

## Vishay BCcomponents

## **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



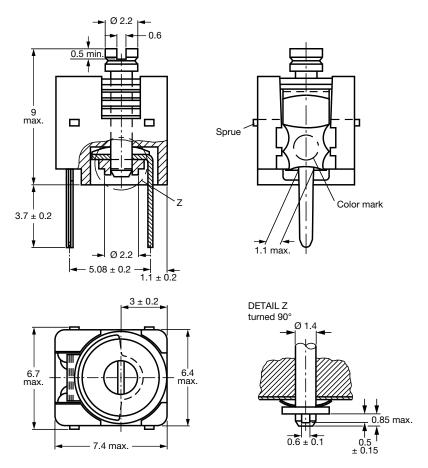
### **APPLICATIONS**

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

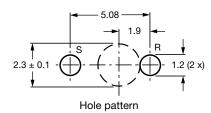
QUICK REFERENCE DATA				
Rated DC voltage		300 V <sub>DC</sub>		
Test DC voltage for 1 min		600 V <sub>DC</sub>		
Maximum contact resistance		5 mΩ		
Minimum insulation resistance betwee	n stator and rotor	10 000 MΩ		
Category temperature range		-40 °C to +125 °C		
Climatic category (IEC 60068)		40/125/21		
Minimum storage temperature		-55 ℃		
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		
Operating torque	$C_{max.} \ge 3.5 \text{ pF}$	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)		
		Sampling and data evaluation for quality level in accordance with "MIL-STD-105D" and "IEC 60410":		
Quality level		< 0.15 % major defects < 0.65 % minor defects		
		Each capacitor is tested for minimum $C_{\text{max.}}$ and is also subjected to the full test voltage.		

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## **DIMENSIONS** in millimeters

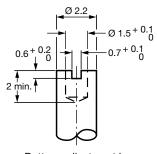


Trimmers BFC2 809 05... series, with round heads



### **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



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ORDERING INFORMATION					
	CATALOG NUMBER BFC2 809 05 TOP AND BOTTOM ADJUSTMENT				
C <sub>min.</sub> / C <sub>max.</sub>					
(pF)	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> / SHAPE			tan δ AT C <sub>max.</sub> x 10 <sup>-4</sup>		TEMP.	MIN. f <sub>res</sub>	COL.		CATALOG
MIN. C <sub>max.</sub> AT 200 kHz (pF)	OF HEAD	FIG.	1 MHz	100 MHz	COEFF. <sup>(1)</sup> (10 <sup>-6</sup> /K)	AT C <sub>max.</sub> (MHz)	OF DOT	SPQ	NUMBER BFC2
1.2 / 3.5	Round	1	≤ 10	≤ 20	-250 ± 350	850	Orange	700	809 05001
1.2 / 3.3	nouriu	'	≥ 10	≥ 20	-230 ± 330	830		700	809 05215
1.8 / 10	Round	4	≤ 10	≤ 20	-250 ± 350	1200	None	700	809 05002
1.0710	hourid	'	≥ 10	≥ 20	-250 ± 550	580	White	700	809 05216
0 / 10	Dound	4	z 10	< 0F	050 - 050	360 Red	000 D-4	700	809 05217
2 / 18	Round	'	≤ 10	≤ 25	-250 ± 350		Red	700	809 05003

### Note

#### **SOLDERING CONDITIONS**

For general soldering conditions and wave soldering profile, we refer to the application note "Soldering Guidelines for Film Capacitors": <a href="https://www.vishay.com/doc?28171">www.vishay.com/doc?28171</a>

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	$\Delta$ C/C: $\leq$ 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	Т	Soldering:			
	Та	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	

<sup>(1)</sup> C: 60 % to 80 % of C<sub>max</sub>; T<sub>amb</sub>: from +20 °C to +125 °C



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IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
24	Eb	Impact bump	4000 ± 10 bumps; 40 g; 6 ms	ΔC/C: ≤ 0.6 %; no mechanical damage
25	Fc	Vibration	Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h	$\Delta C/C$ : $\leq 0.6$ %; no mechanical damage
26		Climatic sequence:		ΔC/C: ≤ 2.5
26.1	В	Dry heat	16 h at upper category temperature	$tan \ \delta : \le 10 \ x \ 10^{-4} \ for \ C_{max.} < 18 \ pF;$ $tan \ \delta : \le 40 \ x \ 10^{-4} \ for \ C_{max.} \ge 18 \ pF$
				$\begin{array}{l} \text{R}_{\text{ins.}} \colon \ge 10 \; 000 \; \text{M}\Omega; \\ \text{rotor contact R:} \le 5 \; \text{m}\Omega \end{array}$
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	$\begin{split} &\Delta C/C : \leq 2.5~\%\\ &tan~\delta : \leq 10~x~10^{-4}~for~C_{max.} < 18~pF;\\ &tan~\delta : \leq 25~x~10^{-4}~for~C_{max.} \geq 18~pF\\ &R_{ins.} : \geq 10~000~M\Omega;\\ &rotor~contact~R : \leq 5~m\Omega \end{split}$
				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	$\begin{array}{l} \Delta C/C : \leq 0.3 \; \%; \leq 2.5 \; \% \; \text{for 2 pF} \\ \Delta C/C \; \text{after axial thrust:} \leq 0.3 \; \%; \\ \text{rotor contact R:} \leq 5 \; \text{m} \Omega \end{array}$
		mechanical performance is not guaranteed if rotated beyond 10 cycles)	Voltage proof: 600 V for 1 min	
			Visual examination: no mechanical damage	
				Operating torque: 1 mNm to 20 mNm

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