



**THE DATASHEET OF  
BFC280811229**



## Ø 7.5 mm Film Dielectric Trimmers



### FEATURES

- Housing diameter 7.5 mm
- For a basic grid of 2.54 mm (0.1") or 2.50 mm
- Top and bottom or top adjustment
- Vertical and horizontal versions
- Round head
- Mounting: radial
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

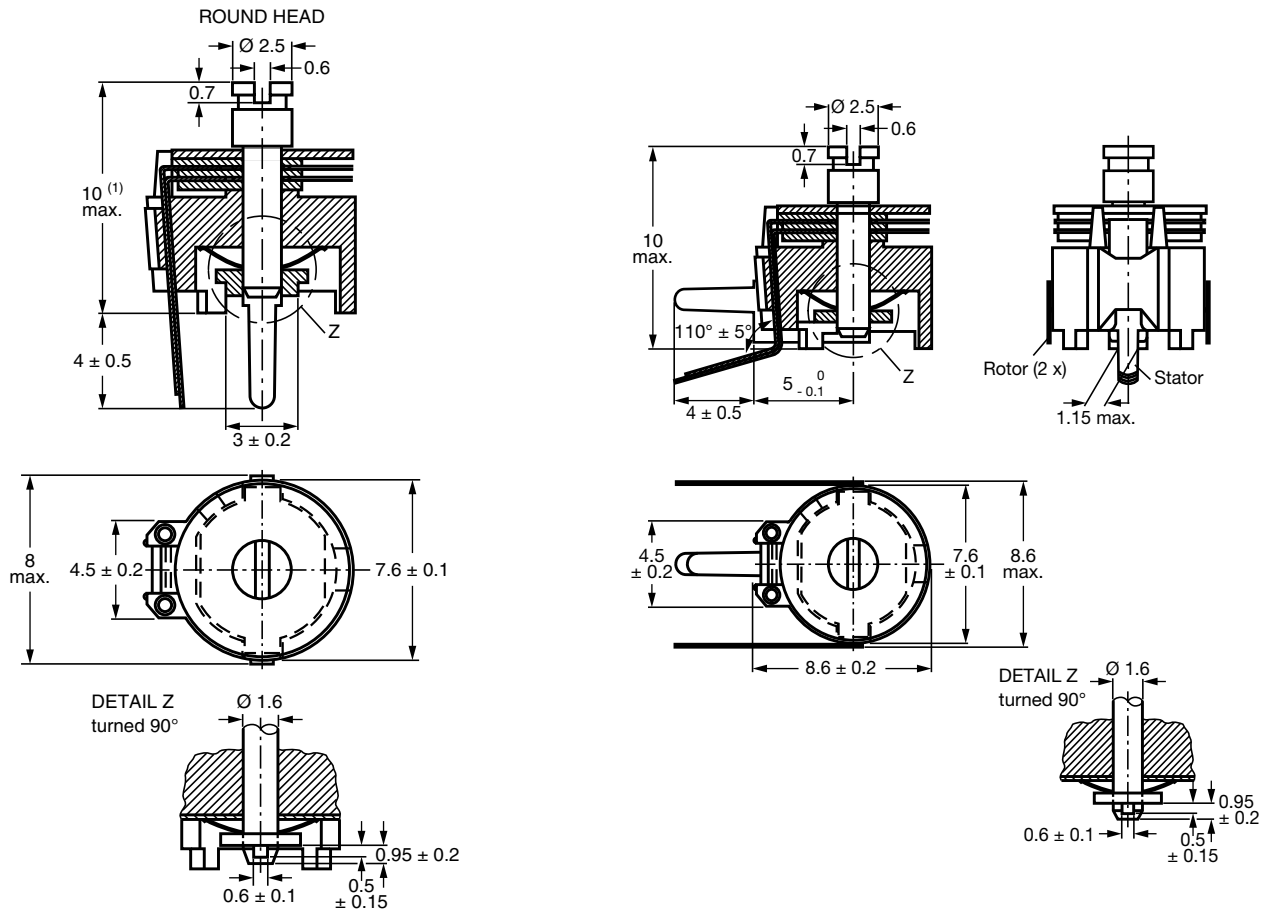

**RoHS**  
COMPLIANT

### APPLICATIONS

- Antennas
- Impedance matching circuits
- Medical
- RF
- For consumer and industrial equipment

