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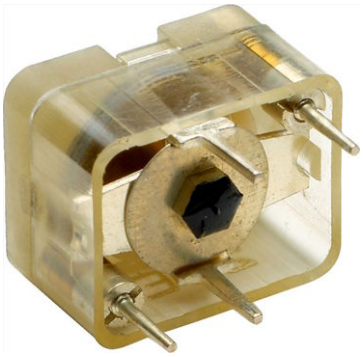
Film Dielectric Trimmers



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

Pb-free

e4

RoHS COMPLIANT

APPLICATIONS

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

QUICK REFERENCE DATA		
Rated DC voltage		250 V_{DC}
Test DC voltage for 1 min		500 V_{DC}
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	$C_{max.}$ = 5.5 pF	1 mNm to 15 mNm
	$C_{max.}$ = 9 pF and 18 pF	1 mNm to 20 mNm
Maximum axial thrust		2 N
Capacitance range ($C_{min.}$ / $C_{max.}$)		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 $C_{max.}$ and is also subjected to the full test voltage.

For technical questions, contact: dc-film@vishay.com

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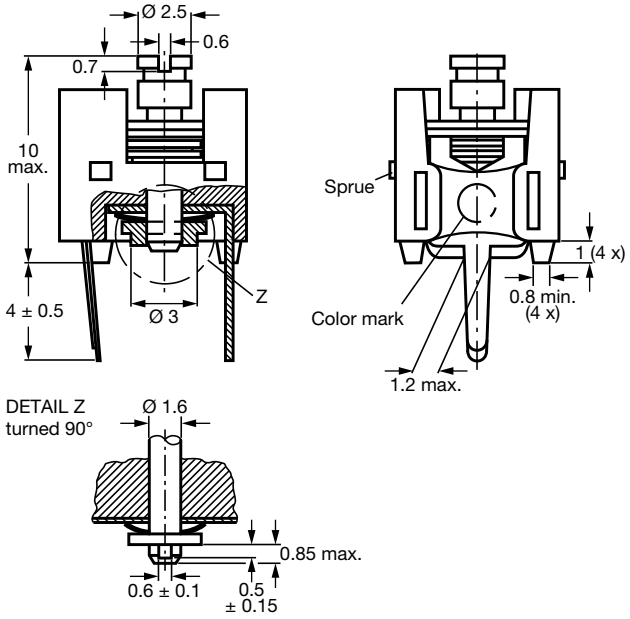
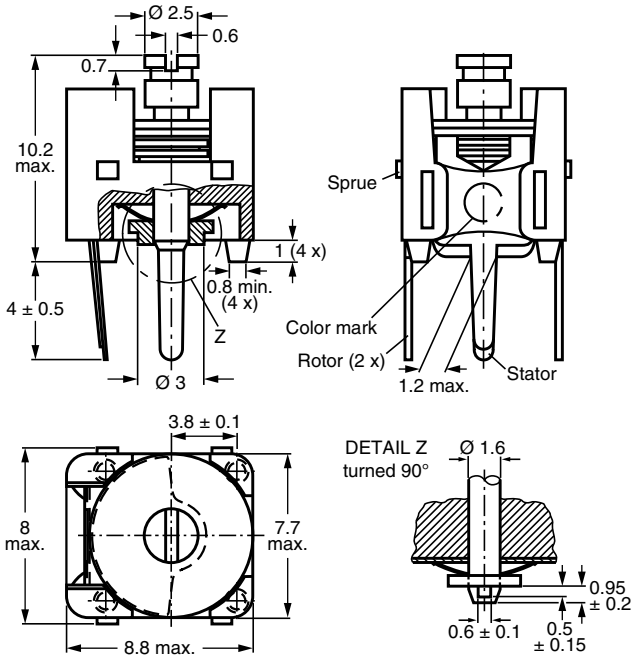
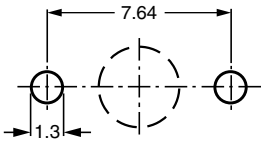
DIMENSIONS in millimeters



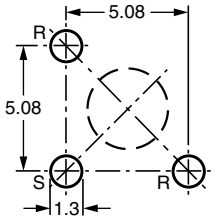
Trimmers BFC2 809 090.. series, with one rotor contact



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.

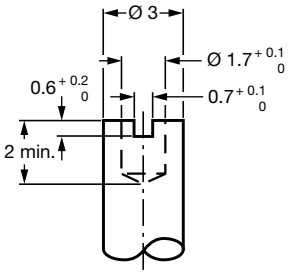


R = Rotor, S = Stator.
The large hole is for bottom adjustment and the diameter is determined by user's requirements.

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.

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ORDERING INFORMATION

$C_{min.}$ / $C_{max.}$ (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. $C_{min.}$ / MIN. $C_{max.}$ AT 200 kHz (pF)	SHAPE OF HEAD	DIEL.	tan δ AT $C_{max.}$ x 10^{-4}		TEMP. COEFF. (2) (10^{-6}/K)	MIN. f_{res} AT $C_{max.}$ (MHz)	COL. OF DOT	SPQ	CATALOG NUMBER BFC2 ... .
			1 MHz	100 MHz					
1.4 / 5.5	Round	PTFE (1)	≤ 10	≤ 15	-250 ± 350	850	Green	525	.... 809 09004 (3)
	Round							525	.... 809 09001 (4)
2 / 9	Round					580	White	525	.... 809 09005 (3)
	Round							525	.... 809 09002 (4)
3 / 18	Round					360	Red	525	.... 809 09006 (3)
	Round							525	.... 809 09003 (4)

Notes

(1) PTFE = Polytetrafluorethylene.
(2) C: 60 % to 80 % of $C_{max.}$; T_{amb}: 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

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

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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	$\Delta C/C$: ≤ 0.3 %; 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} $R_{ins.}$: ≥ 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: 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	$\Delta C/C$: ≤ 3 % tan δ: ≤ 10 x 10^{-4} $R_{ins.}$: ≥ 10 000 MΩ; rotor contact R: ≤ 5 mΩ 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)	$\Delta C/C$: ≤ 3 % $\Delta C/C$ after axial thrust: ≤ 0.3 %; rotor contact R: ≤ 5 mΩ Voltage proof: 500 V for 1 min Visual examination: no mechanical damage Operating torque: 1 mNm to 20 mNm

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