



Figure 1: Electronic Component

**Problem:** A manufacturer of electronic component assemblies needed to automatically verify the orientation of a capacitor. Two possibilities existed: 12:00 and 6:00. All capacitors within a size family were of the same manufacturer and appearance. Parts sizes vary from 1cm to 1.5cm in diameter.

**Solution:** Stand-alone inspection system retrofitted to existing part handling system. Diffuse fluorescent illumination lighting the part from the side. FOV approximately 1.5 cm to accommodate all part sizes. Part number of the inspected part is selected from a Windows recipe menu. Parts are indexed in place by the existing part handling system. A Part In Place signal triggers the camera to acquire an image. Software tools detect the presence or absence of the dark stripe on the capacitor. Simple logic tied to a digital output informs the operator and the assembly work cell the orientation of the capacitor.

If the part passes, a green light is illuminated and the part can be removed from the fixture; if the part fails, a red light is illuminated and the part is locked in the fixture for assessment by supervisory personnel.



Figure 2: Validator Product