

扁平柔性薄膜, 导电塑料, 工业级位移传感器, 可变电阻器

Displacement Sensor, Ultra Flat



特性 FEATURES

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



DESIGN SUPPORT TOOLS

[click logo to get started](#)

3D
Models
Available

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	导线或插头 Output by wires or connector
应用市场	工业级和航空航天 Industrial, avionics
尺寸	4 mm (厚度 thickness max.)

电气参数 ELECTRICAL SPECIFICATIONS

PARAMETER	UFPMA	UFPMC
总电阻值 Total resistance (R_n)		4.7 k Ω
电阻值误差 Tolerance on R_n		$\pm 20\%$
额定功率 Dissipation	≤ 0.1 W/cm of travel ⁽¹⁾	≤ 1 W to 70 °C
测量电气行程 Theoretical electrical travel (TET)	20 mm ~ 250 mm ⁽¹⁾	270°
电气行程误差 Tolerance on TET	± 1 mm	$\pm 3^\circ$
实际电气行程 Electrical continuity travel	TET + 4 mm	310°
线性精度 Linearity	$\pm 2\%$	$\pm 1.5\%$
温漂系数 Temperature coefficient	-300 ppm/°C \pm 300 ppm/°C	
电刷电流 Collector / track current (I_c)	≤ 1 mA	
推荐电刷电流 Recommended current I_c	≤ 100 μ A	
推荐负载阻抗 Recommended load impedance	$\geq 100 R_n$	
输出平滑度 Output smoothness	$< 0.1\%$ (NFC 93 255)	

Note

⁽¹⁾ See "Specific UFPMA Characteristics" table 备注 (1) 见特别的UFPMA特性表

机械参数 MECHANICAL SPECIFICATIONS

PARAMETER	UFPMA	UFPMC
电阻基片设计 Design	柔性绝缘薄膜 Flexible insulating films	柔性绝缘薄膜 在 FR4 介质上 substrate
机械行程 Mechanical travel	= 实际电气行程	= 实际电气行程 (限位 customer stops)
Backlash	< 0.1 mm	$< 0.3^\circ$
安装方式 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)	IP 66	
最大校正容错 Maximum alignment fault	± 1 mm	-

环境参数 PERFORMANCE

PARAMETER	UFPMA	UFPMC
使用寿命 Life	25百万次往复周期 对于 TET < 200 mm 15百万次往复周期对于 TET ≥ 200 mm	> 10 百万次往复周期 cycles
工作温度 Operating temperature range	-30 °C ~ +80 °C	
贮藏温度 Storage temperature range	-40 °C ~ +90 °C	
清洗 Support	平放晾干, 干洗 Flat, clean, and dry	

Note

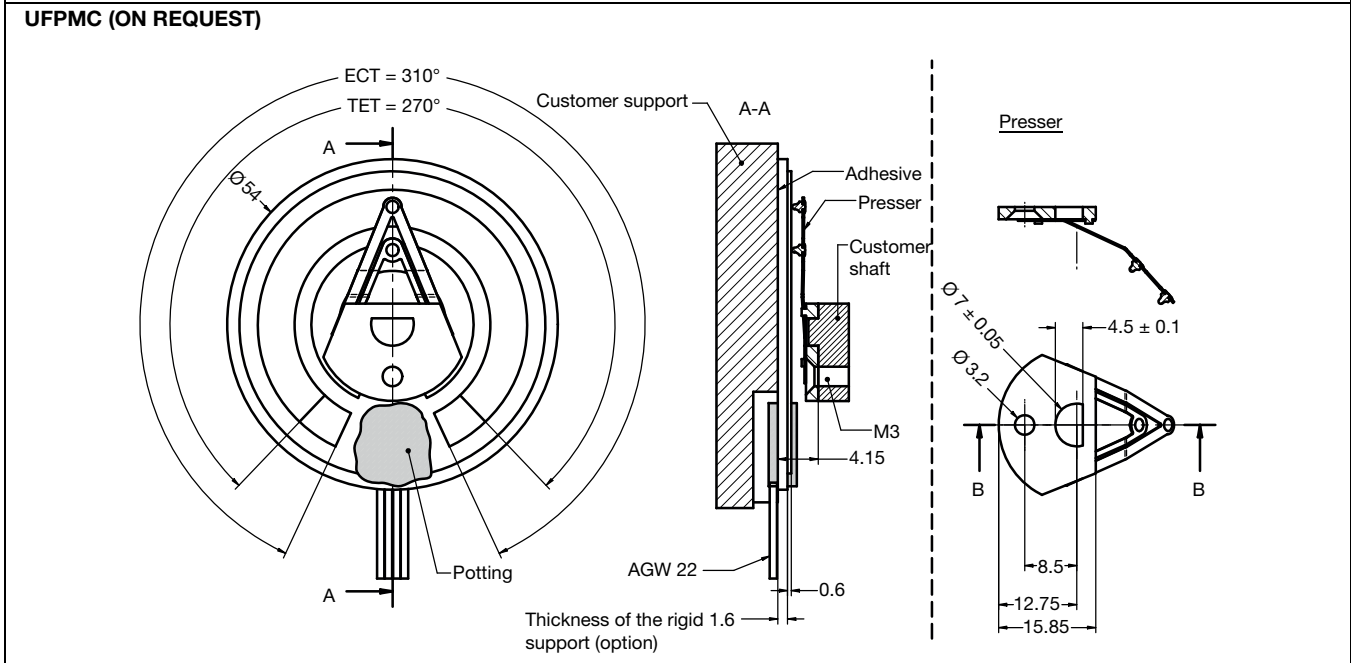
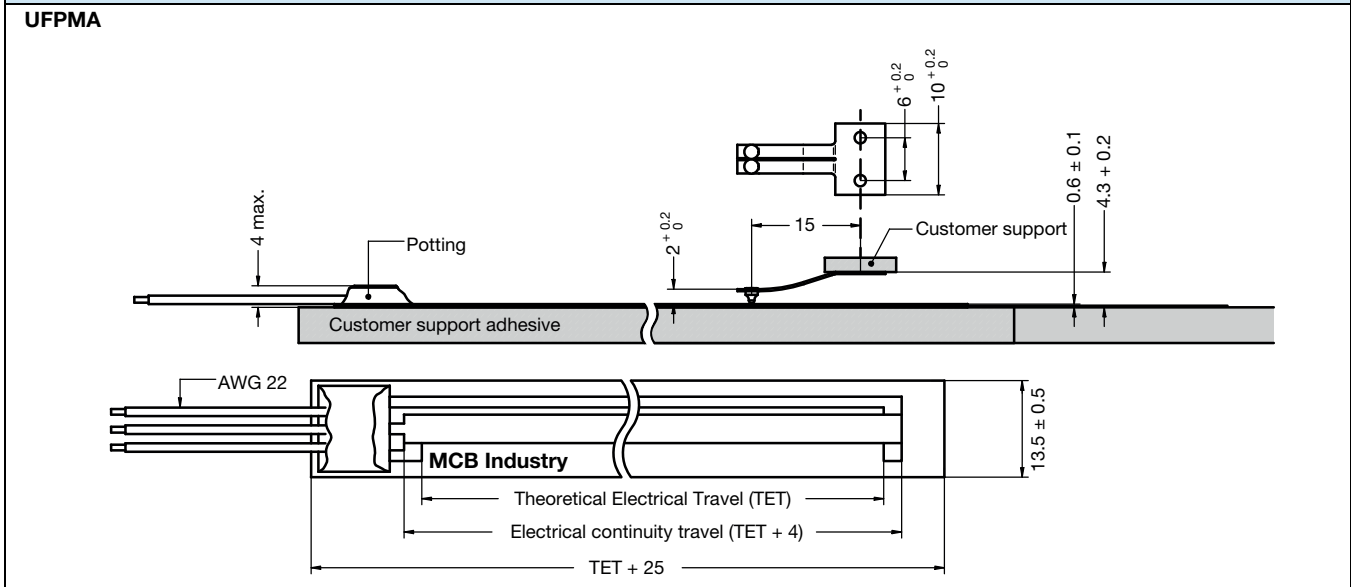
• Nothing stated herein shall be construed as a guarantee of quality or durability 本文所述内容不得解释为质量或耐久性的保证。

