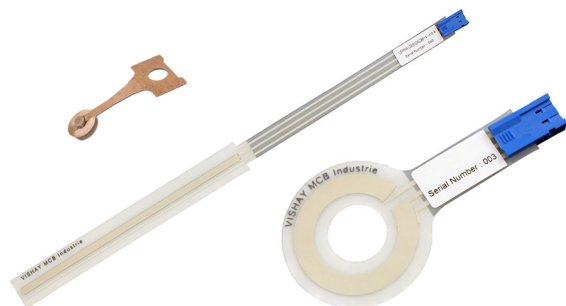


Displacement Sensor, Ultraflat Industrial Potentiometer Membrane



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


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 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 | $\pm 2\%$ ⁽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) | |

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

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 = $\pm 2\%$ | C = connector | B = bulk |
| UIPM | C = rotational | 030 | I = industrial | 103 = 10K | U | C = connector | B = bulk |

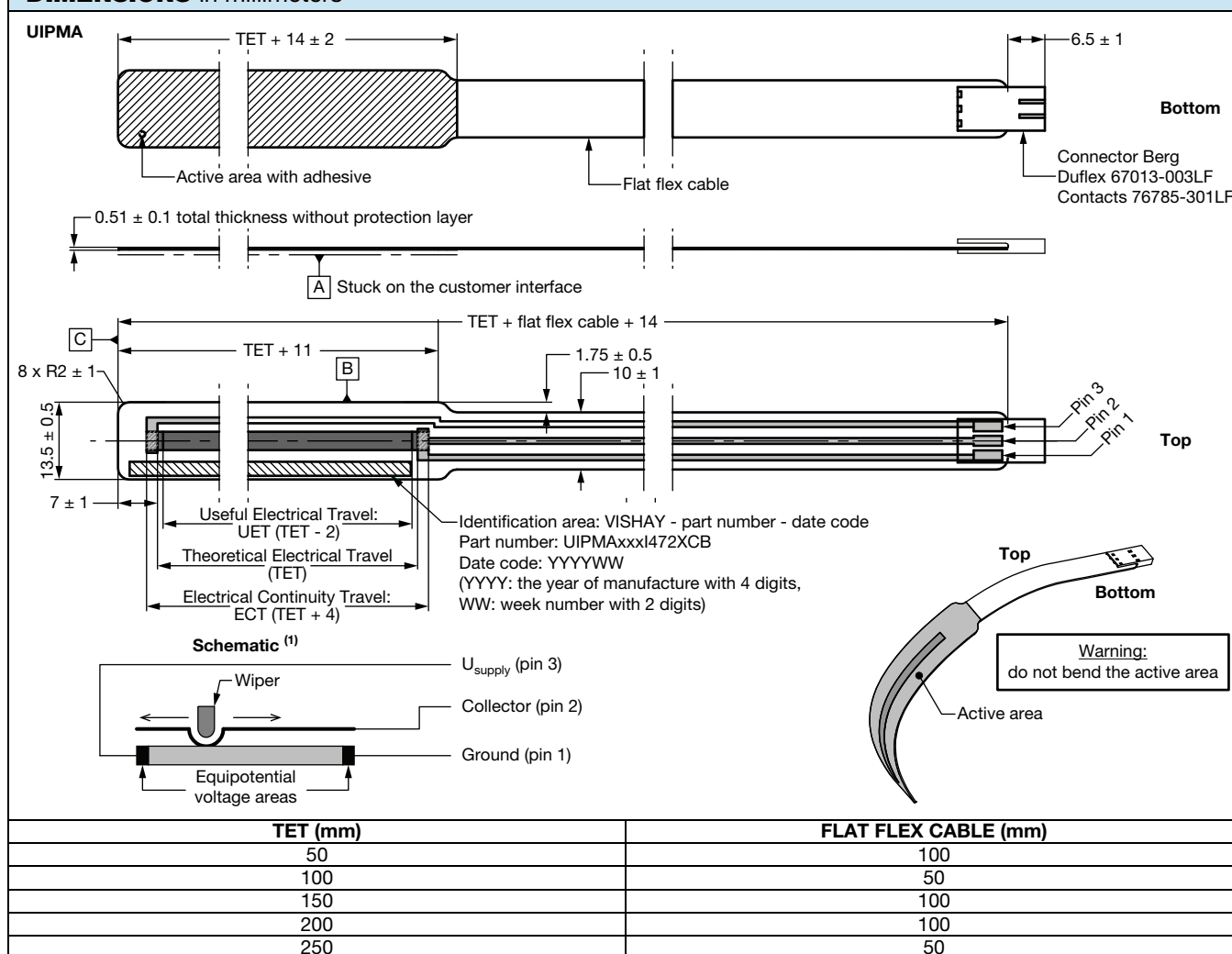
ACCESSORY WIPER

| | |
|--------------|---|
| 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

