

Film Dielectric Trimmers



FEATURES

- High temperature type
- Housing dimensions:
11 mm x 14 mm x 9 mm
- For a basic grid of 2.54 mm
- Top adjustment
- Mounting: radial
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



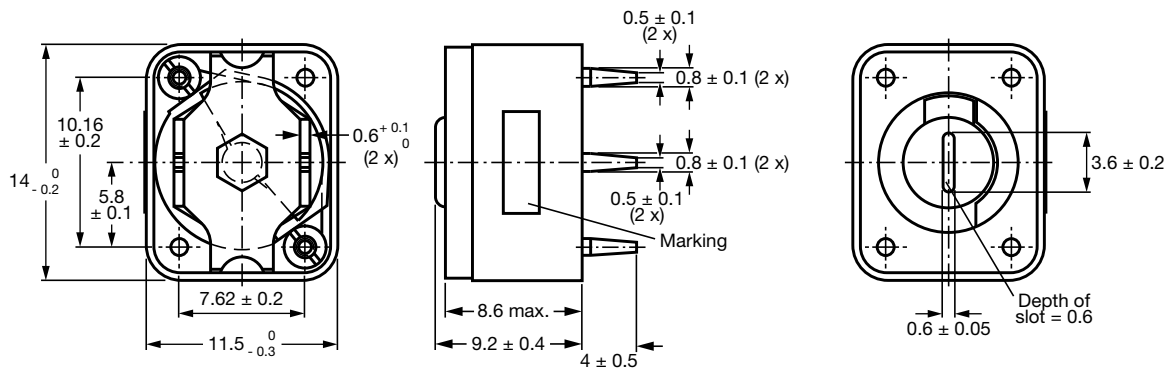
APPLICATIONS

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

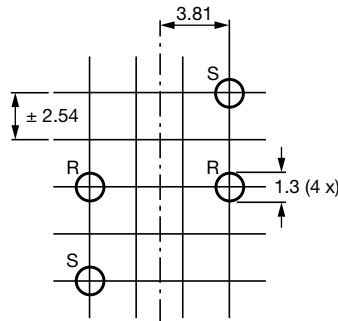
QUICK REFERENCE DATA		
Rated DC voltage	200 V _{DC}	
Test DC voltage for 1 min	400 V _{DC}	
Maximum contact resistance	5 mΩ	
Minimum insulation resistance between stator and rotor	10 000 MΩ	
Category temperature range	-40 °C to +125 °C	
Climatic category (IEC 60068)	40/125/21	
Minimum storage temperature	-55 °C	
Related specification	IEC 60418-1 and 4	
Effective angle of rotation	180° (rotation in 180° only, see "Life of trimmer")	
Operating torque	1.5 mNm to 25 mNm	
Maximum axial thrust	2 N	
Capacitance range (C _{min.} /C _{max.})	Single stator type	2.5 pF/20 pF to 7 pF/100 pF
	Differential type	2 pF/12 pF to 7 pF/100 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 809 070.. series



R = Rotor, S = Stator

Hole pattern

ADJUSTMENT

The trimmers can be adjusted with a screwdriver or trimming key. Capacitance increase is obtained with clockwise rotation.

MARKING

The trimmers are marked with the capacitance value in pF, followed by the letter “E” (single-stator type) or the letter “D” (differential type).

MOUNTING

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

PACKAGING

Blister packs of 70 units each. For smallest packaging quantity (SPQ) see “Electrical Data” table.

ORDERING INFORMATION		
C _{min.} /C _{max.} (pF)	CATALOG NUMBER BFC2 809 070..	
	TOP AND BOTTOM ADJUSTMENT	
	SINGLE STATOR TYPE	DIFFERENTIAL TYPE
2/12	-	018
2.5/20	004	006
4/40	008	009
5/60	011	012
6/80	013	014
7/100	015	016



ELECTRICAL DATA							
GUARANTEED MAX. C _{min.} / MIN. C _{max.} AT 200 kHz (pF)	TYPE	DIEL.	tan δ AT C _{max.} x 10 ⁻⁴		TEMP. COEFF. ⁽²⁾ (10 ⁻⁶ /K)	SPQ	CATALOG NUMBER BFC2
			1 MHz	100 MHz			
2/12	Differential	PTFE ⁽¹⁾	≤ 10	≤ 17	0 ± 200	350	.... 809 07018
2.5/20	Single stator	PTFE	≤ 10	≤ 17	0 ± 200	350	.... 809 07004
	Differential					350	.... 809 07006
4/40	Single stator	PTFE	≤ 10	≤ 17	0 ± 200	350	.... 809 07008
	Differential					350	.... 809 07009
5/60	Single stator	PTFE	≤ 10	≤ 25	0 ± 200	350	.... 809 07011
	Differential					350	.... 809 07012
6/80	Single stator	PTFE	≤ 10	≤ 25	0 ± 200	350	.... 809 07013
	Differential					350	.... 809 07014
7/100	Single stator	PTFE	≤ 10	≤ 25	0 ± 200	350	.... 809 07015
	Differential					350	.... 809 07016

Notes

- (1) PTFE = Polytetrafluorethylene
- (2) 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: ≤ 1 %
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		Bending not allowed
22	Na	Rapid change of temperature	1 cycle; 0.5 h at lower and 0.5 h at upper category temperature	ΔC/C: ≤ 1 %
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: ≤ 0.2 %; no mechanical damage
25	Fc	Vibration	Frequency 10 Hz to 55 Hz; amplitude 0.35 mm; 1.5 h	ΔC/C: ≤ 0.25 %; no mechanical damage



TEST PROCEDURES AND REQUIREMENTS				
IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
26		Climatic sequence:		$\Delta C/C: \leq 3$
26.1	B	Dry heat	16 h at upper category temperature	$\tan \delta: \leq 10 \times 10^{-4}$ $R_{ins}: \geq 10\,000\,M\Omega$; rotor contact R: $\leq 10\,m\Omega$
26.2	D	Damp heat accelerated, first cycle	1 cycle; 24 h; +40 °C; 95 % to 100 % RH	Voltage proof: 400 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: 1.5 mNm to 35 mNm
27	Ca	Damp heat steady state	21 days; +40 °C; 90 % to 95 % RH	$\Delta C/C: \leq 3\%$ $\tan \delta: \leq 10 \times 10^{-4}$ $R_{ins}: \geq 10\,000\,M\Omega$; rotor contact R: $\leq 10\,m\Omega$ Voltage proof: 400 V for 1 min Visual examination: no mechanical damage Operating torque: 1.5 mNm to 35 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)	$\Delta C/C: \leq 0.3\%$ $\Delta C/C$ after axial thrust: $\leq 0.3\%$; rotor contact R: $\leq 10\,m\Omega$ Voltage proof: 400 V for 1 min Visual examination: no mechanical damage Operating torque: 1 mNm to 50 mNm



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.