Ø 10 mm Film Dielectric Trimmers

TEST VOLTAGE (DC) FOR 1 MINUTE:

300 V

MAXIMUM CONTACT RESISTANCE:

10 mΩ

MINIMUM INSULATION RESISTANCE:

10000 MΩ

CATEGORY TEMPERATURE RANGE:

PP

- 40 to + 70 °C

PC, PTFE

- 40 to + 85 °C

CLIMATIC CATEGORY (IEC 60068):

PP

40/070/21

PC, PTFE

40/085/21

MINIMUM STORAGE TEMPERATURE:

- 55 °C

RELATED SPECIFICATION:

IEC 60418-1 and 4

EFFECTIVE ANGLE OF ROTATION:

180°

OPERATING TORQUE:

2 to 25 mNm

MAXIMUM AXIAL THRUST:

2 N

FEATURES

- Housing diameter 10 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 or hexagonal head

Pb-free

e3

RoHS COMPLIANT

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), polycarbonate (PC) or polytetrafluorethylene (PTFE), 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.
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}:

2.5/15 to 7/105 pF

RATED VOLTAGE (DC):

150 V

For technical questions contact: filmcaps.roeselare@vishay.com
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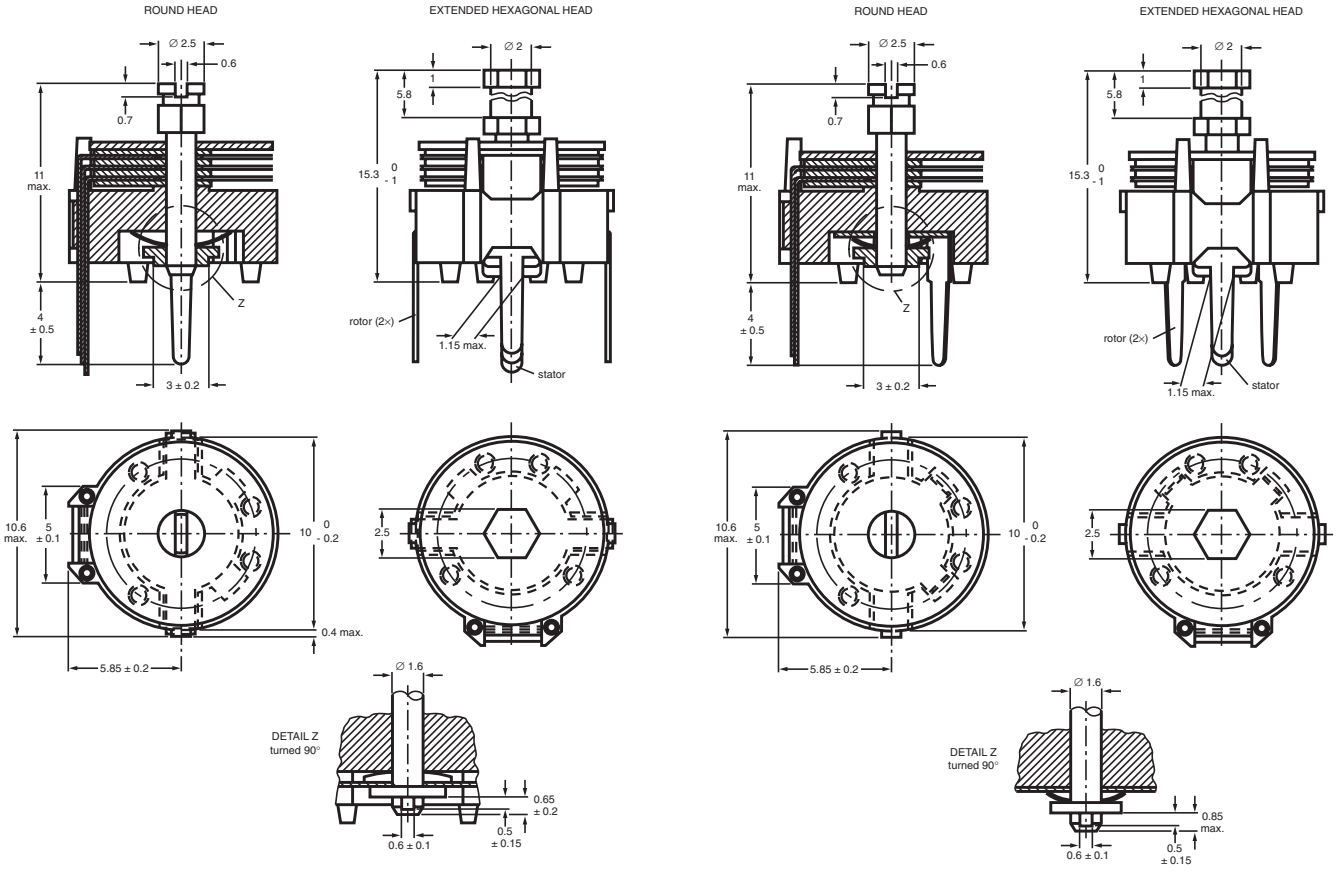
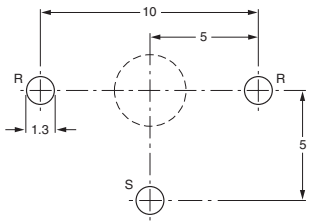