Notes

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

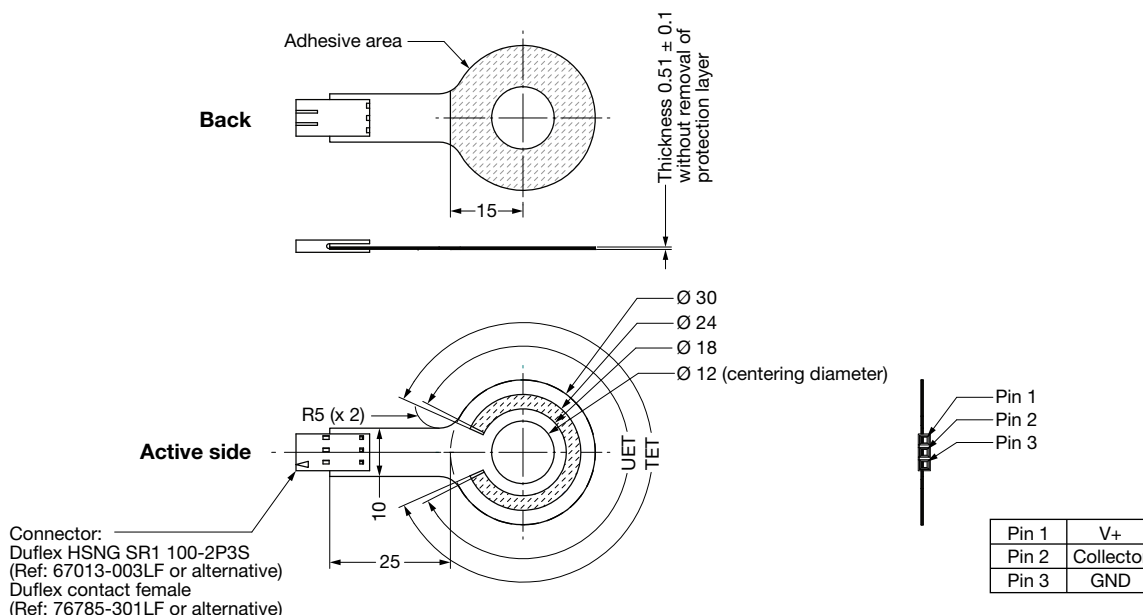
(1) Ground and U_{supply} can be swapped to change the slope sign

MOUNTING REQUIREMENTS FOR UIPMA

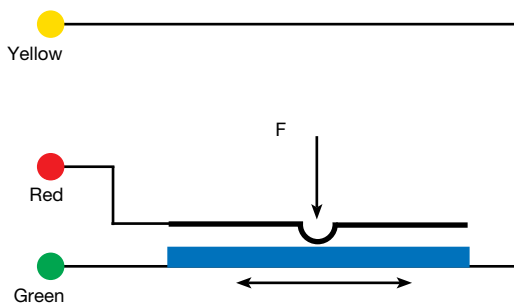
1. The shape of the customer interface over the active area shall be:  0.05
2. The roughness of the customer interface over the active area shall be: \sqrt{Ra} 1.6
3. Before sticking the sensor, the interface surface shall be free of all traces of dirt, grease, foreign objects, and burrs.
4. The bending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

