

## **Polarizing Effects**

Some lighting applications can benefit from Polarization. Here is some helpful information for using polarizers and analyzers.

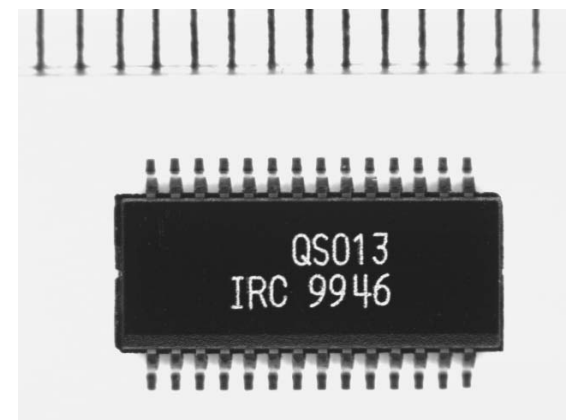
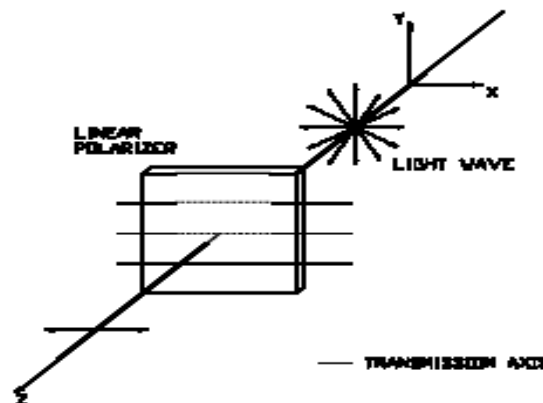
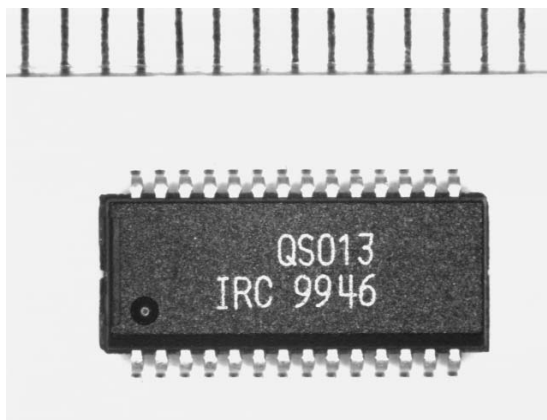
- 1.** Polarizing helps when the subject is highly reflective. For example, when light is directed at shiny metals, crystals, scratches, etc., they give off glare. Polarizing will help eliminate the glare.
- 2.** Polarizing will not totally eliminate the image of a light on a mirrored surface. For example, when you shine a flashlight into a mirror, you will see the image of the flashlight. By the same token, an ultra shiny surface on a subject will reflect the image of a fiber ring placed directly above the subject. Some of the reflections can be eliminated and some can be diffused or softened, but the image of the ring will still be there. If this is not acceptable, then other lighting techniques should be investigated.
- 3.** When looking at objects through water, plastic, glassine envelopes or similar materials, polarization will eliminate the reflective layer and allow the object to be visible.
- 4.** If material is non-reflective (blotter paper, textured fabric, woven materials, dull metal, or matte finished products) polarizing will not help or enhance the image.
- 5.** Fiber will not maintain polarization.
- 6.** The most important thing to remember to benefit from polarizing, the user must have two polarizers; one is usually referred to as an analyzer, but they are really two polarizers. One polarizer must be the last thing between the light and the object. The analyzer (second polarizer) must be the first thing between the object and the lens.

## Polarization Through a Ringlight

Ordinary light (unpolarized) vibrates in all possible directions. As light exits the fiber ring it is considered unpolarized. It then passes through a polarizing sheet media, what we call a polarizer. The polarizer only allows light vibrating perpendicular to the light's propagation to pass through it, while the rest is attenuated. The light which transmits through the sheet is now considered polarized. The polarized light that reflects off of the reflective surfaces of the subject remains polarized while the light that reflects off of a non-reflective surface is depolarized. Some of this light will travel upwards through the opening in the center of the ringlight. It is here where an analyzer (cross polarizer) is placed.

## How Polarizing works

The analyzer is another sheet of polarizing media. When the analyzer is rotated from 0 to 90°, it will allow a percentage of the polarized light through from 100 to 0%. If the analyzer is rotated so that 0% of the polarized light is allowed through, then the only light that would pass through the analyzer is the unpolarized portion. This allows a user to discern a reflective surface from a non-reflective surface.





**Pepper Shaker with Ring-Light**



**Pepper Shaker with Polarized Ring-Light**