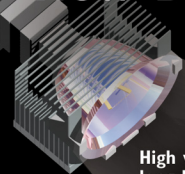


How DLP Rear Projection TVs Work



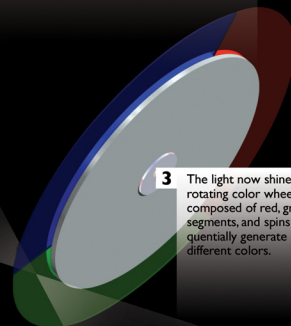
High wattage long-life Bulb

1 Digital light projection (DLP) rear projection televisions are remarkably small and lightweight, thanks to the compact size of the optical and electronic components. The DLP system starts with the light generated by a high-performance projector lamp. Today's projector lamps have a life of 4,000 hours or more. When they wear out, they're user-replaceable, and relatively inexpensive.



Condensing Lens

2 The light from the lamp is projected through a condensing lens, which concentrates the light into a small point.



Rotating Color Wheel

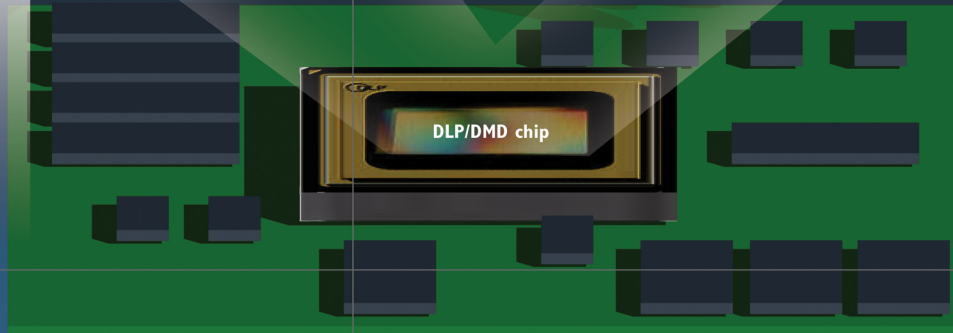
3 The light now shines through a rotating color wheel. The wheel is composed of red, green, and blue segments, and spins rapidly to sequentially generate 16.7 million different colors.



Shaping Lens

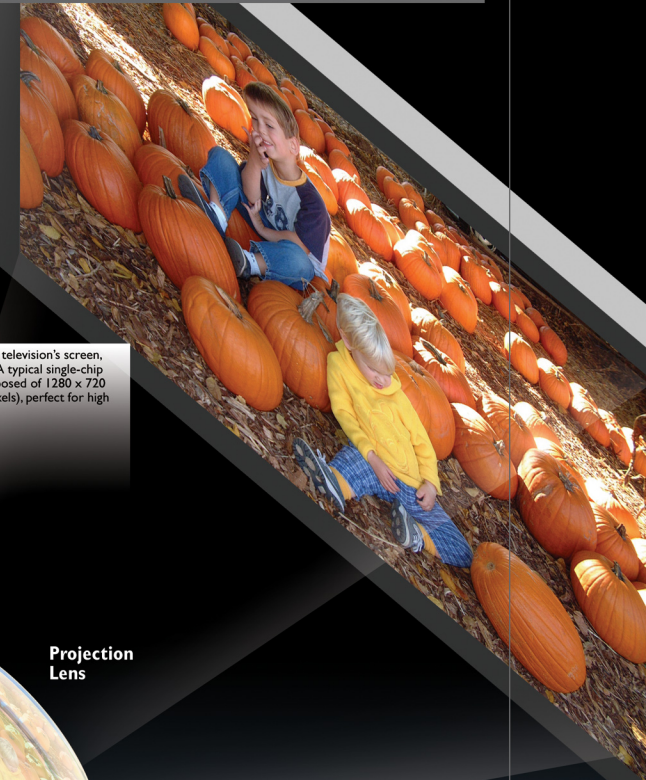
Microscopic mirrors sit on top of tiny electro-mechanical pivots that physically tilt the mirrors to direct the flow of light and color

4 The digital micromirror device (DMD) is an array of hundreds of thousands of tiny, independently-hinged mirrors. There is one micromirror for each pixel in the display, all controlled by the DMD's computer processor. When the processor sends an electrical impulse to a micromirror, the mirror tilts either +10 ("on") or -10 ("off") degrees. A micromirror tilted in the "on" position reflects light to the monitor screen; a mirror in the "off" position reflects no light, thus showing a black pixel onscreen. The DMD's processor coordinates the "on" mirrors with the colors generated by the color wheel, and our eyes blend the rapidly alternating flashes of color and "see" the intended hue.

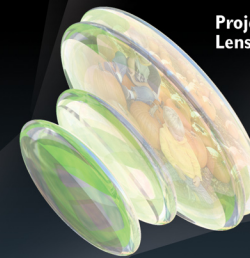


DLP/DMD chip

Projected Image



6 The final image shines onto the television's screen, where it is seen by the viewer. A typical single-chip DMD generates a picture composed of 1280 x 720 pixels (almost a million total pixels), perfect for high definition viewing.



Projection Lens

5 Light reflected off the DMD's micromirrors shines through a projection lens. This lens increases the size of the projected image.