Vishay BCcomponents



Ø 7.5 mm Film Dielectric Trimmers

TEST VOLTAGE (DC) FOR 1 MINUTE:

500 V

MAXIMUM CONTACT RESISTANCE:

 $10 \text{ m}\Omega$

MINIMUM INSULATION RESISTANCE:

10 000 M Ω

CATEGORY TEMPERATURE RANGE:

PP

- 40 to + 70 °C

PE, PC, PTFE, PET

- 40 to + 85 °C

CLIMATIC CATEGORY (IEC 60068):

PP

40/070/21

PE, PC, 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:

 $C_{max} < 33 pF$

1 to 15 mNm

 $C_{max} \ge 33 pF$

1 to 25 mNm

MAXIMUM AXIAL THRUST:

2 N

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





APPLICATIONS

• For consumer and industrial equipment

DESCRIPTION:

The vanes of the trimmer are stacked on a sturdy plastic base. The color of the base indicates the maximum capacitance (see Electrical Data Table). The dielectric is a film of polypropylene (PP), polyethylene (PE), polycarbonate (PC), polytetrafluorethylene (PTFE), or polyethyleneterephtalate (PET) which supports the vanes in such a way that good stability is ensured and no microphony can occur.

Flux absorption between the vanes is prevented.

Cleaning with solvents is not advised.

Versions are available with either a vertical spindle, or a horizontal spindle (see dimensional outlines). Both versions have top adjustment by means of a screwdriver or trimming key and bottom adjustment by means of a key.

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.

C_{min} / C_{max}:

1.4/5.5 to 3/50 pF

RATED VOLTAGE (DC):

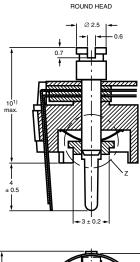
250 V

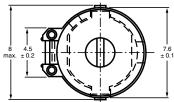
LIFE OF TRIMMER:

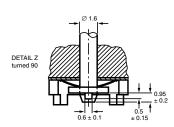
Maximum 10 cycles: rotation in 180° only (the electrical and mechanical performance is not guaranteed if rotated beyond 10 cycles)



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0.7 110° ± 5 110° ± 5 1.15 max.

DETAIL Z turned 90°

0.6 ± 0.1 mox.

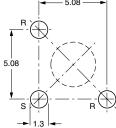
Trimmers BFC2 808 series, vertical version

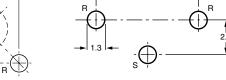
Trimmers BFC2 808 series, horizontal version

Dimensions in millimeters

ADJUSTMENT

For top adjustment a screwdriver or trimming key can be used; for bottom adjustment a key is required as shown below



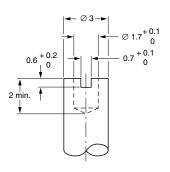


R = rotor, S = stator

R = rotor, S = stator

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

Hole pattern



Bottom adjustment key

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ORDERING INFORMATION

C _{min} /C _{max} (pF)	CATALOG NUMBER BFC2 808							
	VERTICAL VI	HORIZONTAL VERSION ROUND HEAD						
	ROUND H							
	TOP AND BOTTOM ADJUSTMENT	TOP ADJUSTMENT ONLY	TOP AND BOTTOM ADJUSTMENT					
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					
2.5/27	11279	-	51279					
3/33	11339	=	_					
3/40	11409	_	51409					
3/50	11509	_	51509					

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.

