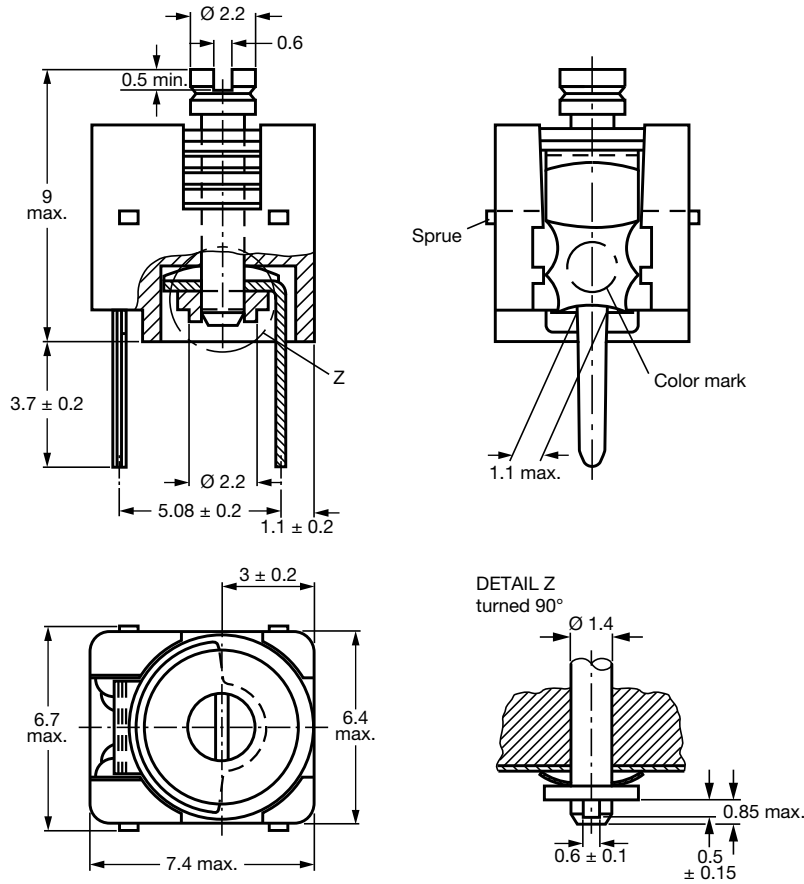
- High temperature type
- Housing dimensions:
6 mm x 8 mm x 9 mm
- For a basic grid of 2.54 mm
- Top and bottom adjustment
- Round head
- Mounting: radial
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

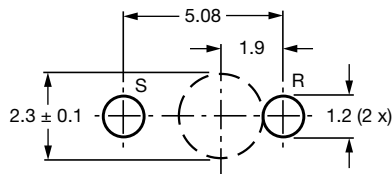
APPLICATIONS

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

QUICK REFERENCE DATA		
Rated DC voltage	300 V _{DC}	
Test DC voltage for 1 min	600 V _{DC}	
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 _{max.} < 3.5 pF	1 mNm to 15 mNm
	C _{max.} ≥ 3.5 pF	1 mNm to 20 mNm
Maximum axial thrust	2 N	
Capacitance range (C _{min.} / C _{max.})	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	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


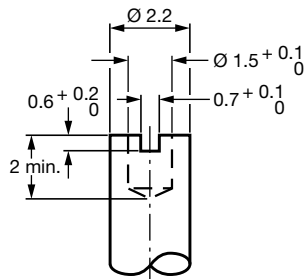
Trimmers BFC2 809 05... series, with round heads



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



ORDERING INFORMATION			
C _{min.} / C _{max.} (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 _{min.} / MIN. C _{max.} AT 200 kHz (pF)	SHAPE OF HEAD	FIG.	tan δ AT C _{max.} x 10 ⁻⁴		TEMP. COEFF. ⁽¹⁾ (10 ⁻⁶ /K)	MIN. f _{res} AT C _{max.} (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
								580 809 05216
2 / 18	Round	1	≤ 10	≤ 25	-250 ± 350	360	Red	700 809 05217
								700 809 05003

Note

⁽¹⁾ C: 60 % to 80 % of C_{max.}; T_{amb.}: 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

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		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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