DIMENSIONS in millimeters

UIPMC



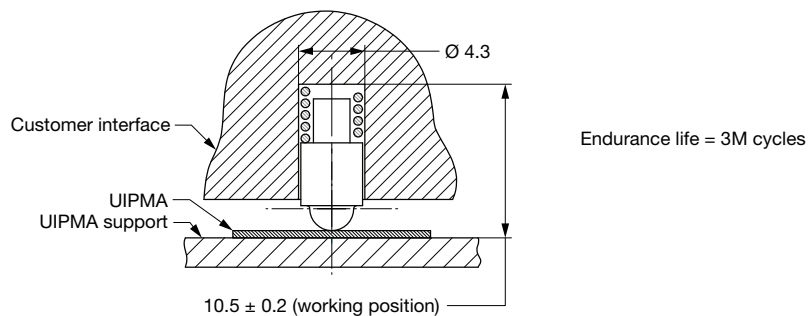
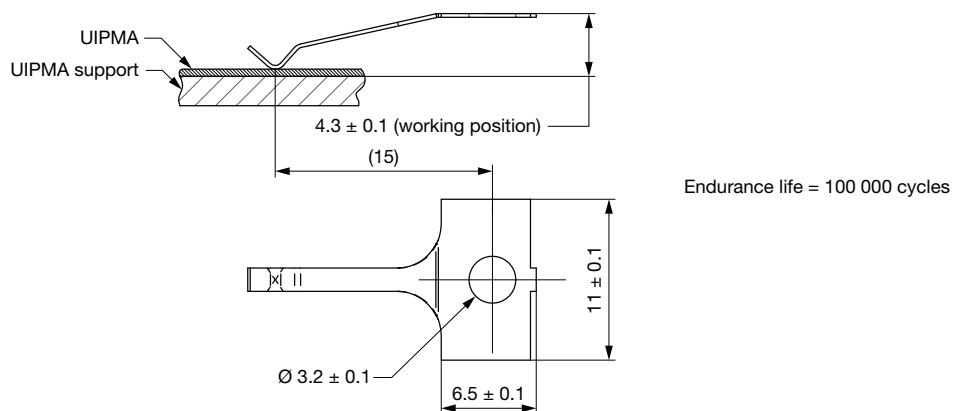
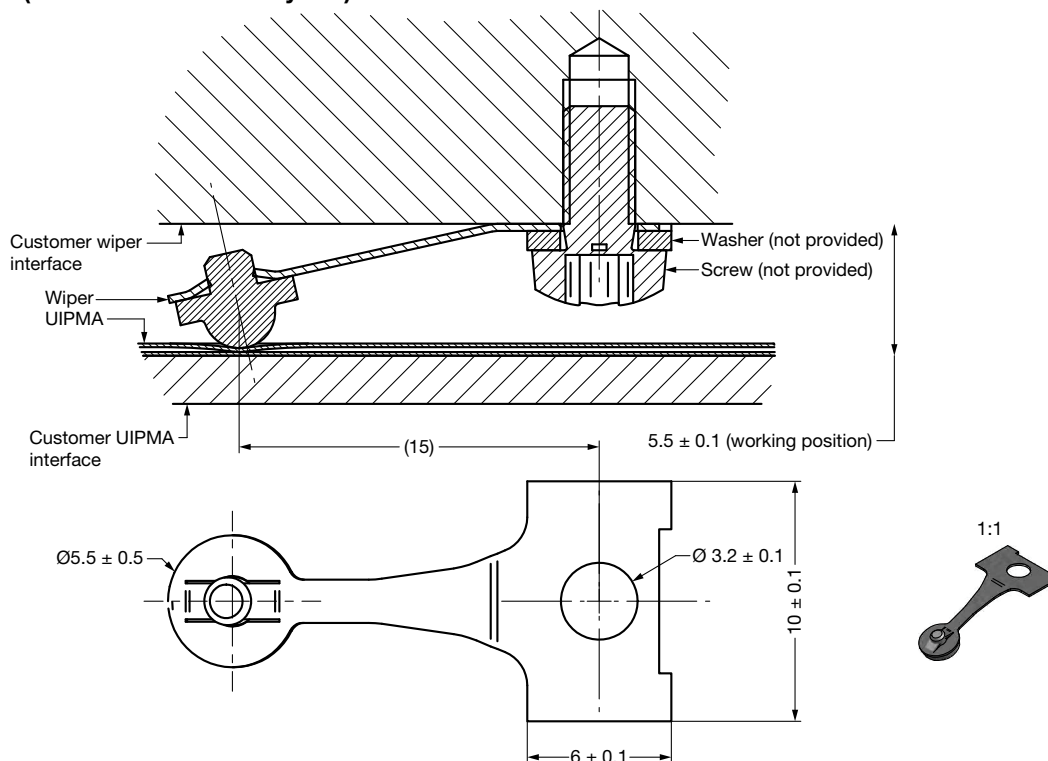
ELECTRICAL DIAGRAM