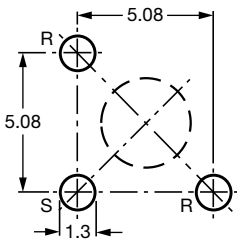
QUICK REFERENCE DATA		
Rated DC voltage		250 V <sub>DC</sub>
Test DC voltage for 1 min		500 V <sub>DC</sub>
Maximum contact resistance		10 mΩ
Minimum insulation resistance		10 000 MΩ
Category temperature range	PP	-40 °C to +70 °C
	PE, PTFE, PET	-40 °C to +85 °C
Climatic category (IEC 60068)	PP	40/070/21
	PE, PTFE, PET	40/085/21
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> < 33 pF	1 mNm to 15 mNm
	C <sub>max.</sub> ≥ 33 pF	1 mNm to 25 mNm
Maximum axial thrust		2 N
Capacitance range (C <sub>min.</sub> / C <sub>max.</sub> )		1.4 pF / 5.5 pF to 3 pF / 33 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 <sub>max.</sub> and is also subjected to the full test voltage.

**DIMENSIONS** in millimeters



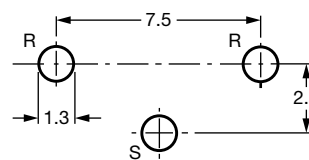
Trimmers BFC2 808 ..... series, vertical version

Trimmers BFC2 808 ..... series, horizontal version



R = Rotor, S = Stator

The large hole is for bottom adjustment and the diameter is determined by user's requirements.

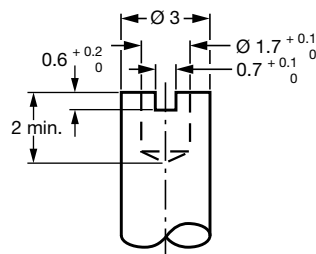


R = Rotor, S = Stator

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



<b>ORDERING INFORMATION</b>			
<b>C<sub>min.</sub> / C<sub>max.</sub> (pF)</b>	<b>CATALOG NUMBER BFC2 808 .....</b>		
	<b>VERTICAL VERSION</b>		<b>HORIZONTAL VERSION</b>
	<b>ROUND HEAD</b>		
	<b>TOP AND BOTTOM ADJUSTMENT</b>	<b>TOP ADJUSTMENT ONLY</b>	<b>TOP AND BOTTOM ADJUSTMENT</b>
1.4 / 5.5	11558	00004	51558
2 / 9	00018	-	-
2 / 10	11109	00005	51109
2 / 10	-	11004	-
2 / 15	11159	-	-
2 / 18	00016	-	-
2.5 / 20	-	11006	-
2.5 / 22	11229	00006	51229
3 / 33	11339	-	-

**MOUNTING**

The trimmer can be mounted on printed-circuit boards with a grid of 2.50 mm or 2.54 mm and a minimum hole diameter of 1.25 mm.

**PACKAGING**

Bulk packaged in cardboard boxes lined with expanded plastic. For smallest packaging quantity (SPQ) see “Electrical Data” table.

