

Displacement Sensor, Ultra Flat



FEATURES

- Sealed
- Infinite resolution
- High integration capacity
- Durability
- Rectilinear: UFPMA type
- Circular: UFPMC type
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



LINKS TO ADDITIONAL RESOURCES



QUICK REFERENCE DATA

Sensor type	LINEAR or ROTATIONAL, conductive plastic
Output type	Output by wires or connector
Market appliance	Industrial, avionics
Dimensions	4 mm (thickness max.)

ELECTRICAL SPECIFICATIONS

PARAMETER	UFPMA	UFPMC
Total resistance (R_n)		4.7 k Ω
Tolerance on R_n		$\pm 20\%$
Dissipation	≤ 0.1 W/cm of travel ⁽¹⁾	≤ 1 W to 70 °C
Theoretical electrical travel (TET)	20 mm to 250 mm ⁽¹⁾	270°
Tolerance on TET	± 1 mm	$\pm 3^\circ$
Electrical continuity travel	TET + 4 mm	310°
Linearity	$\pm 2\%$	$\pm 1.5\%$
Temperature coefficient	-300 ppm/°C \pm 300 ppm/°C	
Collector / track current (I_c)	≤ 1 mA	
Recommended current I_c	≤ 100 μ A	
Recommended load impedance	$\geq 100 R_n$	
Output smoothness	< 0.1 % (NFC 93 255)	

Note

⁽¹⁾ See “Specific UFPMA Characteristics” table

MECHANICAL SPECIFICATIONS

PARAMETER	UFPMA	UFPMC
Design	Flexible insulating films	Flexible insulating films on FR4 substrate
Mechanical travel	= Electrical continuity travel	= Electrical continuity travel (customer stops)
Backlash	< 0.1 mm	< 0.3°
Mounting	With double-sided adhesive on flat, clean, and dry support	
Speed displacement	≤ 1.5 m/s	
Drive	Force ≥ 0.3 N	Torque ≥ 1 N cm
Protection class (NFC 20 010)	IP 66	
Maximum alignment fault	± 1 mm	-

PERFORMANCE

PARAMETER	UFPMA	UFPMC
Life	25M operations for TET < 200 mm	> 10M cycles
	15M operations for TET ≥ 200 mm	
Operating temperature range	-30 °C to +80 °C	
Storage temperature range	-40 °C to +90 °C	
Support	Flat, clean, and dry	

