

Ø 5 mm Film Dielectric Trimmers



FEATURES

- Housing diameter 5 mm
- Top and bottom or top adjustment
- Round head
- Mounting: radial
- Material categorization:
for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

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

QUICK REFERENCE DATA		
Rated DC voltage		150 V _{DC}
Test DC voltage for 1 min		300 V _{DC}
Maximum contact resistance		10 mΩ
Minimum insulation resistance		10 000 MΩ
Category temperature range	PP	-40 °C to +70 °C
	PTFE	-40 °C to +85 °C
Climatic category (IEC 60068)	PP	40/070/21
	PTFE	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.} < 20 pF	1 mNm to 15 mNm
	C _{max.} ≥ 20 pF	1 mNm to 25 mNm
Maximum axial thrust		2 N
Capacitance range (C _{min.} / C _{max.})		0.35 pF / 1.5 pF to 4 pF / 27 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 808 series, with round head

CAPACITANCE AND RELEVANT PHYSICAL DIMENSIONS			
$C_{\min.} / C_{\max.}$ (pF)	$H_{\max.}$ (mm)	$W_{\max.}$ (mm)	$L_{\max.}$ (mm)
0.35 / 1.5	7.0	5.5	7.3
1.5 / 5	7.0	5.5	7.3
3 / 10	7.0	5.5	7.3
3 / 15	8.8	5.5	7.3
4 / 20	8.8	5.5	7.3
4 / 27	9.0	6.2	7.8

**MOUNTING**

The trimmer has a lead pitch of 5.08 mm or 5.6 mm and can be mounted on printed-circuit boards with a minimum hole diameter of 1.25 mm.

PACKAGING

Bulk packaged in cardboard boxes lined with expanded plastic, 1000 units per box.

ORDERING INFORMATION			
C _{min.} / C _{max.} (pF)	CATALOG NUMBER BFC2 808		
	TOP AND BOTTOM ADJUSTMENT (P = 5.6 mm)	TOP ADJUSTMENT ONLY (P = 5.6 mm)	TOP ADJUSTMENT ONLY (P = 5.08 mm)
POLYTETRAFLUORETHYLENE			
0.35 / 1.5	22158	-	-
POLYPROPYLENE			
1.2 / 5	-	24508	-
1.5 / 5	23508	-	20508
1.5 / 7	-	24708	-
3 / 10	23109	-	20109
3 / 15	23159	-	20159
4 / 20	23209	-	20209
4 / 27	23279	-	20279

ELECTRICAL DATA							
GUARANTEED MAX. C _{min.} / MIN. C _{max.} AT 200 kHz (pF)	tan δ AT C _{max.} × 10 ⁻⁴		TEMP. COEFF. ⁽¹⁾ (10 ⁻⁶ /K)	MIN. f _{res} AT C _{max.} (MHz)	COLOR OF BASE	SMALLEST PACKAGING QUANTITY	CATALOG NUMBER BFC2
	1 MHz	100 MHz					
0.35 / 1.5	≤ 10	-	-450 ± 550	-	-	1000	.... 808 22158
1.2 / 5	≤ 10	-	-200 ± 550	-	Grey	1000	.... 808 24508
1.5 / 5	≤ 10	≤ 25	-200 ± 550	700	Grey	1000	.... 808 20508
1.5 / 7	≤ 10	-	-50 ± 550	-	Grey	1000	.... 808 23508
3 / 10	≤ 10	≤ 25	-250 ± 550	500	Yellow	1000	.... 808 24708
3 / 15	≤ 10	≤ 25	-250 ± 550	400	Blue	1000	.... 808 20109
4 / 20	≤ 10	≤ 25	-250 ± 400	300	Green	1000	.... 808 23109
4 / 27	≤ 10	≤ 25	-250 ± 400	300	Red	1000	.... 808 20159
							.... 808 23159
							.... 808 20209
							.... 808 23209
							.... 808 20279
							.... 808 23279

Note

⁽¹⁾ C: 60 % to 80 % of C_{max.}; T_{amb.}: from +20 °C to +70 °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: ≤ 3 % for C _{max.} ≤ 10 pF ΔC/C: ≤ 2 % for C _{max.} > 10 pF
19		Thrust	Axial thrust of 2 N	ΔC/C: ≤ 0.4 %
21		Robustness of terminations:		
21.1	Ua	Tensile	1 N	No damage
21.2	Ub	Bending	1 cycle	No damage



TEST PROCEDURES AND REQUIREMENTS				
IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
22	Na	Rapid change of temperature	1 cycle; 0.5 h at lower and 0.5 h at upper category temperature	$\Delta C/C: \leq 2.5 \%$
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	$\Delta C/C: \leq 1 \%$; no mechanical damage
25	Fc	Vibration	Frequency 10 Hz to 55 Hz; amplitude 0.75 mm; 1.5 h	$\Delta C/C: \leq 1 \%$; no mechanical damage
26		Climatic sequence:		$\Delta C/C: \leq 4 \%$
26.1	B	Dry heat	16 h at upper category temperature	$\tan \delta$ or PP and PTFE foil: $\leq 15 \times 10^{-4}$ $\tan \delta$ for PC foil: $\leq 80 \times 10^{-4}$ $R_{ins.}: \geq 10\,000\ M\Omega$ 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: 300 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 for $C_{max.} < 20\ pF$; 1 mNm to 30 mNm for $C_{max.} \geq 20\ pF$
27	Ca	Damp heat steady state	21 days; +40 °C; 90 % to 95 % RH	$\Delta C/C: \leq 3 \%$ $\tan \delta$ for PP and PTFE foil: $\leq 15 \times 10^{-4}$; $\tan \delta$ for PC foil: $\leq 80 \times 10^{-4}$ $R_{ins.}: \geq 10\,000\ M\Omega$; Rotor contact R: $\leq 10\ m\Omega$ Voltage proof: 300 V for 1 min Visual examination: no mechanical damage Operating torque: 1 mNm to 20 mNm for $C_{max.} < 20\ pF$; 1 mNm to 30 mNm for $C_{max.} \geq 20\ pF$
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)	$\Delta C/C: \leq 3 \%$ $\Delta C/C$ after axial thrust: $\leq 0.3 \%$; rotor contact R: $\leq 10\ m\Omega$ Voltage proof: 300 V for 1 min Visual examination: no mechanical damage Operating torque: 0.5 mNm to 22.5 mNm for $C_{max.} < 20\ pF$; 0.5 mNm to 30 mNm for $C_{max.} \geq 20\ pF$



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