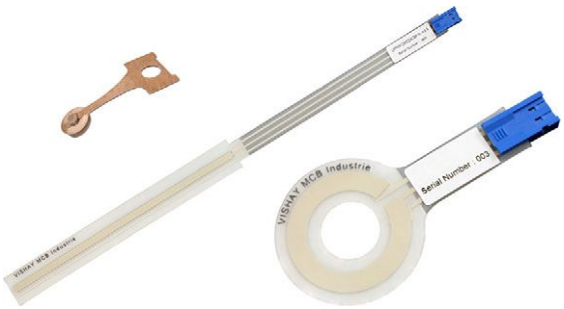
柔性薄膜导电塑料工业级电位器，位移传感器

Displacement Sensor, Ultraflat Industrial Potentiometer Membrane



DESIGN SUPPORT TOOLS AVAILABLE
支持三维设计工具文件

3D Models

特性 FEATURES

- 密封 Sealed
- 无限分辨率 Infinite resolution
- 高集成度 High integration capacity
- 耐用性 Durability
- 直线位移测量 Rectilinear: UIPMA
- 旋转位移测量 Rotational: UIPMC type
- 材料分类认证：认证规格定义和体系 compliance
  产品标签说明，详见 www.vishay.com/doc?99912

Pb-free
RoHS COMPLIANT

QUICK REFERENCE DATA	
传感器类型	直线或旋转位移, 导电塑料技术
信号输出	电气插头连接 Output by connector
应用市场	工业自动化 Industrial
尺寸	4 mm (厚 thickness max.)

电气参数 ELECTRICAL SPECIFICATIONS		
PARAMETER	**UIPMA**	**UIPMC**
总电阻值 Total resistance (R_n)	4.7 kΩ	10 kΩ
电阻值误差 Tolerance on R_n	± 30 %	
额定功率 Dissipation	≤ 0.1 W/cm of travel (1)	≤ 1 W to 70 °C
测量电气行程 electrical travel (TET)	20 mm ~ 250 mm (1)	312°
电气行程误差 Tolerance on TET	± 1 mm	± 3°
有效电气行程 Useful electrical travel (UET)	TET - 2 mm	306°
实际电气行程 Electrical continuity travel (ECT)	TET + 4 mm	325°
线性精度 Linearity	± 2 %	± 5 %
温漂系数 Temperature coefficient	-300 ppm/°C ~ ± 300 ppm/°C	
触点信号电流 Collector / track current (I_c)	≤ 1 mA	
推荐电流 Recommended current I_c	≤ 100 µA	
推荐负载阻抗 Recommended load impedance	≥ 100 R_n	
输出平滑度 Output smoothness	< 0.1 % (NFC 93 255)	

Note

(1) See “Specific UIPMA Characteristics” table 备注（1）见特别的UIPMA特性表

机械参数 MECHANICAL SPECIFICATIONS		
PARAMETER	**UIPMA**	**UIPMC**
电阻基片设计 Design	柔性绝缘薄膜 Flexible insulating films	柔性绝缘薄膜 Flexible insulating films
机械行程 Mechanical travel	实际电气行程 Electrical continuity travel	实际电气行程 Electrical continuity travel
Backlash	< 0.1 mm	< 0.3°
安装 Mounting	双面胶粘贴 With double-sided adhesive on flat, clean, and dry support	
移动速度 Speed displacement	≤ 1.5 m/s	
移动力 Drive	Force 移动力≥ 0.3 N 牛顿	Torque 旋转扭矩≥ 1 N cm 牛顿厘米
保护等级 Protection class (NFC 20 010)	IP66 (electrical connection and plug excluded)	
最大校正容错 Maximum alignment fault	± 1 mm	-

环境参数 PERFORMANCE		
PARAMETER	**UIPMA**	**UIPMC**
使用寿命 Life	> 3百万次往复周期 3M cycles (取决于选择的滑动电刷方式 depending on chosen wiper)	
工作温度 Operating temperature range	-10 °C ~ +50 °C	
贮藏温度 Storage temperature range	-40 °C ~ +50 °C	
清洗 Support	平放晾干，干洗Flat, clean, and dry	

