

Surface Mount LEDs
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LED is a light emitting diode, so electricity only goes through one way. This is important when wiring. If you wire the + and - backwards it will not light.

SMD LEDs available from Mouser
<http://www.mouser.com/>
(800) 346-6873

For surface mount LEDs search **standard led - smd**
For wire search **magnet wire** - you want 36 gauge Belden Single Beldsol solderable magnet wire (belden part # 8058)
For resistors search **surface mount resistors** - Thick film 1206 package
For a nice golden color use Tamiya Clear Orange #81026 paint to coat the led lens.

Surface mount LEDs
Standard sizes - 0603, 0805, 1206, 1210

The size refers only to the LED itself, not including solder pads, etc.
The size is also the LED in 100ths of an inch (approx)
0603 - .063" x .031" #50 drill bit
0805 - .08" x .05" #41 drill bit
1210 - .126" x .1" #20 or 11/64 drill bit

Ohm's Law

Subtract required voltage from supplied voltage, divide that by the amps required. That is the resistance in Ohms you need. Expressed as an equation -

$$\frac{(+V - V_{led})}{\text{current in amps}} = R$$

For example, a 3 volt LED that requires 20mA powered by 12v track power would be -
$$\frac{(12 - 3)}{.02} = 450 \text{ Ohm resistor}$$

Power (wattage) = 9v x .02A = .18Watts
1/4w resistor would be fine

The flux I use is no longer available from Mouser, sorry. You can get a flux dispensing pen KE1808-ND for about \$5 from Digi-Key www.digikey.com