Trimmers 2281 808 ..... series, vertical version

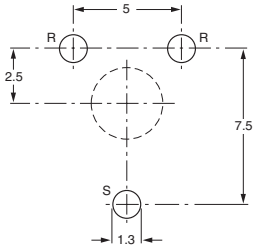
Dimensions in millimeters.



R = rotor, S = stator

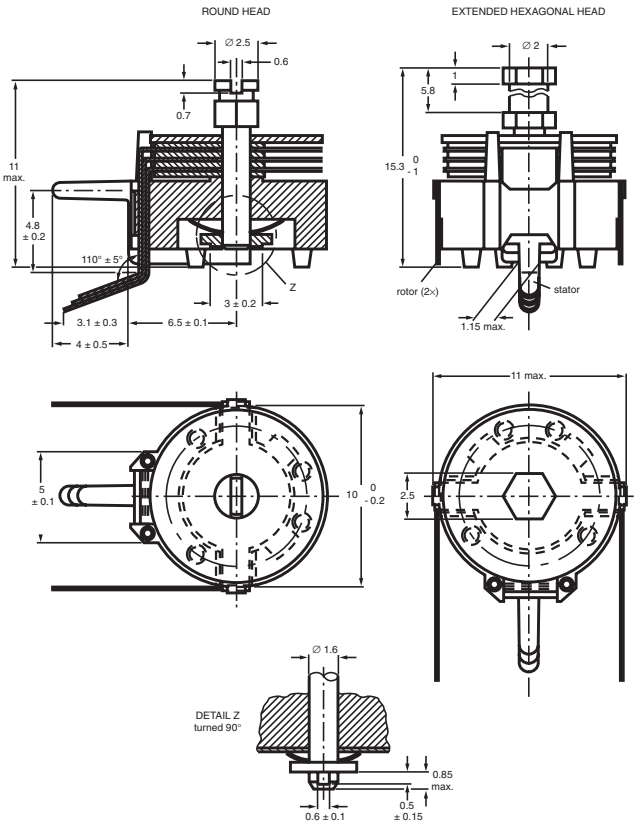
The large hole is for bottom adjustment and the diameter is determined by user's requirements.

Hole pattern



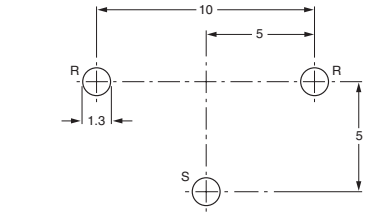
R = rotor, S = stator

Hole pattern



Trimmers 2281 808 ..... series, horizontal version

Dimensions in millimeters

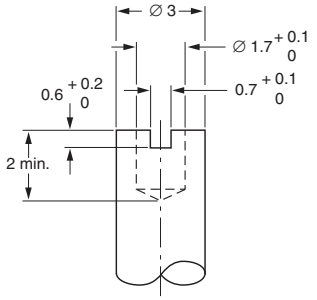


R = rotor, S = stator

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

ORDERING INFORMATION

C_{min}/C_{max} (pF)	CATALOG NUMBER 2281 808 ..... OR BFC2 808 .....*						
	HORIZONTAL VERSION		VERTICAL VERSION				
	HOLE PATTERN 5 mm × 10 mm		HOLE PATTERN 5 mm × 10 mm		HOLE PATTERN 7.5 mm × 5 mm		
	ROUND HEAD	HEX. HEAD	ROUND HEAD	HEX. HEAD	ROUND HEAD	HEX. HEAD	ROUND HEAD
	TOP AND BOTTOM ADJUSTMENT		TOP AND BOTTOM ADJUSTMENT				TOP ADJUSTMENT
2.5/15	61159	-	31159	-	32159	-	-
3/22.5	61229	-	31229	-	32229	-	-
5.5/40	61409	-	31409	-	32409	-	-
5.5/50	-	-	01029	-	01006	-	-
5.5/65	61659	64659	31659	34659	32659	-	01001
6/80	61809	64809	31809	34809	32809	35809	-
7/105	61101	64101	31101	-	32101	-	-
6/120	-	-	31121	-	-	-	-

* ordering code for SAP system

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 quantities (SPQ) see Electrical Data Table.

