

Displacement Sensor, Ultraflat Industrial Potentiometer Membrane



FEATURES

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


RoHS
COMPLIANT

DESIGN SUPPORT TOOLS

[click logo to get started](#)
3D
Models
Available

QUICK REFERENCE DATA

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

ELECTRICAL SPECIFICATIONS

PARAMETER	UIPMA	UIPMC
Total resistance (R_n)	4.7 k Ω	10 k Ω
Tolerance on R_n	$\pm 30\%$	
Dissipation	≤ 0.1 W/cm of travel ⁽¹⁾	≤ 1 W to 70 °C
Theoretical electrical travel (TET)	20 mm to 250 mm ⁽¹⁾	312°
Tolerance on TET	± 1 mm	$\pm 3^\circ$
Useful electrical travel (UET)	TET - 2 mm	306°
Electrical continuity travel (ECT)	TET + 4 mm	325°
Linearity	$\pm 2\%$	$\pm 5\%$
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 UIPMA Characteristics" table

MECHANICAL SPECIFICATIONS

PARAMETER	UIPMA	UIPMC
Design	Flexible insulating films	Flexible insulating films
Mechanical travel	Electrical continuity travel	Electrical continuity travel
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)	IP66 (electrical connection and plug excluded)	
Maximum alignment fault	± 1 mm	-

PERFORMANCE

PARAMETER	UIPMA	UIPMC
Life	> 3M cycles (depending on chosen wiper)	
Operating temperature range	-10 °C to +50 °C	
Storage temperature range	-40 °C to +50 °C	
Support	Flat, clean, and dry	

Note

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

SAP PART NUMBERING GUIDELINES - UIPM

MODEL	TYPE	UIPMA: THEORETICAL ELECTRICAL TRAVEL (mm) UIPMC: EXTERNAL DIAMETER (mm)	TYPE	VALUE	LINEARITY	LEADS	PACKAGING
UIPM	A = linear	050 100 (on request) 150 200 (on request) 250	I = industrial	472 = 4K7	X = $\pm 2\%$	C = connector	B = bulk
UIPM	C = rotational	030	I = industrial	103 = 10K	J = $\pm 5\%$	C = connector	B = bulk

