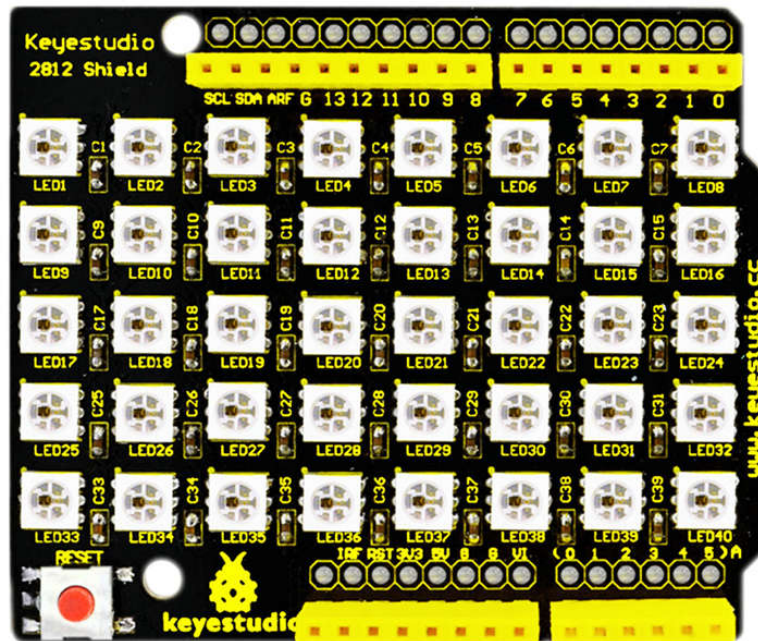# keyestudio

keyestudio 40 RGB LED 2812 Pixel Matrix Shield

Introduction

keyestudio 2812 shield adopts stackable design compatible with UNO board. It is an intelligent control LED light source that the control circuit and RGB chip are integrated in a 5050 SMD component. It includes intelligent digital port data latch and signal reshaping amplification drive circuit. Also includes a precision internal oscillator and a 12V programmable constant current control part, effectively ensuring the highly consistency of the pixel point light color.

The data transfer protocol uses single NZR communication mode. After the pixel power-on reset, the DI port receives data from controller, the first pixel collect initial 24bit data then sent to the internal data latch.

LED with advantages of low driving voltage, environmental-friendly, energy saving high brightness, large scattering angle, good consistency, long life span etc.

Specification of single LED

1. anti-reverse protection circuit, the reverse of power supply will not damage the internal IC of the LED.

2. IC control circuit and LED point light source uses the same power supply.

3. control circuit and the RGB chip are integrated in a 5050 SMD component, forming a complete control of pixel point.

4. Built-in signal reshaping circuit, signals received will be wave-reshaped first and then output to the next driver, ensuring wave-form distortion to not accumulate.

5. Built-in power on reset circuit and power-down reset circuit.

6. Each pixel of the three primary color can achieve 256 brightness display, completed 16777216 color full color display, scan frequency no less than 400Hz/s

7. Serial cascade interface, via a signal line to complete the reception and decoding of data.

8. When transmission distance between two arbitrary points is no more than five meters, no extra circuit needed.

9. When the refresh rate is 30fps, cascade number no less than 1024 points.

10. Data sending speed can reach 800Kbps.

11. The color of the light is highly consistent, cost-effective.

Advantages:

1. LED with built-in IC is brighter than common LED

2. High consistency of RGB chips for all LEDs

3. Reliable performance of built-in driver IC

4. Use hard plastic for packaging, prevent press damage