Note

- Nothing stated herein shall be construed as a guarantee of quality or durability 本文所述内容不得解释为质量或耐久性的保证。

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SAP 型号选购说明 SAP PART NUMBERING GUIDELINES - UIPM

MODEL	TYPE	UIPMA: 测量（理论）电气行程 (mm) UIPMC: 外圆直径 ϕ (mm)	TYPE	电阻值Ω	线性精度	LEADS	PACKAGING
UIPM	A = 直线	050 100 (on request) 150 200 (on request) 250	| = 工业级	472 = 4K7	X = ± 2 %	C = connector	B = bulk
UIPM	C =旋转	030	| = 工业级	103 = 10K	U	C = connector	B = bulk

电刷附件 ACCESSORY WIPER

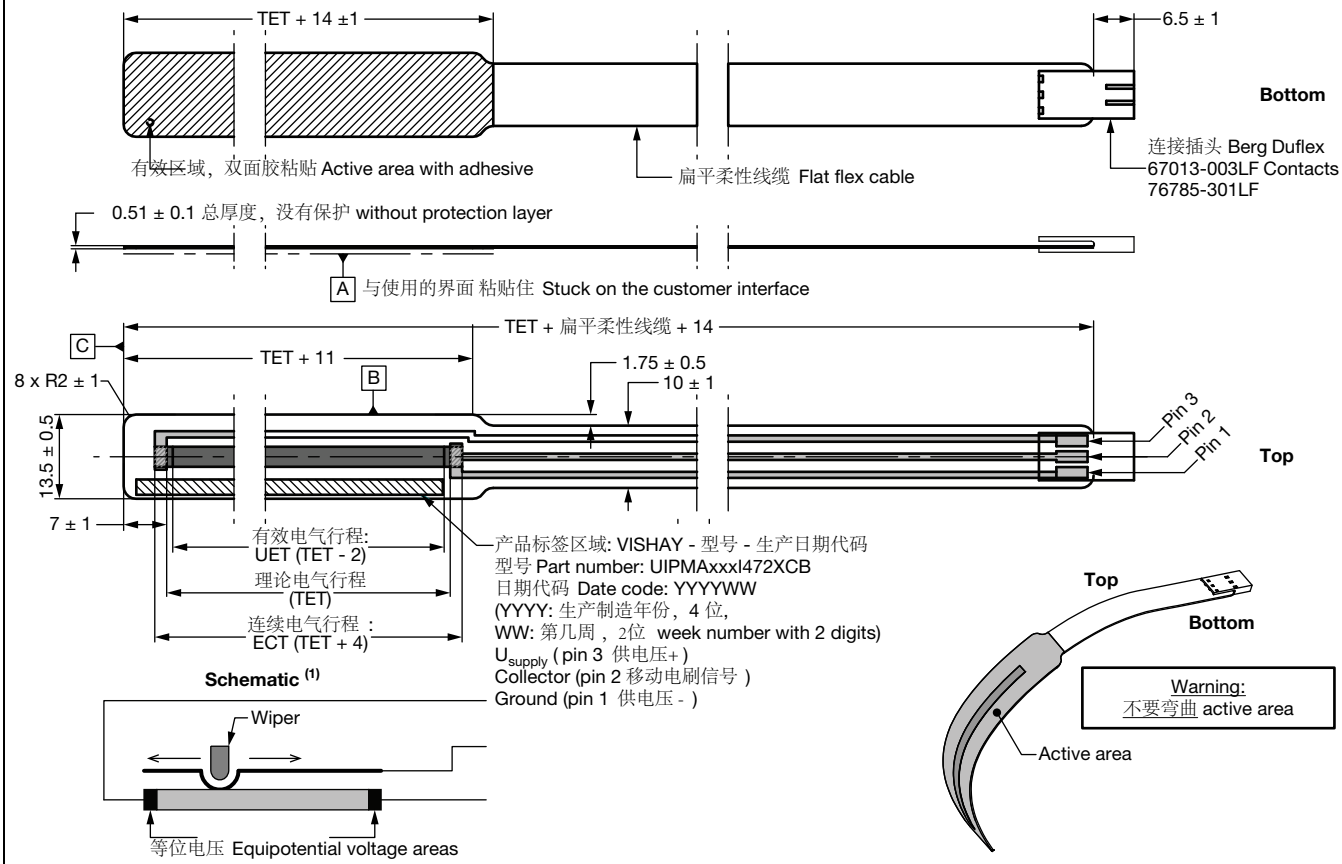
Wiper 类型 A	ACCSUIPMWIPERKB434
Wiper 类型 B	ACCSUFPMWIPERKB422
Wiper 类型 D	ACCSUIPMWIPERKB435