ELECTRICAL DATA

GUARANTEED MAX. C_{min}/ MIN. C_{max} AT 200 kHz (pF)	SPINDLE	SHAPE OF HEAD	FIG.	ADJ. MODE	DIEL.	TAN δ AT C_{max} x 10^{-4}		TEMP. COEFF. (10^{-6}/K)	MIN. f_{res} AT C_{max} (MHz)	COL. OF BASE	SPQ	CATALOG NUMBER 2281 ... . or BFC2 ... .*
						1 MHz	100 MHz					
2.5/15	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	- 200 ± 700	420	blue	800	.... 808 31159
			2								800	.... 808 32159
	horizontal		3								700	.... 808 61159
3/22.5	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	- 200 ± 700	200	green	800	.... 808 31229
			2								800	.... 808 32229
	horizontal		3								700	.... 808 61229
5.5/40	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	- 200 ± 400	200	grey	800	.... 808 31409
			2								800	.... 808 32409
	horizontal		3								700	.... 808 61409
5.5/50	vertical	round	1	top + bottom	PTFE	≤ 10	≤ 25	- 200 ± 400	170	yellow	800	.... 808 01029
			2								800	.... 808 01006
5.5/65	vertical	round	2	top	PP	≤ 10	≤ 25	- 200 ± 500	170	yellow	800	.... 808 01001
		round	1	top + bottom							800	.... 808 31659
		round	2								800	.... 808 32659
		hexag.	1								700	.... 808 34659
	horizontal	round	3								700	.... 808 61659
		hexag.	3								600	.... 808 64659
6/80	vertical	round	1	top + bottom	PC	≤ 70	-	- 50 ± 400	170	red	800	.... 808 31809
		hexag.	1								700	.... 808 34809
		round	2								800	.... 808 32809
		hexag.	2								700	.... 808 35809
	horizontal	round	3								700	.... 808 61809
		hexag.	3								600	.... 808 64809
7/105	vertical	round	1	top + bottom	PC	≤ 70	-	- 50 ± 400	170	violet	800	.... 808 31101
		round	2								800	.... 808 32101
	horizontal	round	3								700	.... 808 61101
		hexag.	3								600	.... 808 64101
6/120	vertical	round	2	top + bottom	PC	≤ 70	-	- 50 ± 400	170	violet	800	.... 808 31121

* ordering code for SAP system

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	$\Delta C/C$: ≤ 4.5 % for C_{max} < 40 pF; $\Delta C/C$: ≤ 2.5 % for C_{max} ≥ 40 pF
19		thrust	axial thrust of 2 N	$\Delta C/C$: ≤ 0.3 %
21		robustness of terminations:		
21.1	Ua	tensile	1 N	no damage
21.2	Ub	bending	1 cycle	no damage

IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
22	Na	rapid change of temperature	1 cycle; 0.5 hours at lower and 0.5 hours at upper category temperature	$\Delta C/C$: ≤ 1.5 %
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	$\Delta C/C$: ≤ 0.4 %; no mechanical damage
25	Fc	vibration	frequency 10 to 55 Hz; amplitude 0.35 mm; 1.5 hours	$\Delta C/C$: ≤ 0.8 %; no mechanical damage
26		climatic sequence:		$\Delta C/C$: ≤ 3 % for C_{max} < 80 pF; $\Delta C/C$: ≤ 6 % for C_{max} ≥ 80 pF
26.1	B	dry heat	16 hours at upper category temperature	tan δ: ≤ 15 x 10^{-4} for C_{max} < 80 pF; tan δ: ≤ 80 x 10^{-4} for C_{max} ≥ 80 pF R_{ins}: ≥ 10000 MΩ; rotor contact R: ≤ 10 Ω
26.2	D	damp heat accelerated, first cycle	1 cycle; 24 hours; + 40 °C; 95 to 100 % RH	voltage proof: 300 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: 2 to 35 mNm
27	Ca	damp heat steady state	21 days; + 40 °C; 90 to 95 % RH	$\Delta C/C$: ≤ 3 % for C_{max} < 100 pF; ≤ 3 % for C_{max} ≥ 100 pF tan δ: ≤ 20 x 10^{-4} for C_{max} < 80 pF; tan δ: ≤ 80 x 10^{-4} for C_{max} ≥ 80 pF R_{ins}: ≥ 10000 MΩ; rotor contact R: ≤ 10 mΩ voltage proof: 300 V for 1 minute visual examination: no mechanical damage operating torque: 2 to 35 mNm
29		mechanical endurance	10 cycles	$\Delta C/C$: ≤ 1 % $\Delta C/C$ after axial thrust: ≤ 0.4 %; rotor contact R: ≤ 10 mΩ voltage proof: 300 V for 1 minute visual examination: no mechanical damage operating torque: 1.5 to 37 mNm

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