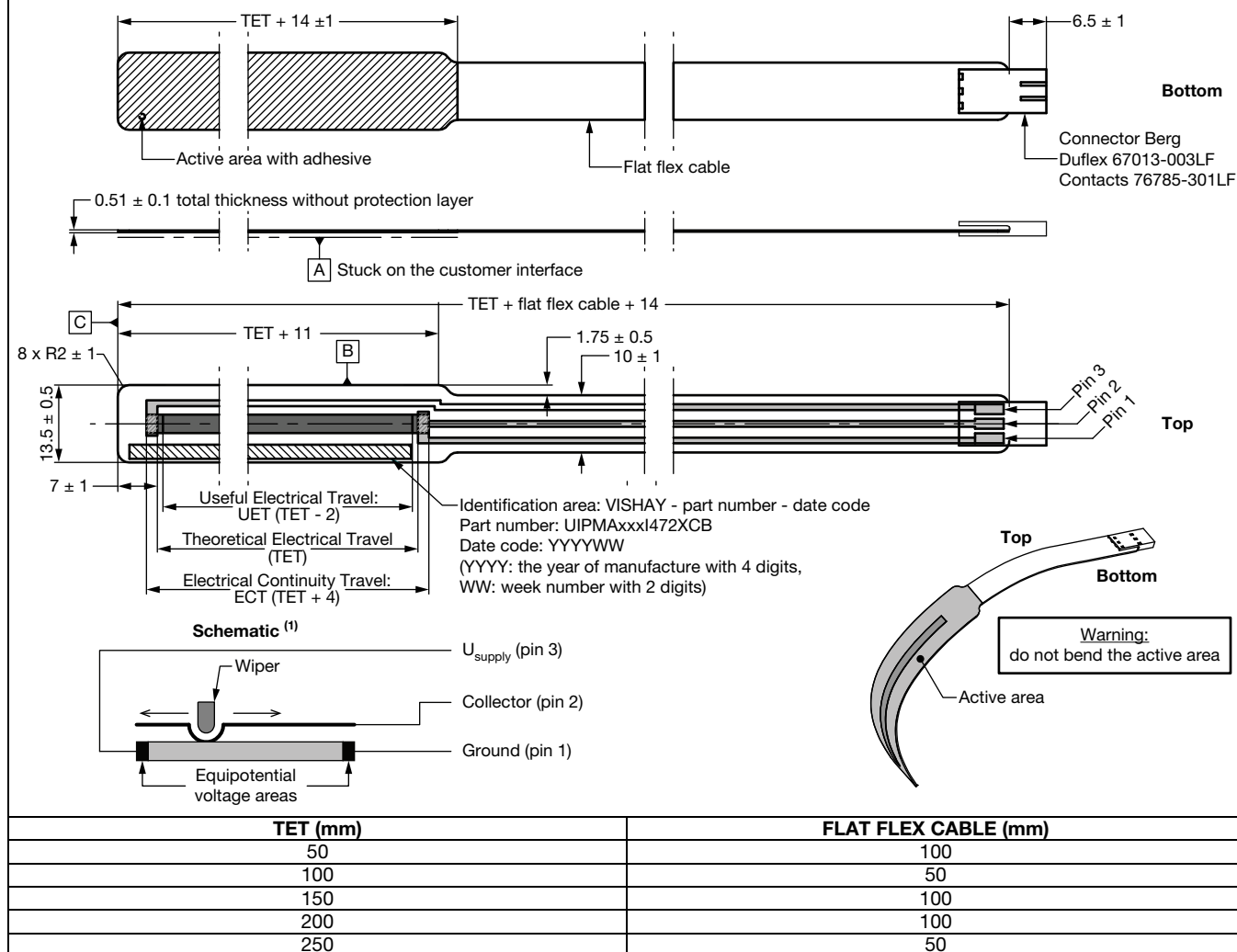
ACCESSORY WIPER

Wiper type A	ACCSUIPMWIPERKB434
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CONNECTIONS

Connector Berg Duflex 67.013.003, contacts 76.785.301

The connector of UIPMA / UIPMC is intended for use with Berg terminal ref. 76785-YXX and Berg headers ref. 76384-YXX or 76382-YXX

DIMENSIONS in millimeters
UIPMA

Notes

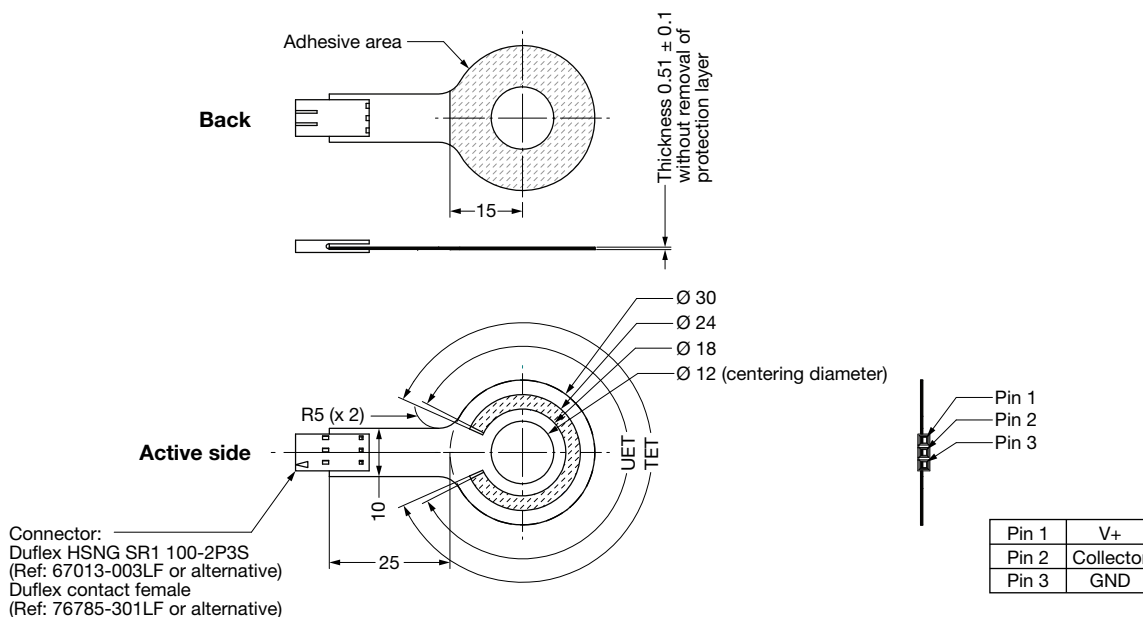
- Tolerancing according to ISO 8015
- General tolerances according to ISO 2768 - mK
- (1) Ground and U_{supply} can be swapped to change the slope sign