ELECTRICAL DATA

GUARANTEED		CHARE					N δ ΑΤ	TEMP	MINI #	001		CATALOG
MAX. C _{min} / MIN. C _{max} AT 200 kHz (pF)	SPINDLE	SHAPE	FIG.	ADJ. MODE	DIEL.	C _{max} x 10 ⁻⁴		TEMP. COEFF.	MIN. f _{res}	COL. OF	SPQ	NUMBER
		HEAD				1 MHz	100 MHz	(10 ⁻⁶ /K)	(MHz)	BASE		BFC2
1.4/5.5	vertical	round	1	top + bottom	PE	≤ 10 ≤ 25	≤ 25	- 250 ± 350	850	grey	1400	808 11558
			1	top							1400	808 00004
	horizontal	round	2	top + bottom						1200	808 51558	
2/9	vertical	round	1	top + bottom	PTFE	≤ 10	≤ 15	- 150 ± 800	400	yellow	1400	808 00018
	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	- 250 ± 800	480	yellow	1400	808 11109
2/10			1	top							1400	808 00005
2/10	horizontal	round	2	top + bottom							1200	808 51109
	vertical	round	1	top	PC	≤ 70	≤ 100	- 150 ± 800	250	yellow	1000	808 11004
2/15	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	-250 ± 600	450	blue	1400	808 11159
2/18	vertical	round	1	top + bottom	PTFE	≤ 10	≤ 15	-250 ± 350	350	green	1400	808 00016
2.5/20	vertical	round	1	top	PET	≤ 160	-	0 ± 1100	250	green	1000	808 11006
	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	- 200 ± 500	350	green	1400	808 11229
2.5/22			1	top							1400	808 00006
	horizontal	round	2	top + bottom							1200	808 51229
2.5/27	vertical	round	1	top + bottom	PC	≤ 70	-	- 50 ± 500	350	red	1400	808 11279
2.5/27	horizontal	round	2	top + bottom							1200	808 51279
3/33	vertical	round	1	top + bottom	PP	≤ 10	-	- 250 ± 350	300	brown	1400	808 11339
3/40	vertical	round	1	top + bottom	PC	≤ 70	-	- 50 ± 400	300	violet	1400	808 11409
	horizontal	round	2	top + bottom							1200	808 51409
3/50	vertical	round	1	top + bottom	РС	≤ 70	-	- 50 ± 500	250	black	1400	808 11509
	horizontal	round	2	top + bottom	10						1200	808 51509



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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	Δ C/C: \leq 1 % for C _{max} $<$ 40 pF; Δ C/C: \leq 2.5 % for C _{max} \geq 40 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 hours at lower and 0.5 hours at upper category temperature	ΔC/C: ≤ 2 %
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
24	Eb	impact bump	4000 ± 10 bumps; 40 g; 6 ms	Δ C/C: \leq 0.6 %; no mechanical damage
25	Fc	vibration	frequency 10 to 55 Hz; amplitude 0.35 mm; 1.5 hours	∆C/C: ≤ 0.6 %; no mechanical damage
26		climatic sequence:		ΔC/C: ≤ 4
26.1	В	dry heat	16 hours at upper category temperature	$\begin{array}{l} tan \; \delta : \leq 10 \; x \; 10^{\text{-}4} \; for \; C_{max} < 27 \; pF; \\ tan \; \delta : \leq 70 \; x \; 10^{\text{-}4} \; for \; C_{max} \geq 27 \; pF; \\ tan \; \delta : \leq 80 \; x \; 10^{\text{-}4} \; for \; C_{max} \geq 40 \; pF \end{array}$
				$\begin{array}{l} R_{ins} \!\!: \geq 10\ 000\ M\Omega; \\ rotor\ contact\ R \!\!: \leq 10\ m\Omega \end{array}$
26.2	D	damp heat accelerated, first cycle	1 cycle; 24 hours; + 40 °C; 95 to 100 % RH	voltage proof: 500 V for 1 minute
26.3	Aa	cold	16 hours; - 40 ×C	visual examination: no mechanical damage
26.5		damp heat accelerated, remaining cycles	1 cycle; 24 hours; + 40 °C; 95 to 100 % RH	operating torque: 1 to 15 mNm for C_{max} < 33 pF; 1 to 25 mNm for C_{max} \geq 33 pF
27	Ca	damp heat steady state	21 days; + 40 °C;	ΔC/C: ≤ 5 %
			90 to 95 % RH	$\begin{array}{l} tan \; \delta : \leq 30 \; x \; 10^{\text{-}4} \; for \; C_{max} < 27 \; pF; \\ tan \; \delta : \leq 70 \; x \; 10^{\text{-}4} \; for \; C_{max} \geq 27 \; pF; \\ tan \; \delta : \leq 80 \; x \; 10^{\text{-}4} \; for \; C_{max} \geq 40 \; pF \end{array}$
				R_{ins} : ≥ 10 000 MΩ; rotor contact R: ≤ 10 mΩ
				voltage proof: 500 V for 1 minute
				visual examination: no mechanical damage
				operating torque: 1 to 15 mNm for C_{max} < 33 pF; 1 to 25 mNm for C_{max} \geq 33 pF
29		mechanical endurance	10 cycles	ΔC/C: ≤ 1.5 %
			Maximum 10 cycles: rotation in	Δ C/C after axial thrust: \leq 0.3 %; rotor contact R: \leq 10 m Ω
			180° only (the electrical and mechanical performance is not	voltage proof: 500 V for 1 minute
			guaranteed if rotated beyond 10 cycles)	visual examination: no mechanical damage
				operating torque: 1 to 15 mNm for C_{max} < 33 pF; 1 to 25 mNm for C_{max} \geq 33 pF



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