

Technote #025

Large diameter reflective cup used for silicon wafer temperature measurement

Silicon wafer fabrication involves many operations, most of which require the accurate determination of the temperature of the silicon. The surface temperature is an essential control variable for efficient high-quality processing of material. As the wafer is processed, the emissivity of the surface can vary considerably due to the different properties of the substrate layers. To enable the accurate and rapid measurement of the wafer temperature, a reflective cup is used. The reflective cup prevents ambient

radiation from entering the sensor, which instead reads reflected emitted radiation. By reducing errors caused by ambient reflections and emissivity variations, the measurement error can be reduced by about a factor of ten. The IRt/c.1X is a suitable sensor to use for this application, as it is small and can easily be mounted to the reflective cup. The concept of the cone can be applied in other applications in which target has low or varying emissivity.