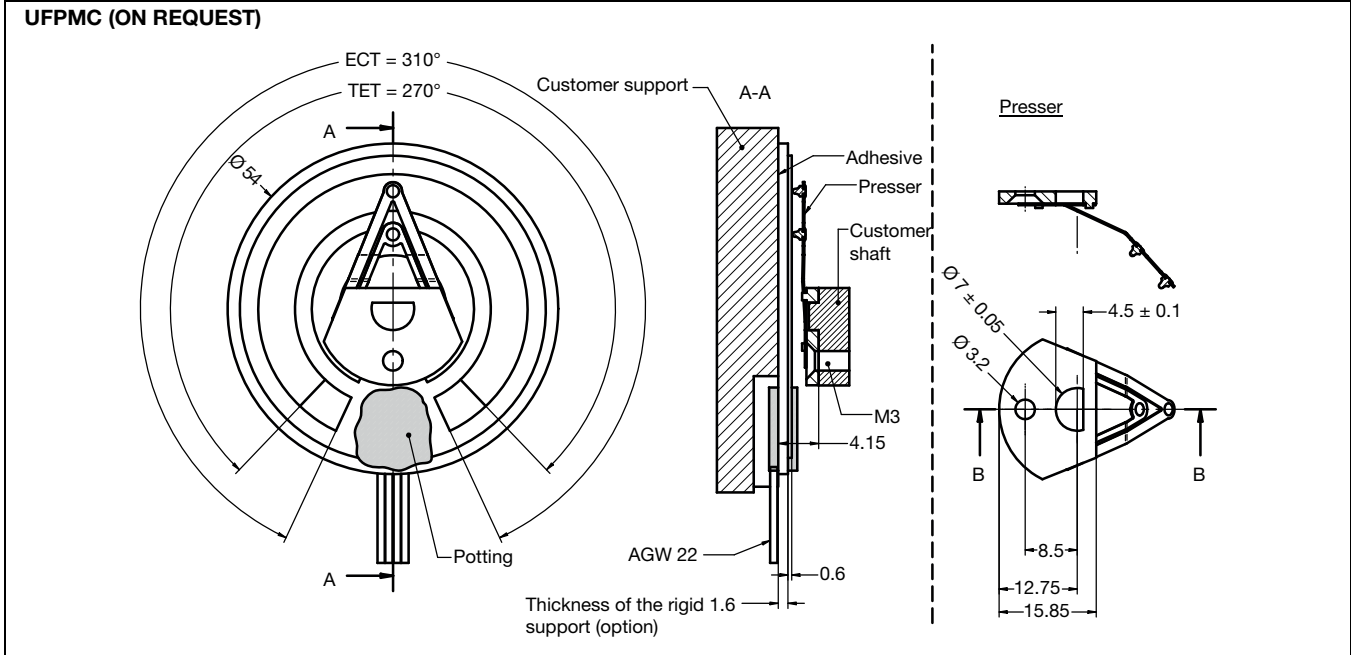
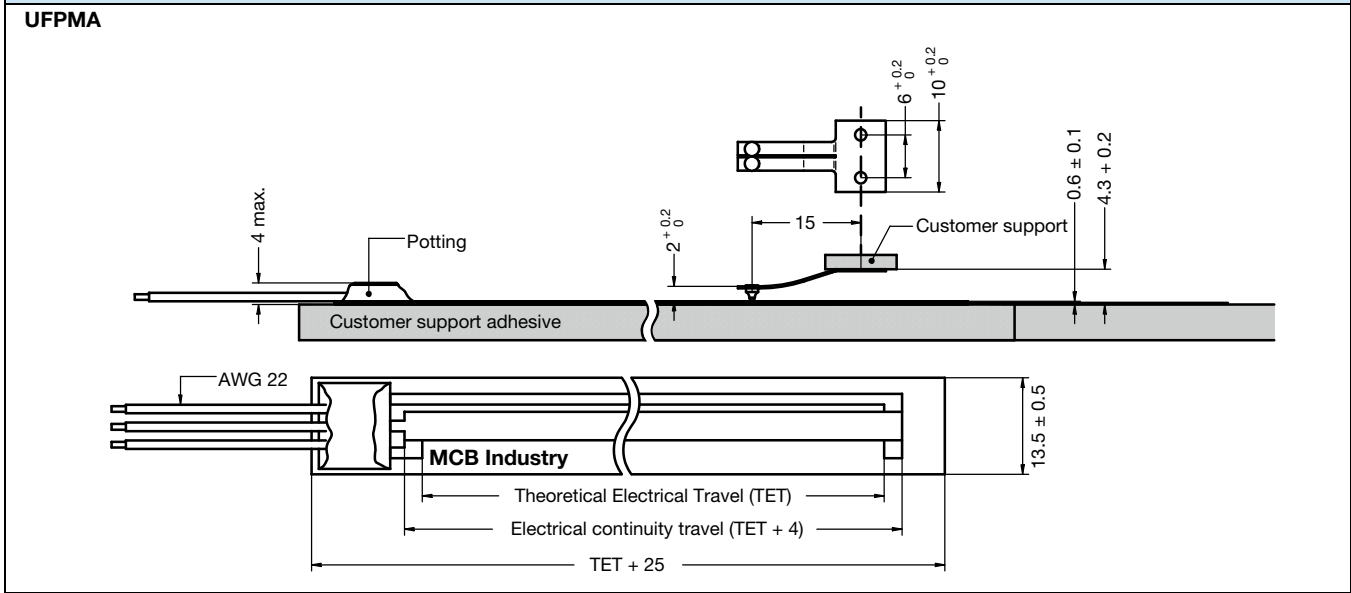
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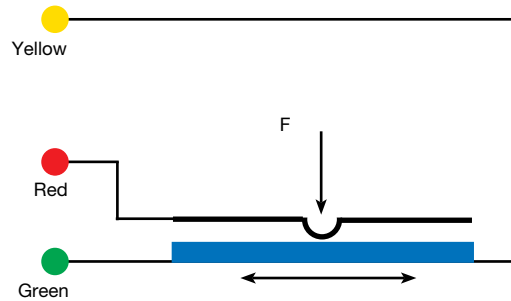
- Nothing stated herein shall be construed as a guarantee of quality or durability