<b>ELECTRICAL DATA</b>											
<b>GUARANTEED MAX. C<sub>min.</sub> / MIN. C<sub>max.</sub> AT 200 kHz (pF)</b>	<b>SPINDLE</b>	<b>SHAPE OF HEAD</b>	<b>ADJ. MODE</b>	<b>DIEL.</b>	<b>tan δ AT C<sub>max.</sub> x 10<sup>-4</sup></b>		<b>TEMP. COEFF. (10<sup>-6</sup>/K)</b>	<b>MIN. f<sub>res</sub> AT C<sub>max.</sub> (MHz)</b>	<b>COL. OF BASE</b>	<b>SPQ</b>	<b>CATALOG NUMBER BFC2 ... ..</b>
					<b>1 MHz</b>	<b>100 MHz</b>					
1.4 / 5.5	Vertical	Round	Top + bottom	PE	≤ 10	≤ 25	-250 ± 350	850	Grey	1400	.... 808 11558
			Top							1400	.... 808 00004
	Horizontal	Round	Top + bottom							1200	.... 808 51558
2 / 9	Vertical	Round	Top + bottom	PTFE	≤ 10	≤ 15	-150 ± 800	400	Yellow	1400	.... 808 00018
2 / 10	Vertical	Round	Top + bottom	PP	≤ 10	≤ 25	-250 ± 800	480	Yellow	1400	.... 808 11109
			Top							1400	.... 808 00005
	Horizontal	Round	Top + bottom							1200	.... 808 51109
2 / 15	Vertical	Round	Top + bottom	PP	≤ 10	≤ 25	-250 ± 600	450	Blue	1400	.... 808 11159
2 / 18	Vertical	Round	Top + bottom	PTFE	≤ 10	≤ 15	-250 ± 350	350	Green	1400	.... 808 00016
2.5 / 20	Vertical	Round	Top	PET	≤ 160	-	0 ± 1100	250	Green	1000	.... 808 11006
2.5 / 22	Vertical	Round	Top + bottom	PP	≤ 10	≤ 25	-200 ± 500	350	Green	1400	.... 808 11229
			Top							1400	.... 808 00006
	Horizontal	Round	Top + bottom							1200	.... 808 51229
3 / 33	Vertical	Round	Top + bottom	PP	≤ 10	-	-250 ± 350	300	Brown	1400	.... 808 11339



**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)

<b>TEST PROCEDURES AND REQUIREMENTS</b>				
<b>IEC 60418-1 CLAUSE</b>	<b>IEC 60068 TEST METHOD</b>	<b>TEST</b>	<b>PROCEDURE</b>	<b>REQUIREMENTS</b>
4.2		Method of mounting	Method A	
14		Capacitance drift	After TC measurement	$\Delta C/C: \leq 1\%$ for $C_{max.} < 40\text{ pF}$ ; $\Delta C/C: \leq 2.5\%$ for $C_{max.} \geq 40\text{ pF}$
19		Thrust	Axial thrust of 2 N	$\Delta C/C: \leq 0.3\%$
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	$\Delta C/C: \leq 2\%$
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	$\Delta C/C: \leq 0.6\%$ ; 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:		$\Delta C/C: \leq 4\%$
26.1	B	Dry heat	16 h at upper category temperature	$\tan \delta: \leq 10 \times 10^{-4}$ for $C_{max.} < 27\text{ pF}$ ; $\tan \delta: \leq 70 \times 10^{-4}$ for $C_{max.} \geq 27\text{ pF}$ ; $\tan \delta: \leq 80 \times 10^{-4}$ for $C_{max.} \geq 40\text{ pF}$  $R_{ins.} \geq 10\,000\text{ M}\Omega$ ; rotor contact R: $\leq 10\text{ m}\Omega$
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 15 mNm for $C_{max.} < 33\text{ pF}$ ; 1 mNm to 25 mNm for $C_{max.} \geq 33\text{ pF}$



TEST PROCEDURES AND REQUIREMENTS				
IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
27	Ca	Damp heat steady state	21 days; +40 °C; 90 % to 95 % RH	$\Delta C/C: \leq 5 \%$  $\tan \delta: \leq 30 \times 10^{-4}$ for $C_{max.} < 27 \text{ pF}$ ; $\tan \delta: \leq 70 \times 10^{-4}$ for $C_{max.} \geq 27 \text{ pF}$ ; $\tan \delta: \leq 80 \times 10^{-4}$ for $C_{max.} \geq 40 \text{ pF}$  $R_{ins.}: \geq 10\,000 \text{ M}\Omega$ ; rotor contact R: $\leq 10 \text{ m}\Omega$  Voltage proof: 500 V for 1 min  Visual examination: no mechanical damage  Operating torque: 1 mNm to 15 mNm for $C_{max.} < 33 \text{ pF}$ ; 1 mNm to 25 mNm for $C_{max.} \geq 33 \text{ pF}$
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)	$\Delta C/C: \leq 1.5 \%$  $\Delta C/C$ after axial thrust: $\leq 0.3 \%$ ; rotor contact R: $\leq 10 \text{ m}\Omega$  Voltage proof: 500 V for 1 min  Visual examination: no mechanical damage  Operating torque: 1 mNm to 15 mNm for $C_{max.} < 33 \text{ pF}$ ; 1 mNm to 25 mNm for $C_{max.} \geq 33 \text{ pF}$



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