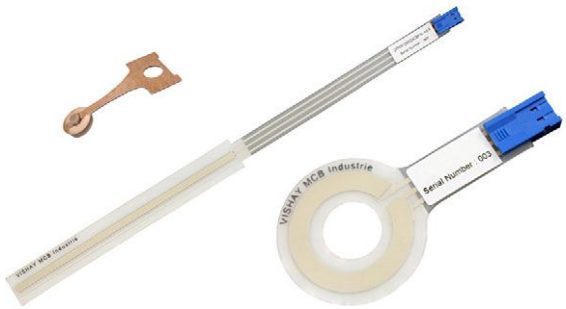
Displacement Sensor, Ultraflat Industrial Potentiometer Membrane



FEATURES

- Sealed IP66
- 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

Pb-free

RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

3D Models | Videos | Application Notes

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 kΩ	10 kΩ
Tolerance on R_n	± 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	± 3°
Useful electrical travel (UET)	TET - 2 mm	306°
Electrical continuity travel (ECT)	TET + 4 mm	325°
Linearity	± 2 % (2)	± 5 %
Temperature coefficient	-300 ppm/°C ± 300 ppm/°C	
Collector / track current (I_c)	≤ 1 mA	
Recommended current I_c	≤ 100 µA	
Recommended load impedance	≥ 100 R_n	
Output smoothness	< 0.1 % (NFC 93 255)	