信号连接插头 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

尺寸 公制mm DIMENSIONS in millimeters

UIPMA



TET (mm) 测量电气行程	扁平柔性线缆 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

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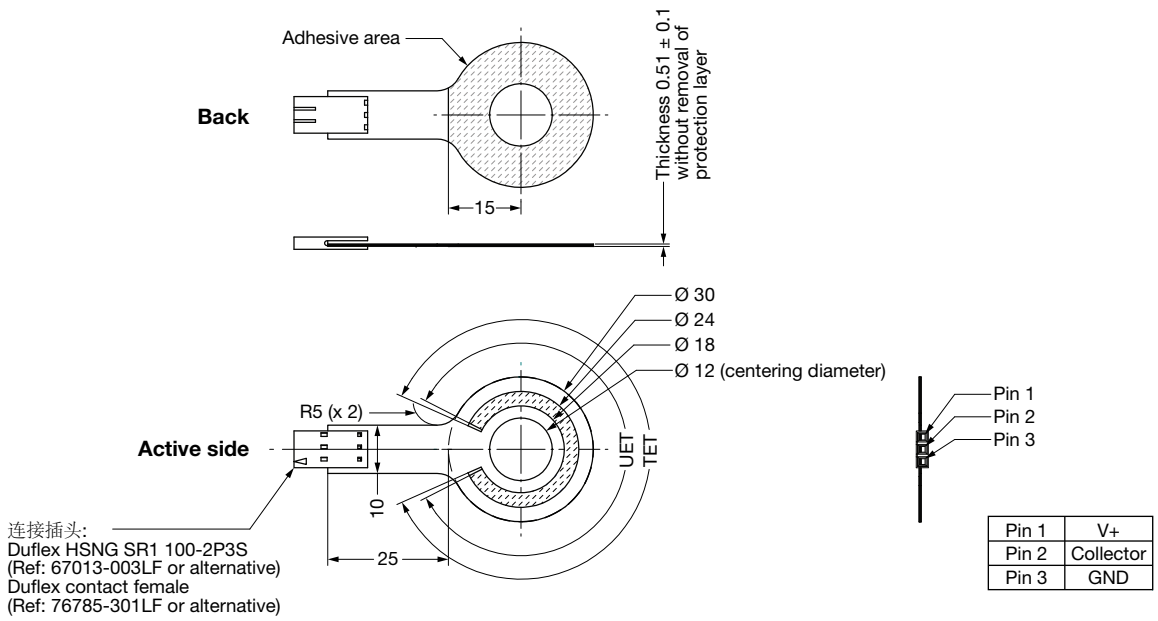
MOUNTING REQUIREMENTS FOR UIPMA

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: √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.