MOUNTING REQUIREMENTS FOR UIPMA

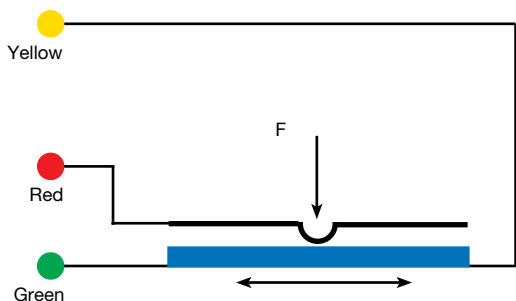
1. The shape of the customer interface over the active area shall be:  0.05
2. The roughness of the customer interface over the active area shall be: $\sqrt{Ra}$ 1.6
3. Before sticking the sensor, the interface surface shall be free of all traces of dirt, grease, foreign objects, and burrs.
4. The bending of the flat flex cable shall be: $\varnothing$ 3 mm min.

DIMENSIONS in millimeters

UIPMC



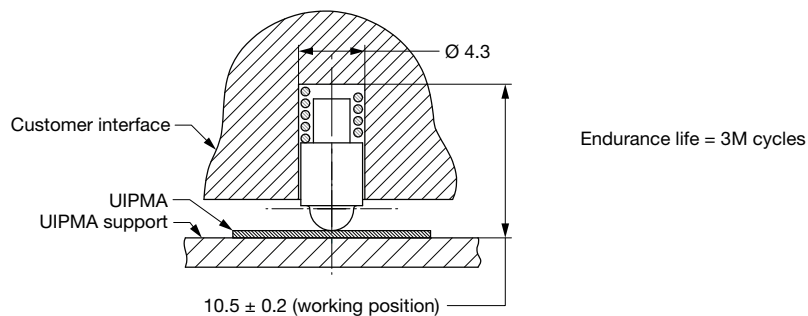
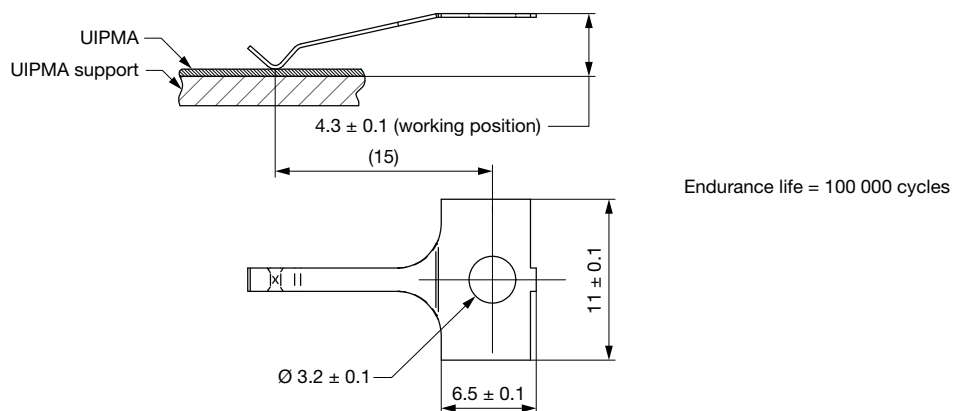
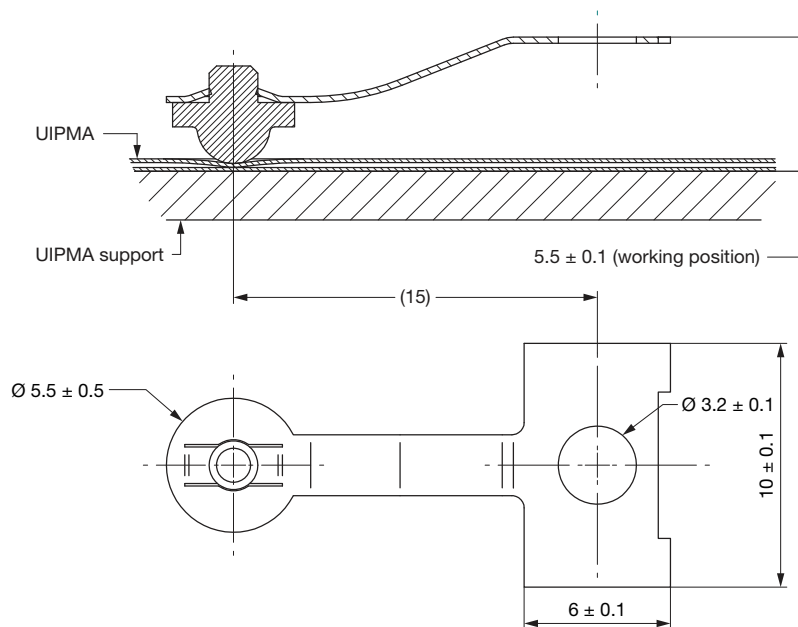
ELECTRICAL DIAGRAM