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

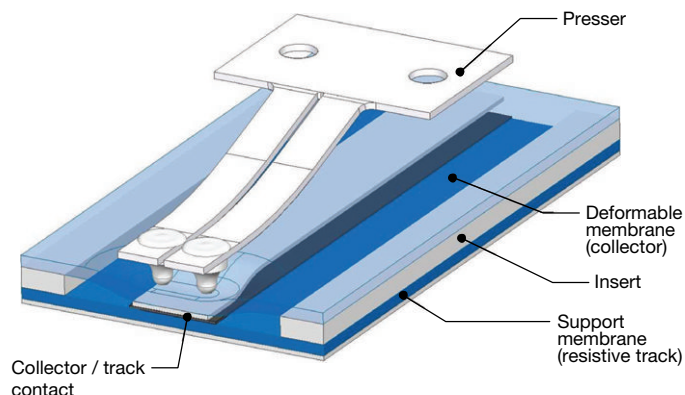
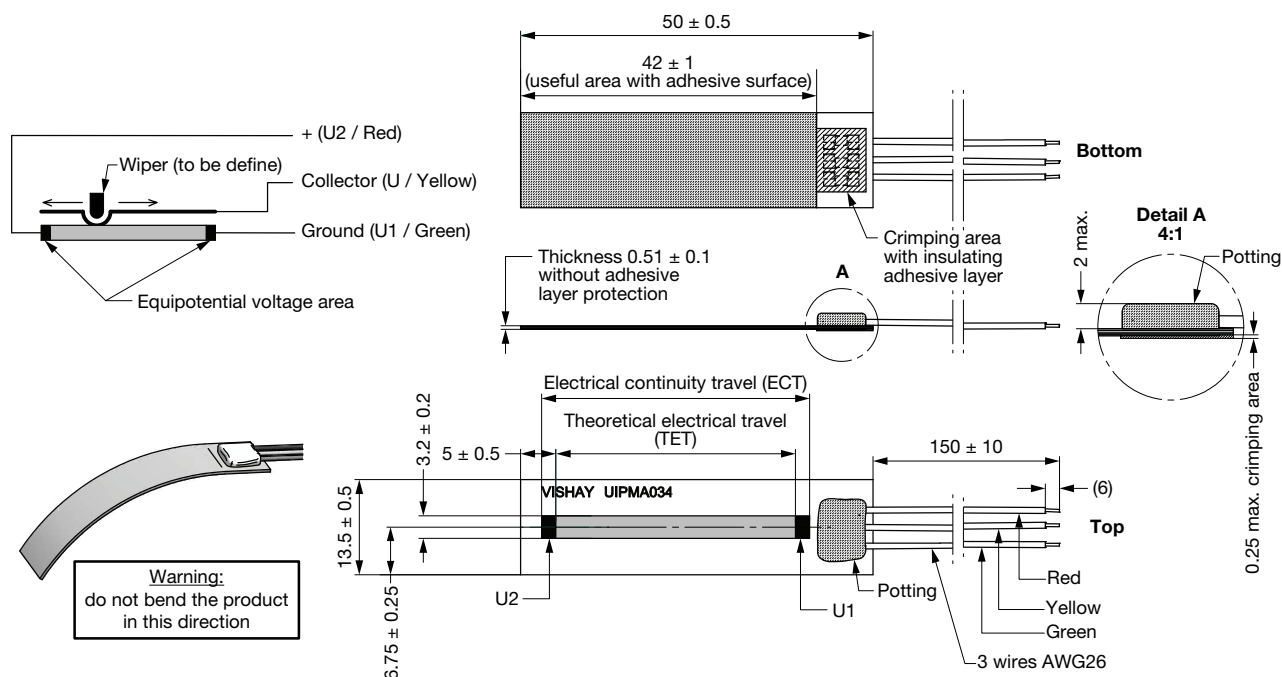
SPECIFIC VERSIONS (on request)