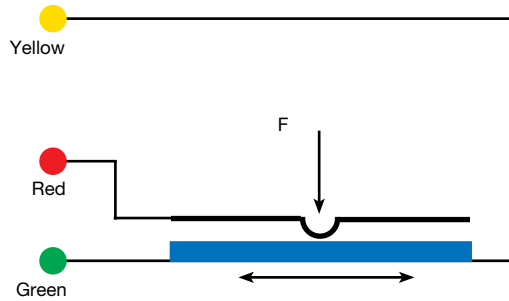
SAP 订购型号说明 SAP PART NUMBERING GUIDELINES - UFPMA							
MODEL	TYPE	THEORETICAL ELECTRICAL TRAVEL (mm)	TYPE	VALUE	LINEARITY	LEADS	PACKAGING
UFPM	A = linear	060 100 150 200 250	A = aeronautic, off-road, or medical	472 = 4K7	X = ± 2 % (UFPMA)	W = wires	B = bulk

信号连接 CONNECTIONS

3 x AWG 22 color wires length 300 mm 3线彩色导线, AWG22线标号, 线长300mm

尺寸公制 mm DIMENSIONS in millimeters

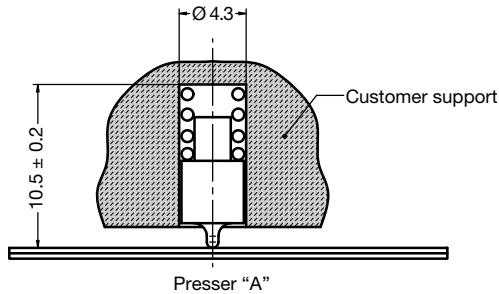


ELECTRICAL DIAGRAM


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。

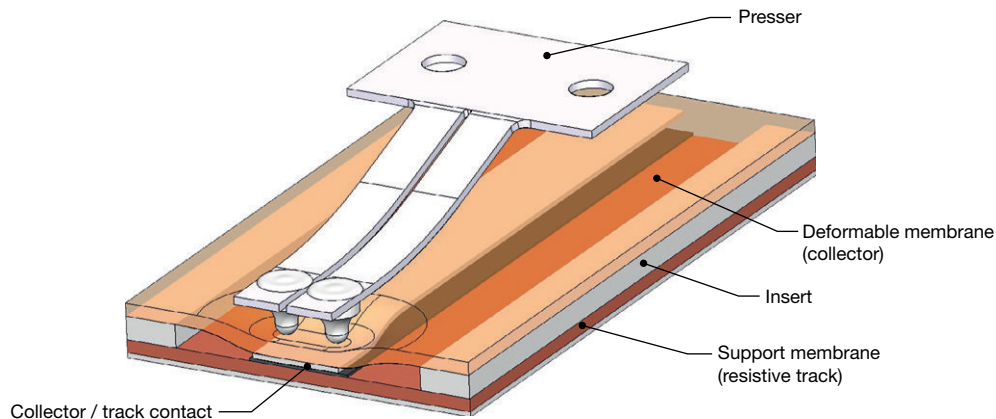
OPTIONS (on request)

- 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, ...)

特别的UFPMA特性 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 工作原理示意图




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