Notes

(1) See “Specific UIPMA Characteristics” table

(2) Better accuracy on request

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

For technical questions, contact: mcbprecisionpot@vishay.com

SAP PART NUMBERING GUIDELINES - UIPM

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

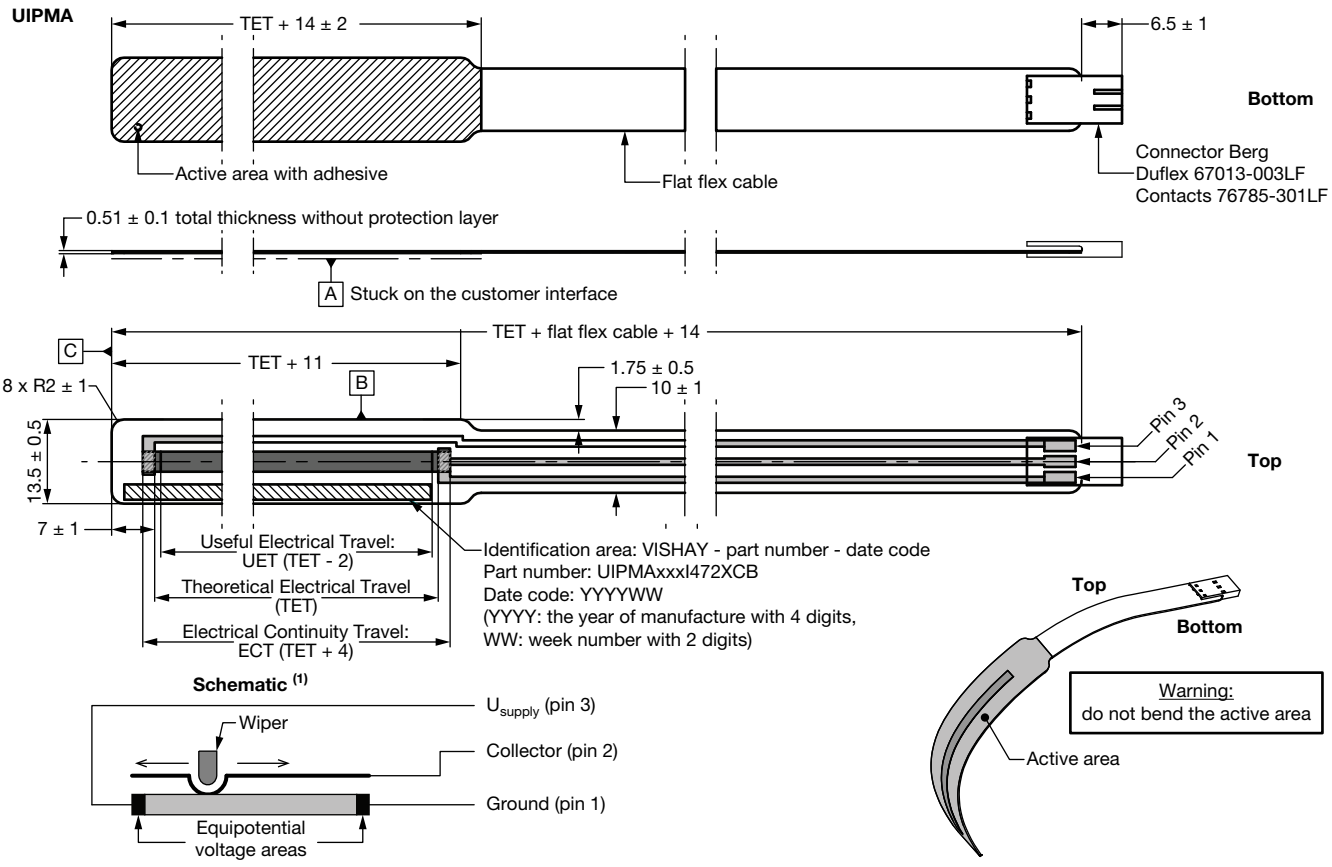
ACCESSORY WIPER

Wiper type A	ACCSUIPMWIPERKB434
Wiper type B	ACCSUFPMWIPERKB422
Wiper type D	ACCSUIPMWIPERKB435 (packaging 10 pcs)
	ACCSUIPMWIPERKG435 (packaging 100 pcs)

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



TET (mm)	FLAT FLEX CABLE (mm)
50	100
100	50
150	100
200	100
250	50

Notes

- Tolerancing according to ISO 8015
- General tolerances according to ISO 2768 - mK

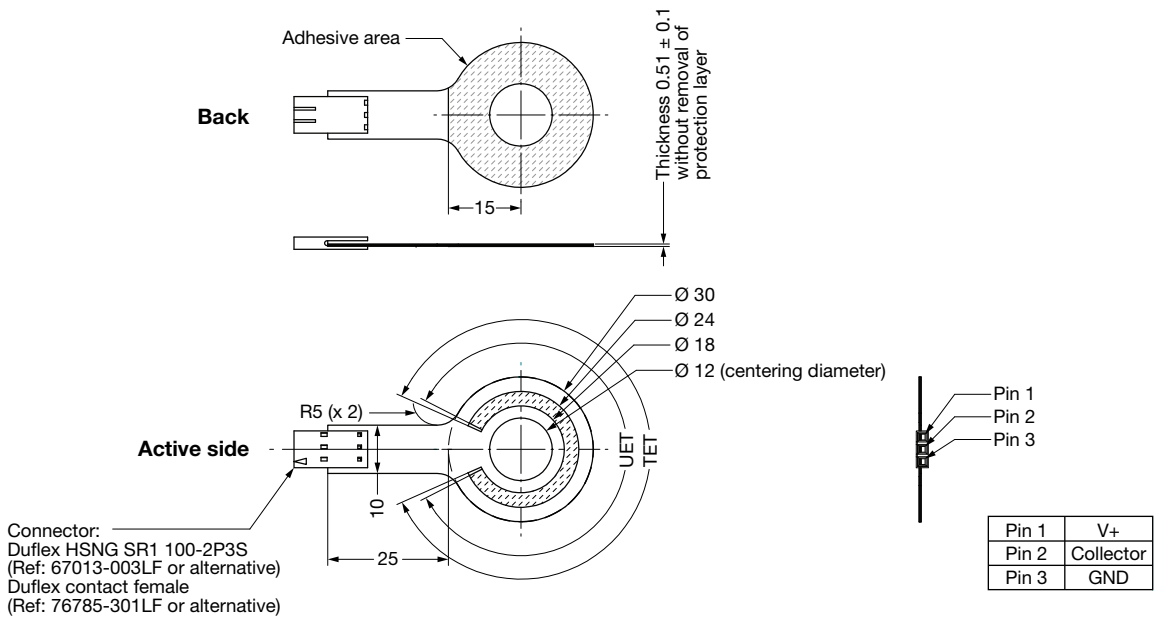
(1) Ground and U_{supply} can be swapped to change the slope sign

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: Ø 3 mm min.

