90 LED String Power Graph

Solarbotics String LEDs (SKU 60600 and 60620) are designed to run optimally at 4.5V (3AA batteries), but they *can* be driven brighter, at the cost of less battery life. We select our current-limiting resistor to limit power to 4mA per LED, and a total power resistor dissipation of 1 Watt. Here's how to select the *best* **1Watt** resistor for your application:

1) Choose if you want *bright* LEDs (4mA) or *long battery life (2mA),* and select the right line for the color LED you are powering.
2) Decide on your input power voltage (3.7 to 9VDC).
3) Go up from the input voltage on the horizontal line to your low or high power line.
4) Read off the resistance you need from the vertical axis
5) *Make sure* the resistance stays **outside** the power limit zone. If it is inside the zone, you will be over-powering the 1 watt resistor (you'll need a bigger resistor to handle more power).

Example:
Let's run a green LED string in low-power mode from 6VDC. Start at 6V on the bottom line, go straight up to the dashed blue line, and over to the left. You want ~22 ohm resistor. Where it touches the line is to the left (outside) of the "Red Yellow Green" zone, so you're safe.

Another example. Try a Purple LED on high-power at 7 volts. Up from the 7V line to the solid green line, then over to the left - that's about 9 ohms. But its within the green zone, meaning you are over-powering the resistor. You shouldn't go higher than about 6.25V when running a purple LED string on high-brightness.

Low Power Mode
- - - Red, Yellow, Green
- - - Blue
- - - Pink, Purple, White, Warm White, R/G/B

High Power Mode
— Red, Yellow, Green
— Blue
— Pink, Purple, White, Warm White, R/G/B

Power Limit Zones
- Red, Yellow, Green
- Blue
- Pink, Purple, White, Warm White, R/G/B

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