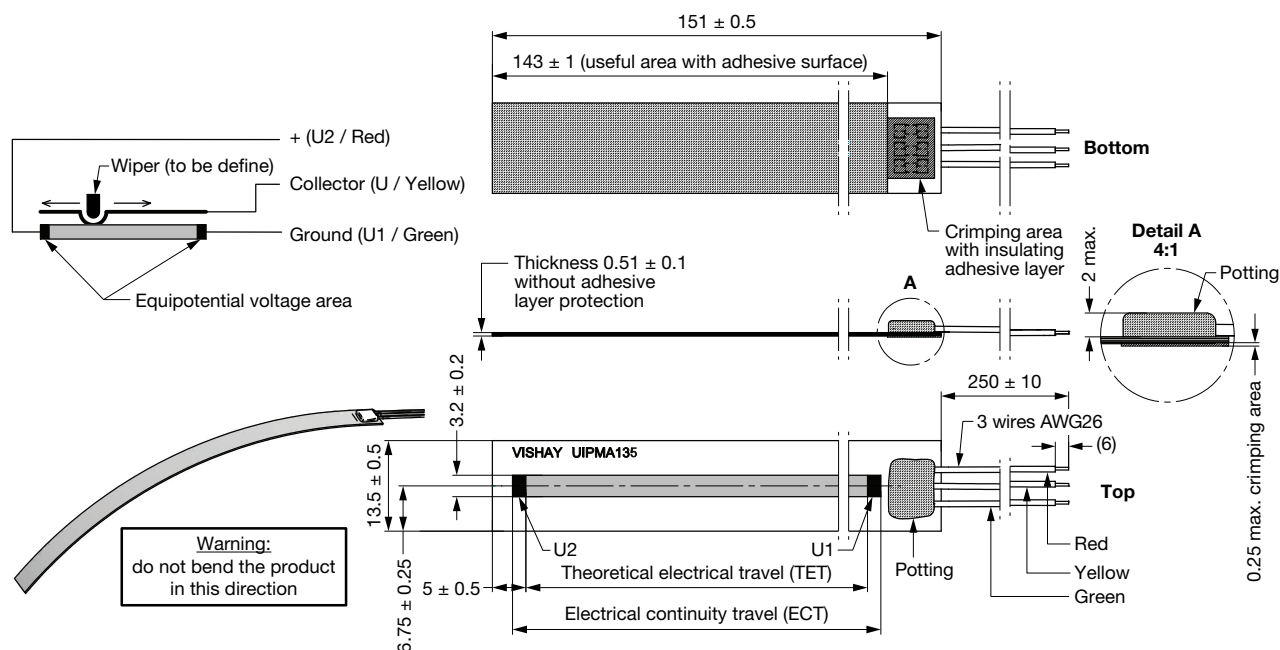
- Other electrical or mechanical characteristics
- Other bases
- Integration in equipment
- Other versions: outdoor design, ...
- Integration in equipment (flat flex cable, contacts, wires, ...)

PRESSERS
Wiper Type A

Wiper Type B

Wiper Type D (Endurance Life = 3M cycles)


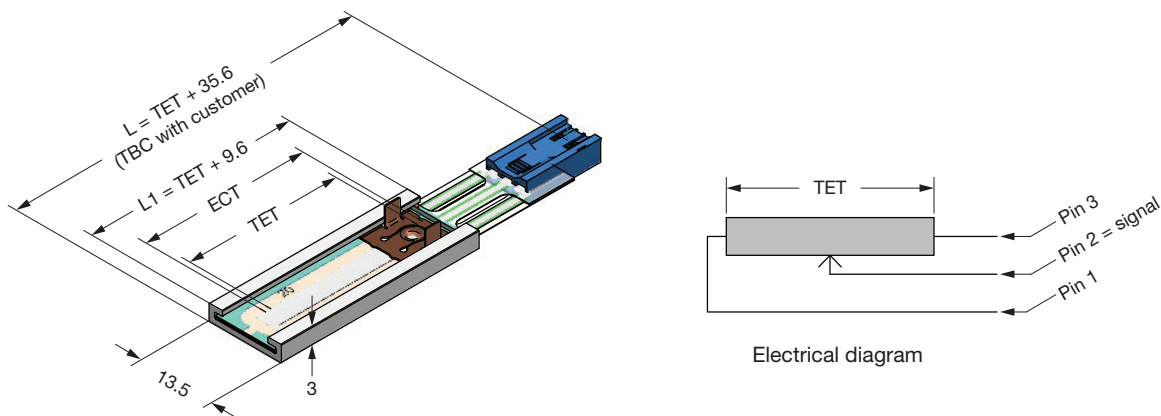
SPECIFIC UIPMA CHARACTERISTICS

| 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

ON REQUEST
KITPMA: KIT Potentiometer Membrane Assembled with flat flex cable output

(active track and wiper mounted inside a metal profile for easier assembling inside customer equipment: no need to manage the distance between wiper and track)


Note

- For more details please check the end of UFPMAUFPMC datasheet: www.vishay.com/doc?32514



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