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

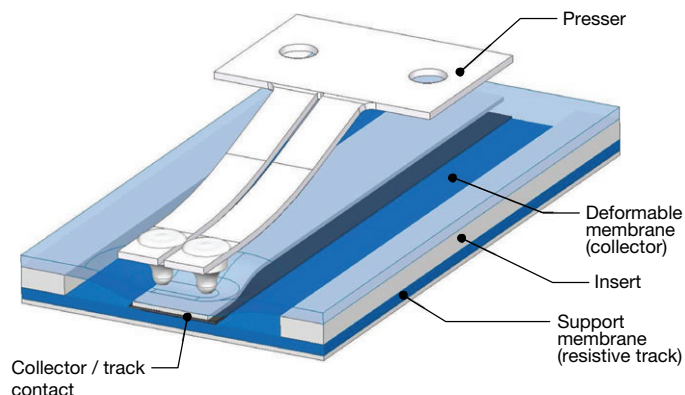
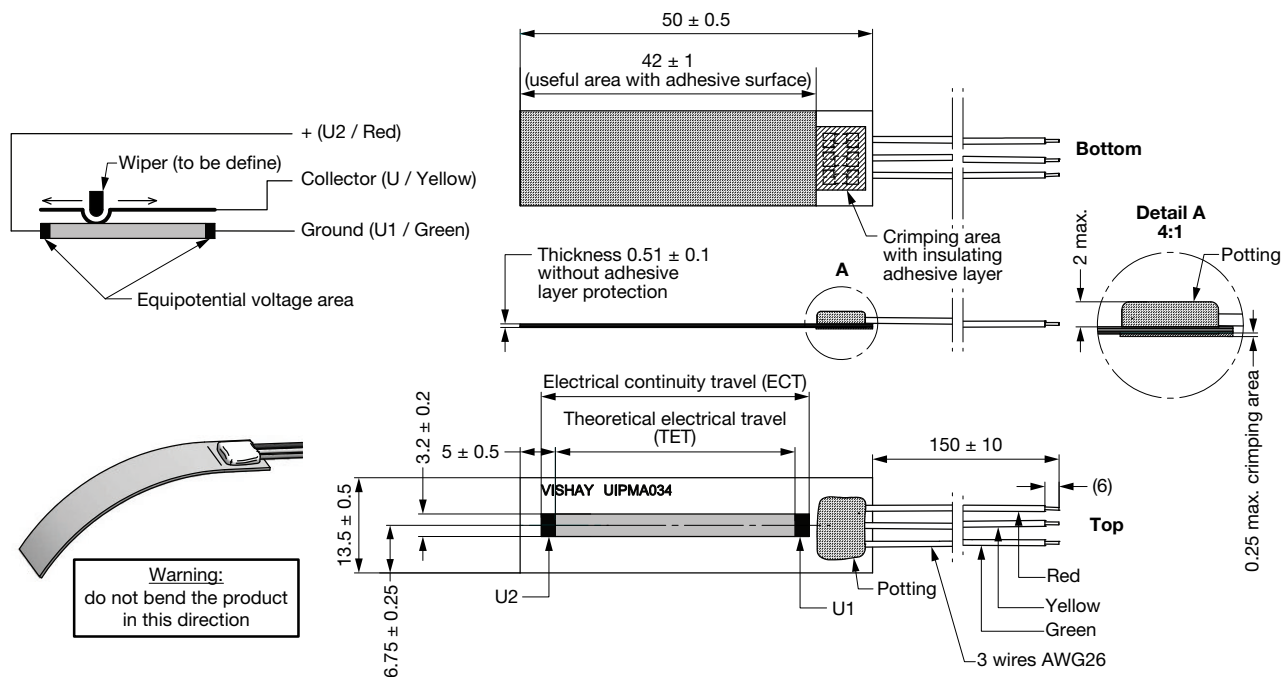
SPECIFIC VERSIONS (on request)