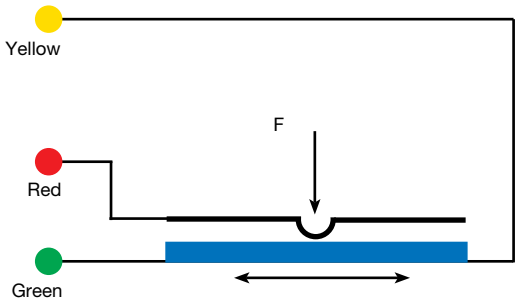
DIMENSIONS in millimeters

UIPMC



Pin 1	V+
Pin 2	Collector
Pin 3	GND

ELECTRICAL DIAGRAM



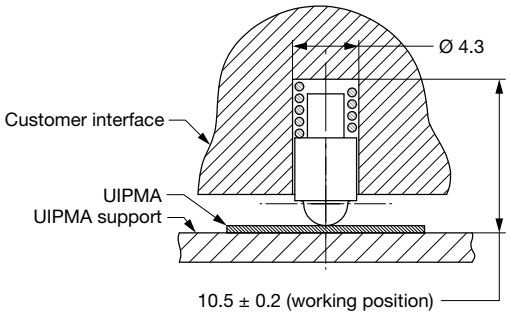
The voltage varies according to the position of the presser on the deformable membrane.

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, ...)