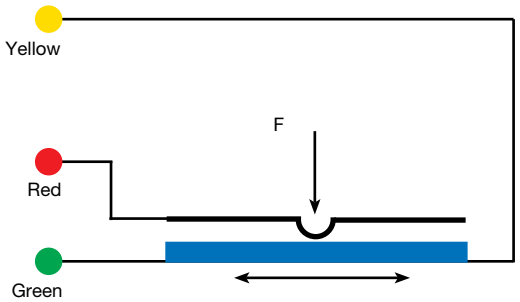
尺寸 公制 mm **DIMENSIONS** in millimeters

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.
在变形的薄膜上，F压下的位置，输出电压值

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, ...)

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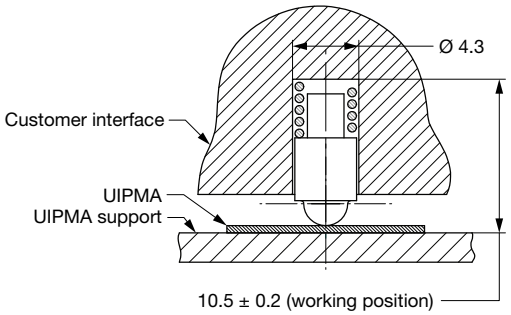
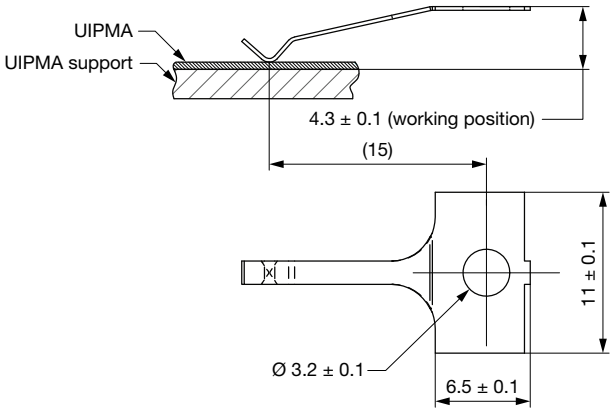
PRESSERS 电刷压头触点（连接方式）

