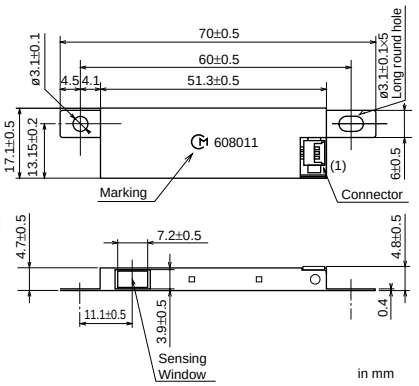
Piezoelectric Ceramic Sensors (PIEZOTITE®)

Electric Potential Sensors



Every object has its own surface electrical charges or charges given to it from other objects. These electrical charges cause the object to have a certain electric potential with respect to other objects. The electric potential sensor is designed to measure this surface potential.
There are two major surface potential detection methods : The field-mill method and the vibrating capacitance method.
The former method synchronously shuts off the electrical flux from the object surface and modulates the electric field incident to the sensing electrode to induce an AC current on the electrode, proportional to the surface potential (DC). The latter method forms a capacitance across the surface of the object and the sensing electrode, and vibrates the sensing electrode vertically the surface of object to induce electrical charges which are proportional to the capacitance and surface potential, thereby obtaining an AC current proportional to the surface potential (DC).
Murata's potential sensors, use a high-precision, piezoelectric tuning fork ("MICROFORK") with a proven production record, to achieve field shut-off vibration and electrode vibration. Integrating all of the signal processing circuit, Murata's electric potential sensor assures high operating stability and reliability.

■ Features

1. Compact, low-profile design.
2. DC voltage output.
3. High-precision liner output and highly stable.
4. Integrates all signal processing blocks, including oscillation, amplifying and rectifying circuit.

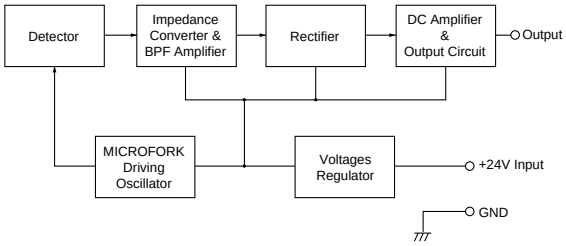
■ Applications

1. Sensing of surface electric potential for photosensitive drums used in PPC machines and laser beam printers.
2. High voltage measurement and detection for high voltage equipment.

Part Number	Supply Voltage (Vdc)	Current Consumption (mA)	Min. Detectable Electric Potential (V)	Max. Detectable Electric Potential (V)	Output Voltage	Linearity (%)
PKE05A1	24 +/-10%	50 max.	0	1500	1/240Vdc of the objective potential	+/-1.5 max.(at 50V~1500V)
PKE05B1	24 +/-10%	50 max.	0	-1500	1/240Vdc of the objective potential	+/-1.5 max.(at -50V~-1500V)

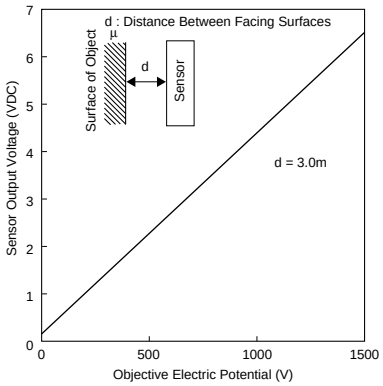
Operation Temperature Range : 0°C to 60°C Storage Temperature Range : -30°C to 80°C
Detection for negative electric potential are also available.

■ Circuit Configuration

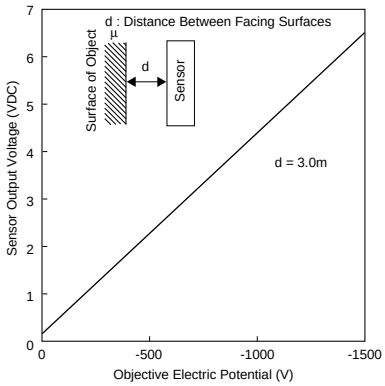


■ Output Voltage-Objective Potential

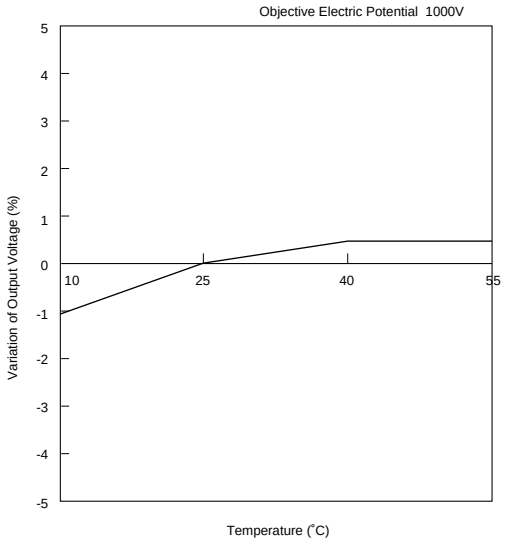
PKE05A1



PKE05B1



■ Temperature Characteristics



■ Notice (Rating)

Using conditions such as source voltage, temperature range mentioned in this drawing should be kept.

■ Notice (Handling)

1. Electro-static voltage and excessive voltage or reverse voltage may damage the sensor.
2. The sensor should be kept from excessive shock.
3. Please insure the component is thoroughly evaluated in your application circuit because the output voltage and the distance are correlated.

● Part Numbering (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein. If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Electric Potential Sensors

(Global Part Number)

PK	E05	A	
❶	❷	❸	❹

❶Product ID

❷Series

❸Characteristics

❹Individual Specification Code

* Global Part Number shows only an example which might be different from actual part number.
* Any other definitions than "❶Product ID" might have different digit number from actual Global Part Number.

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