SAP PART NUMBERING GUIDELINES - UFPMA								
MODEL	TYPE	THEORETICAL ELECTRICAL TRAVEL (mm)		TYPE	VALUE	LINEARITY	LEADS	PACKAGING
UFPM	A = linear	060	100	A = aeronautic, off-road, or medical	472 = 4K7	X = ± 2 % (UFPMA)	W = wires	B = bulk
		150	200					
		200	250					
		250						

CONNECTIONS
3 x AWG 22 color wires length 300 mm

DIMENSIONS in millimeters

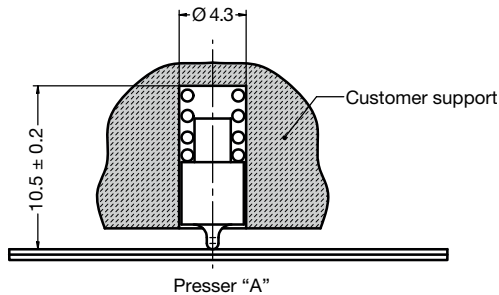


ELECTRICAL DIAGRAM


The voltage varies according to the position of the presser on the deformable membrane.

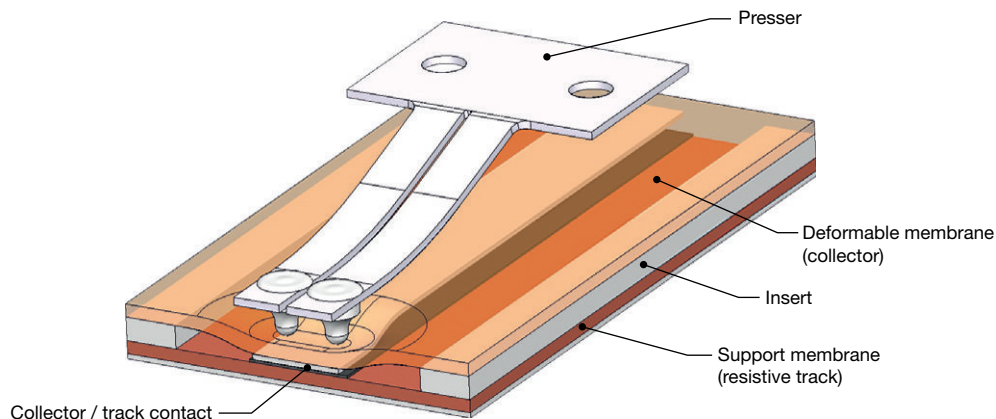
OPTIONS (on request)

- Other presser


SPECIFIC VERSIONS (on request)

- Other electrical or mechanical characteristics
- Other bases
- Integration in equipment
- Other versions: outdoor design, ...
- Integration in equipment (flat flex cable, contacts, connector, ...)

SPECIFIC UFPMA CHARACTERISTICS			
THEORETICAL ELECTRICAL TRAVEL (TET) (mm)	DISSIPATION AT +40 °C (W)	ELECTRICAL CONTINUITY TRAVEL (ECT) (mm)	FILM LENGTH (mm)
50	≤ 0.5	54	75
100	≤ 1.0	104	125
150	≤ 1.5	154	175
200	≤ 2.0	204	225
250	≤ 2.5	254	275

OPERATING DESCRIPTION




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