Wiper Type A



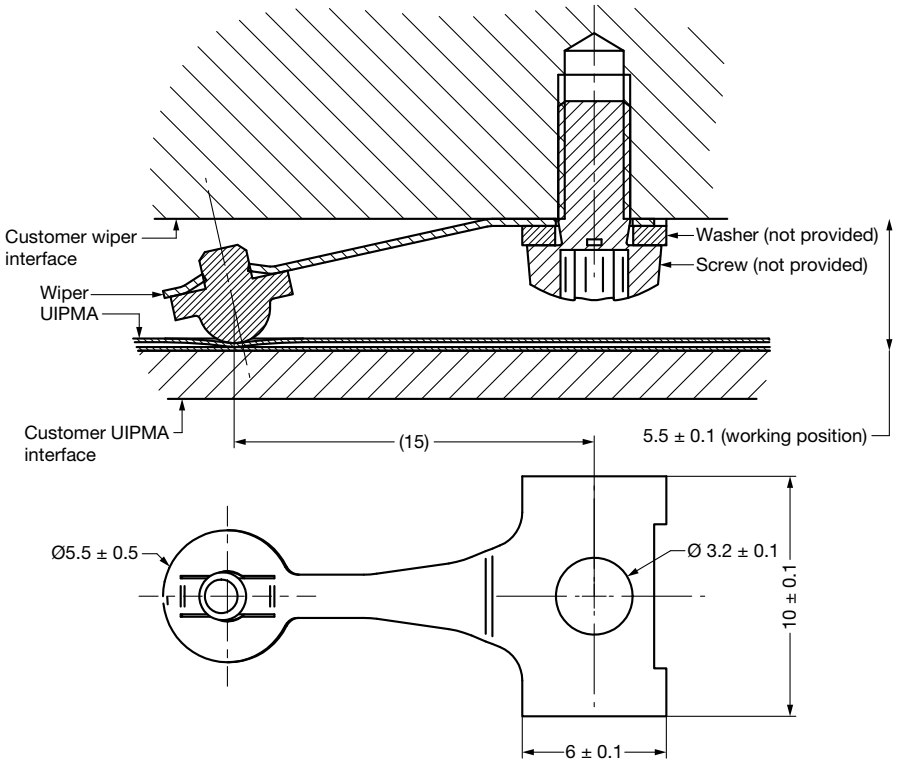
Endurance life = 3M cycles
使用往复周期 =3百万次

Wiper Type B



Endurance life = 100 000 cycles
使用往复周期 = 1百万次

Wiper Type D



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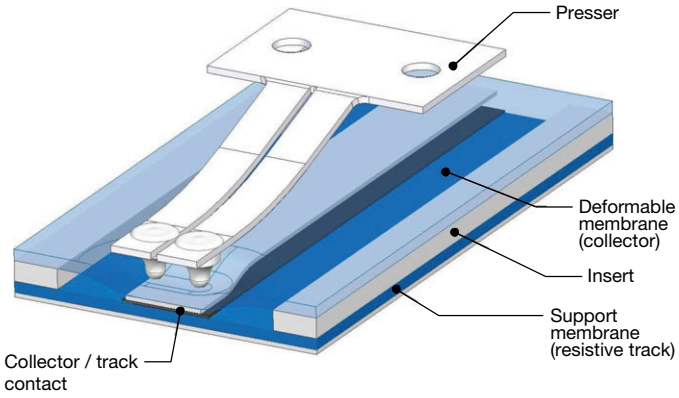
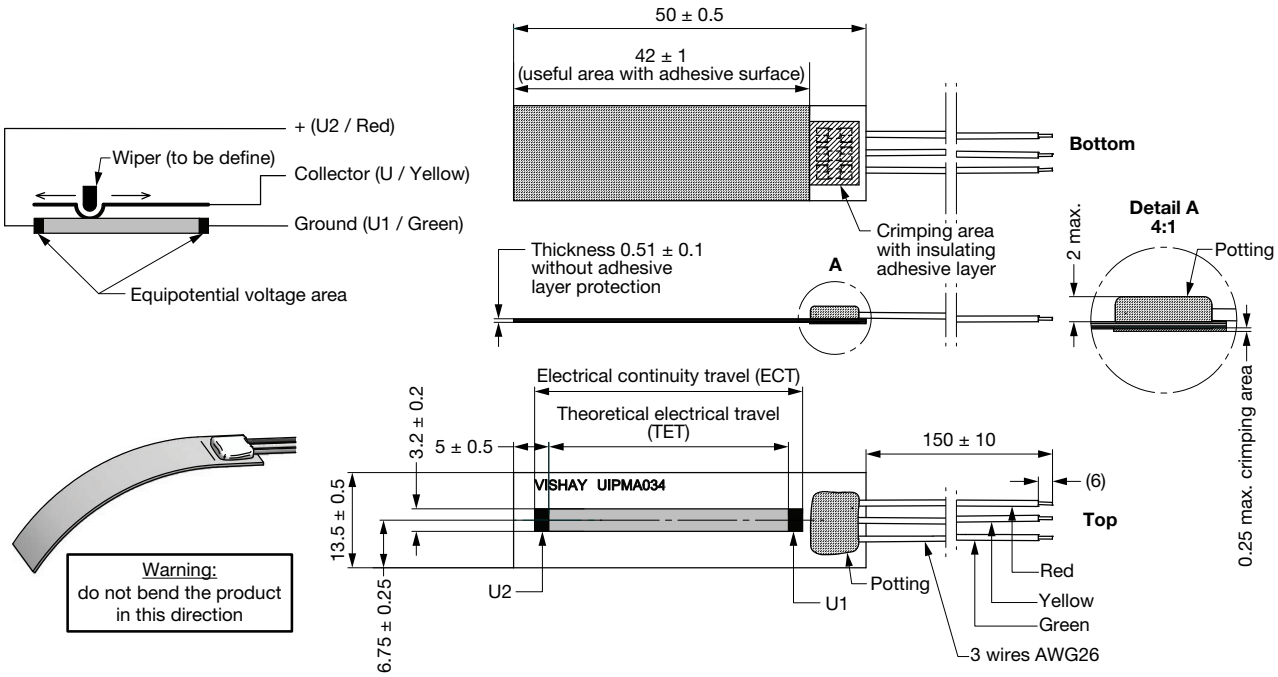
特别的UIPMA特性表 **SPECIFIC UIPMA CHARACTERISTICS**			
THEORETICAL ELECTRICAL TRAVEL (TET) (mm)	**DISSIPATION AT +40 °C (W)**	**ELECTRICAL CONTINUITY TRAVEL (ECT) (mm)**	**FILM LENGTH (mm)**
50	≤ 0.5	54	75
100	≤ 1.0	104	125
150	≤ 1.5	154	175
200	≤ 2.0	204	225
250	≤ 2.5	254	275