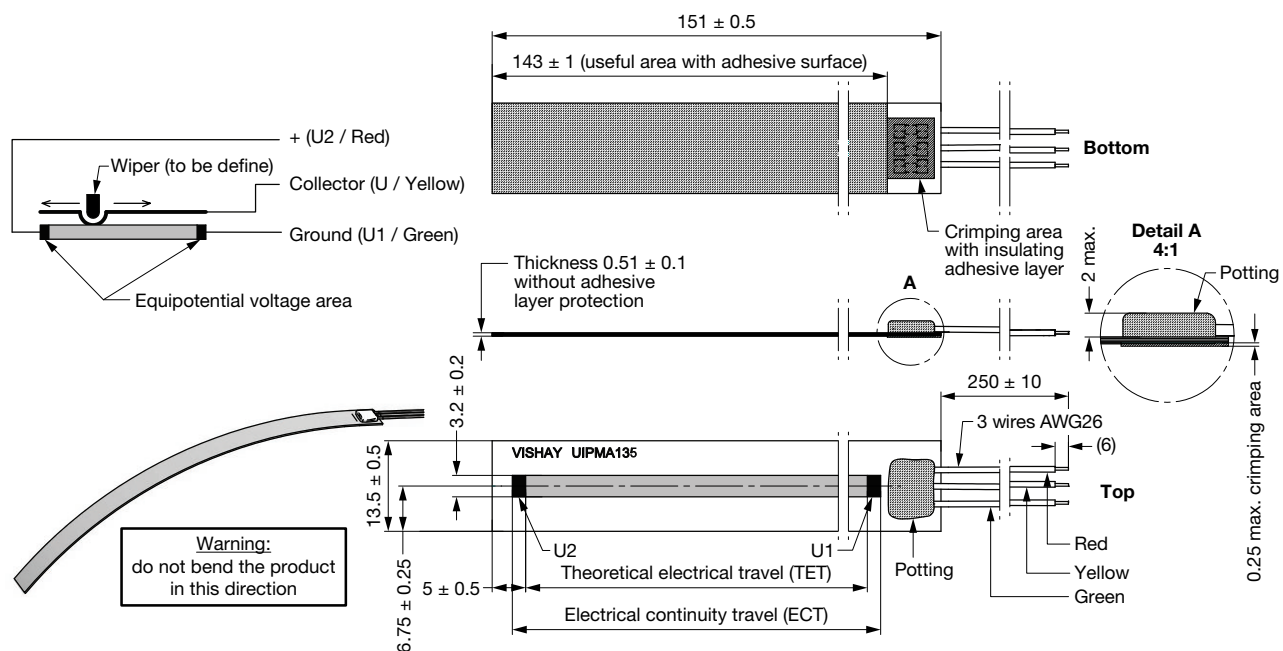
- Other electrical or mechanical characteristics
- Other bases
- Integration in equipment
- Other versions: outdoor design, ...
- Integration in equipment (flat flex cable, contacts, wires, ...)

PRESSERS
Wiper Type A

Wiper Type B

Wiper Type D


SPECIFIC UIPMA 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

ON REQUEST
UIPMA034 WITH WIRES OUTPUT


ON REQUEST
UIPMA135 WITH WIRES OUTPUT




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