



Quarto-Varicon™ Dielectric/Conductivity Sensor Specifications

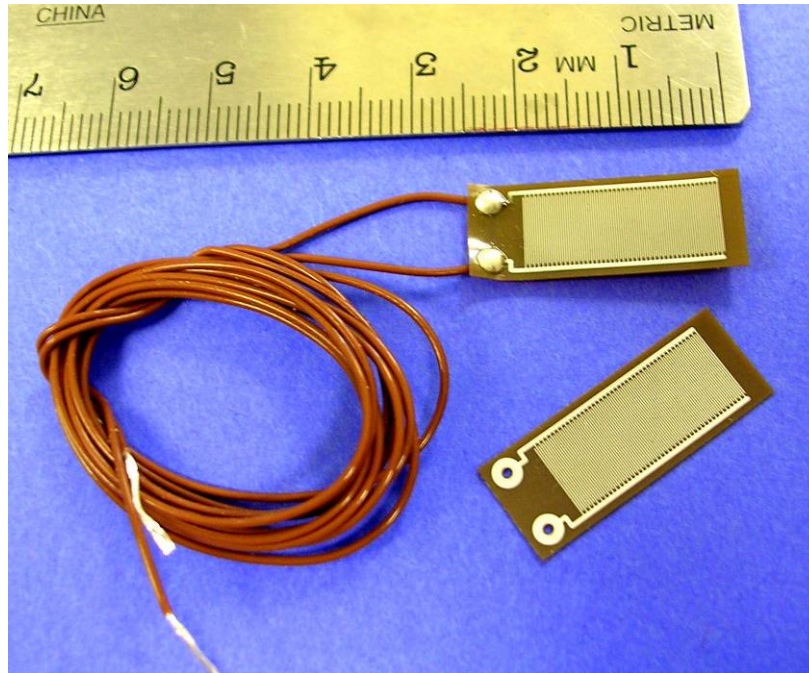


Figure 1
Quarto-Varicon Dielectric/Conductivity Sensor

DESCRIPTION

The Quarto-Varicon sensor is a thin, flexible dielectric sensor designed for cost-sensitive use with presses, molds, bulk materials or laminates. Patterned on a polyimide substrate, the Quarto-Varicon sensor can be supplied without leads, or with custom-length Teflon-insulated leads attached.

The Quarto-Varicon sensor head is 1.0" (2.54 cm) long, 0.375" wide (0.95 cm) and only 0.004" (100 μ m) thick. The tin-plated electrodes have 0.004" (100 μ m) widths and spaces. The Quarto-Varicon sensor can measure the dielectric/conductive properties of materials within approximately 0.004" (100 μ m) of the electrode surface.

The Quarto-Varicon sensor is suitable for high pressure applications and is ideal for measuring the dielectric properties and cure state of epoxies, bulk molding compound (BMC), sheet molding compound (SMC), silicones, thermosets, urethanes, RIM and composite materials. When used without leads, the sensor will tolerate temperatures up to 375 °C. When supplied with leads, the sensor will operate up to 200 °C.

GENERAL SPECIFICATIONS

Dimensions:

Length, sensor head : 1.0" (2.54 cm)
 Width, sensor head : 0.375" (0.95 cm)
 Thickness, sensor head : 0.004" (100 um)
 Width, electrode : 0.004" (100 um)
 Spacing, electrode : 0.004" (100 mm)

Composition:

Substrate, sensor head : Polyimide
 Electrodes : Copper with tin flash
 Lead insulation : Teflon

Operational:

Temperature, maximum : 375 °C (700 °F) without leads
 : 200 °C (392 °F) with supplied leads

Sensor Parameters:

A/D ratio : 40 cm
 Base capacitance : ~12 pF*

* Actual value may vary

Temperature sensor : None

TEST MEASUREMENT (Typical results—actual results may vary)

Sensor configuration	Subtraction Mode	Non-Subtraction Mode
A/D ratio	40 cm	40 cm
Base capacitance	12 pF	12 pF
Gain _{Air}	-39 to -36 dB	-43 to -41 dB
Phase _{Air}	-3 to +3 deg	-3 to +3 deg

Table 1

Typical Quarto-Varicon 1 kHz test results in air @ 20° C
 with LT-451 Dielectric Cure Monitor



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