

# Color Temperature

## COLOR TEMPERATURE AND SOLID STATE LIGHTING

### Color Temperature

Color Temperature is a generally accepted means of describing the color of white light. The term 'temperature' refers to a real temperature of a physics concept called a 'black body'. A black body absorbs all light and energy that impacts it, but conversely, according to thermodynamics, is also a perfect emitter. The close equivalent of this can be seen in such materials as iron, which as it is heated gradually glows hot enough to see in the red, then orange, then yellow up through white and blue. The temperatures that correspond to those colors are the Color Temperatures.

The temperature scale is a real temperature scale, measured in degrees Kelvin. The Kelvin temperature scale is the Celsius scale less 273 degrees. Thus, room temperature is about 22C or 300K. The colors then corresponding to particular temperatures are shown in the curve within the CIE diagram below. The 2000, 3000, 5000 etc are in degrees Kelvin and are shown usually as 2000K, 3000K etc.

Correlated color temperature refers to the closest point on the black body curve to a particular color as defined by its chromaticity value. This is the x, y value on the CIE Chromaticity chart. The reference source(s) are color temperatures that fall on the black body curve

