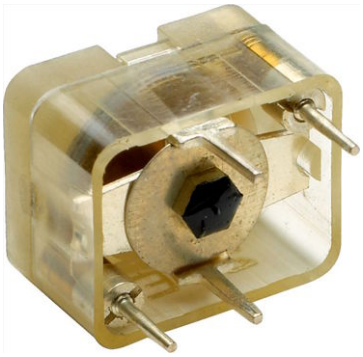
Film Dielectric Trimmers



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

Pb-free

e4

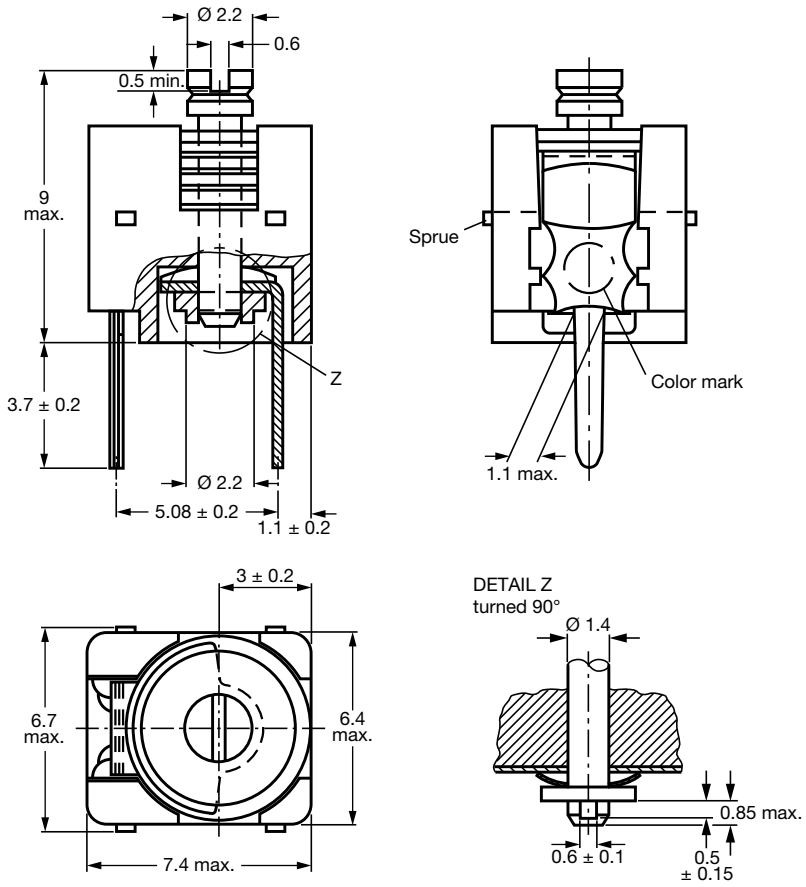
RoHS COMPLIANT

APPLICATIONS

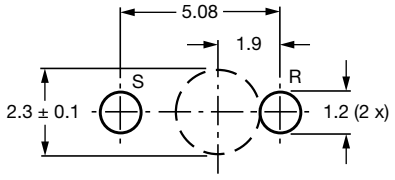
- Antennas
- Impedance matching circuits
- Medical
- RF
- For fine adjustment in professional applications

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



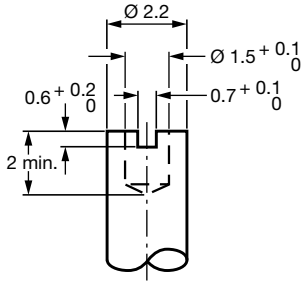
Trimmers BFC2 809 05... series, with round heads



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	White	700	.... 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	$\Delta C/C$: ≤ 0.6 %; no mechanical damage
25	Fc	Vibration	Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h	$\Delta C/C$: ≤ 0.6 %; no mechanical damage
26		Climatic sequence:		$\Delta C/C$: ≤ 2.5
26.1	B	Dry heat	16 h at upper category temperature	tan δ: ≤ 10 x 10^{-4} for $C_{max.}$ < 18 pF; tan δ: ≤ 40 x 10^{-4} for $C_{max.}$ ≥ 18 pF $R_{ins.}$: ≥ 10 000 MΩ; rotor contact R: ≤ 5 mΩ
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	$\Delta C/C$: ≤ 2.5 % tan δ: ≤ 10 x 10^{-4} for $C_{max.}$ < 18 pF; tan δ: ≤ 25 x 10^{-4} for $C_{max.}$ ≥ 18 pF $R_{ins.}$: ≥ 10 000 MΩ; rotor contact R: ≤ 5 mΩ 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)	$\Delta C/C$: ≤ 0.3 %; ≤ 2.5 % for 2 pF $\Delta C/C$ after axial thrust: ≤ 0.3 %; rotor contact R: ≤ 5 mΩ Voltage proof: 600 V for 1 min Visual examination: no mechanical damage Operating torque: 1 mNm to 20 mNm

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