OPERATING DESCRIPTION 工作原理示意图



可客户选项 **ON REQUEST**

UIPMA034 WITH WIRES OUTPUT 导线输出



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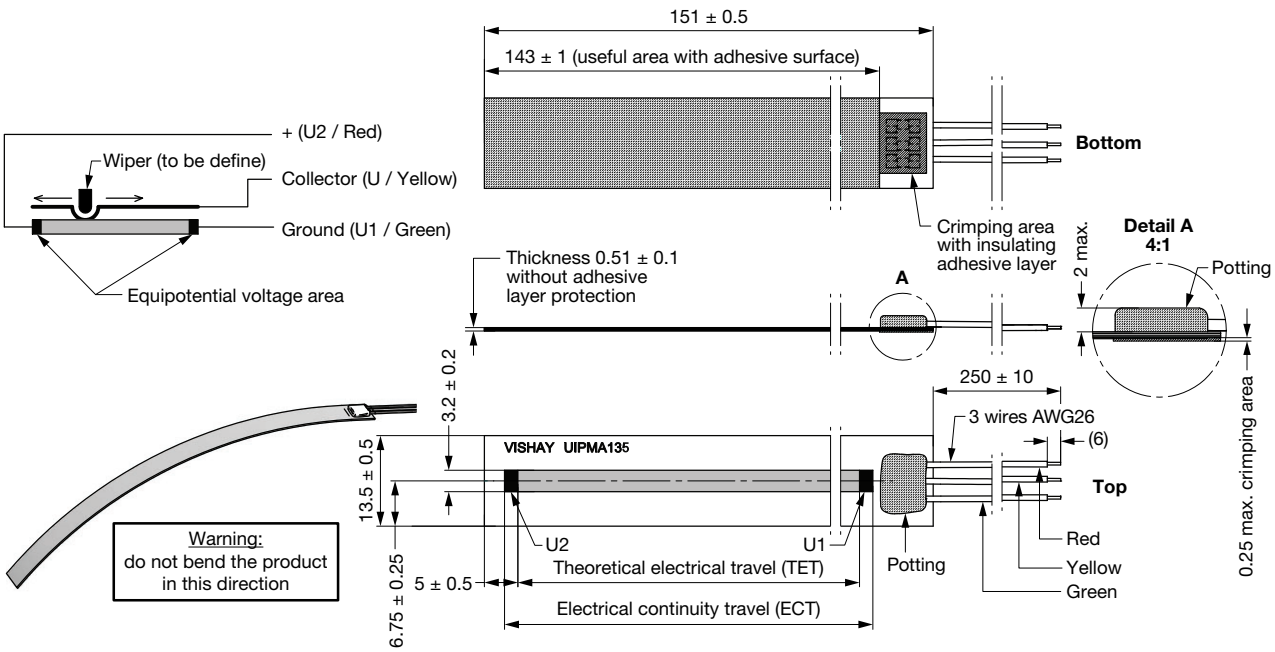
可客户选项 ON REQUEST

UIPMA135 WITH WIRES OUTPUT 导线输出



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