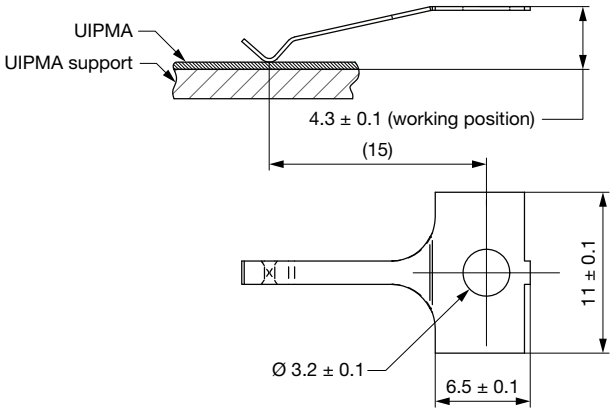
PRESSERS

Wiper Type A



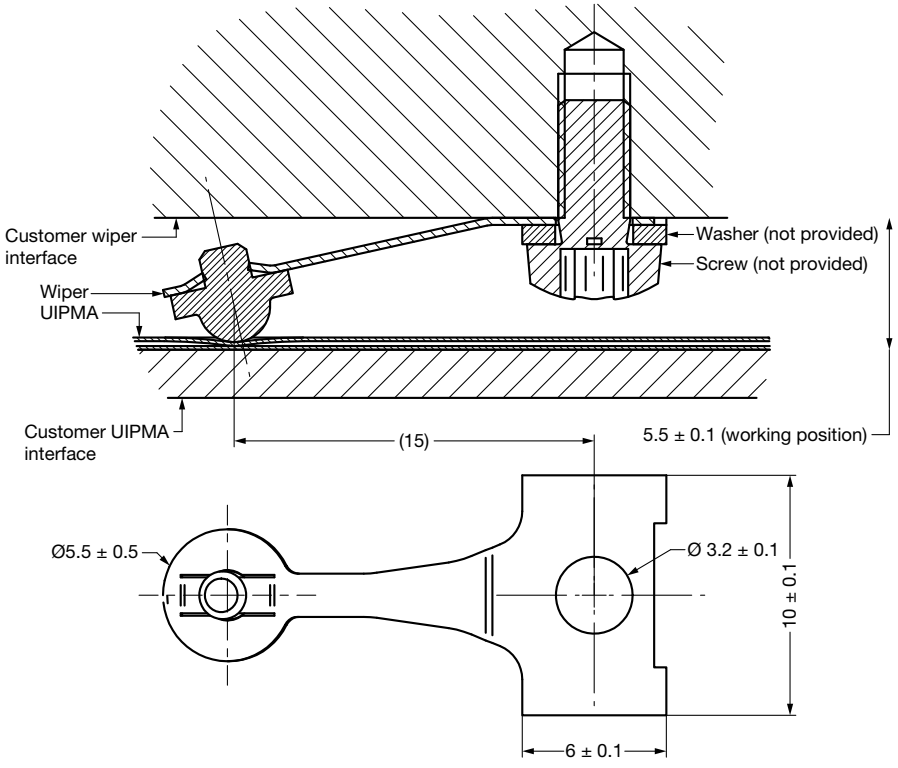
Endurance life = 3M cycles

Wiper Type B



Endurance life = 100 000 cycles

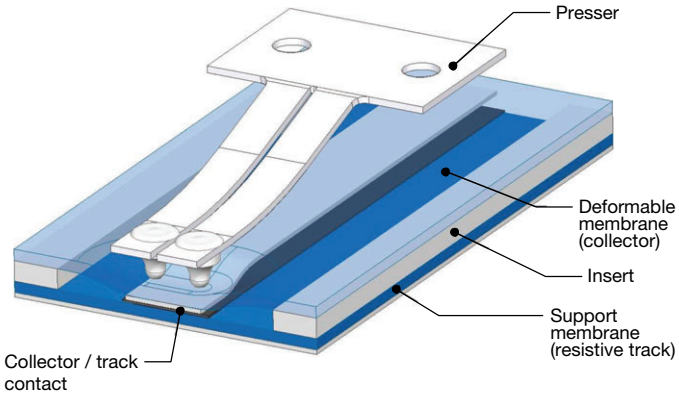
Wiper Type D (Endurance Life = 3M cycles)



SPECIFIC UIPMA CHARACTERISTICS

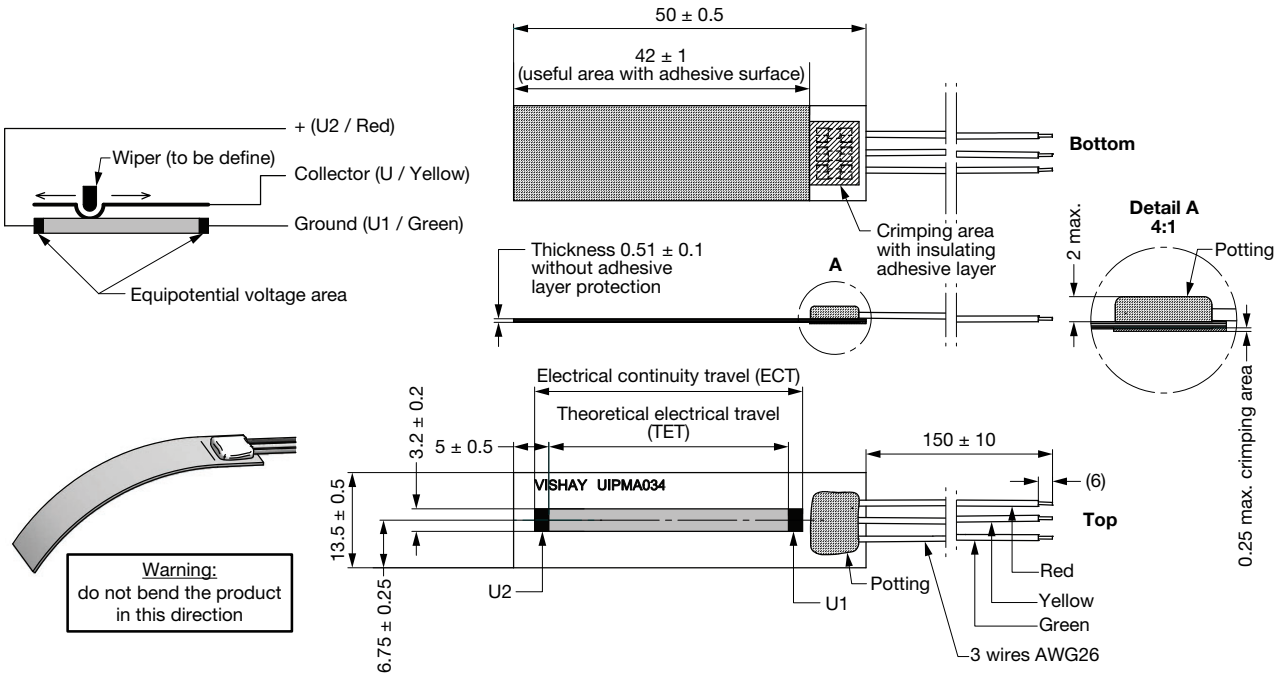
THEORETICAL ELECTRICAL TRAVEL (TET) (mm)	DISSIPATION AT +40 °C (W)	ELECTRICAL CONTINUITY TRAVEL (ECT) (mm)	FILM LENGTH (mm)
50	≤ 0.5	54	75
100	≤ 1.0	104	125
150	≤ 1.5	154	175
200	≤ 2.0	204	225
250	≤ 2.5	254	275

