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(54) Title: METHOD AND APPARATUS FOR THREE-DIMENSIONAL INSPECTION OF ELECTRONIC COMPONENTS ✓

(57) Abstract

A calibration and part inspection method and apparatus for the inspection of ball grid array, BGA, devices (70). Two cameras (10, 15) image a precision pattern mask (22) with dot patterns deposited on transparent reticle (20). The precision pattern mask (22) is used for calibration of the system. A light source and overhead light reflective diffuser (5) provide illumination. A first camera (10) images the reticle precision pattern mask (22) from directly below. An additional mirror (32, 36) or prism (30, 34) located below the bottom plane of the reticle (20) reflects the reticle pattern mask (22) from a side view, through prisms (30, 34) or reflective surfaces (32, 36, 38), into a second camera (15) and a second additional mirror (32, 36, 38) or prism (30, 34) located below the bottom plane of the reticle (20) reflects the opposite side view of the reticle pattern mask (22) through prisms (30, 34) or mirrors (32, 36, 38) into a second camera (15).

