

NON-DISTORTING VIDEO CAMERA FOR USE WITH A
SYSTEM FOR CONTROLLING GROWTH OF A SILICON CRYSTAL

Abstract of the Disclosure

System for determining the diameter of a
5 silicon crystal being pulled from a silicon melt for
controlling a silicon crystal growing apparatus. The
melt has a planar surface including a meniscus that is
visible as a bright ring adjacent the crystal. A camera
positioned above the melt surface and away from the
10 crystal includes an image plane that is generally
parallel to the melt surface and responsive to light from
the bright ring for generating an image pattern of a
portion of the bright ring. As such, the camera
compensates for distortion of the image pattern caused by
15 the position of the camera relative to the crystal.
Image processing circuitry detects a characteristic of
the image pattern and defines an edge of the bright ring
as a function of the detected characteristic. The image
processing circuitry further defines a generally circular
20 shape including the defined edge of the bright ring. The
diameter of the crystal is then determined based on the
diameter of the defined shape for use in controlling the
crystal growing apparatus.