OPERATING DESCRIPTION



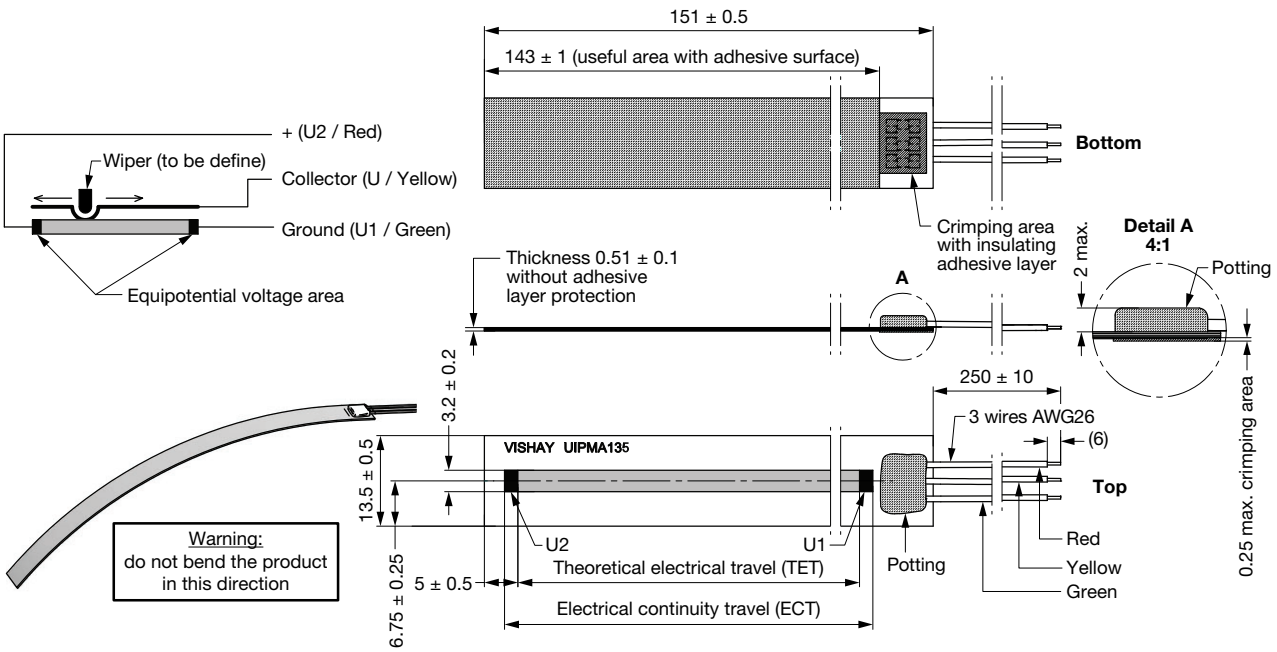
ON REQUEST

UIPMA034 WITH WIRES OUTPUT



ON REQUEST

UIPMA135 WITH WIRES OUTPUT



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