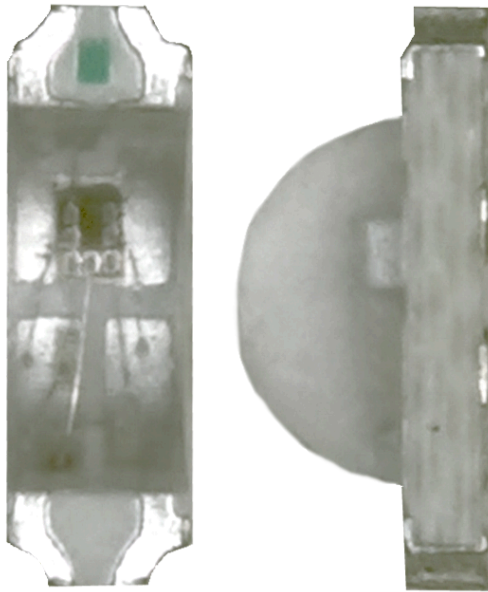




**Product NO: FZ2812-0807**



## Feztek FZ2812-1204 LED Datasheet

Product Description: 2812 RGB Surface-Mount Right Angle Light Emitting Diode  
 Product Model: FZ2812-1204

### 1. Product Description

Overall Dimensions (L/W/H): 3.2 × 1.0 × 1.5 mm

Color: RGB

Encapsulation: White transparent epoxy

Packaging: EIA standard packaging

Environmental Protection: ROHS compliant

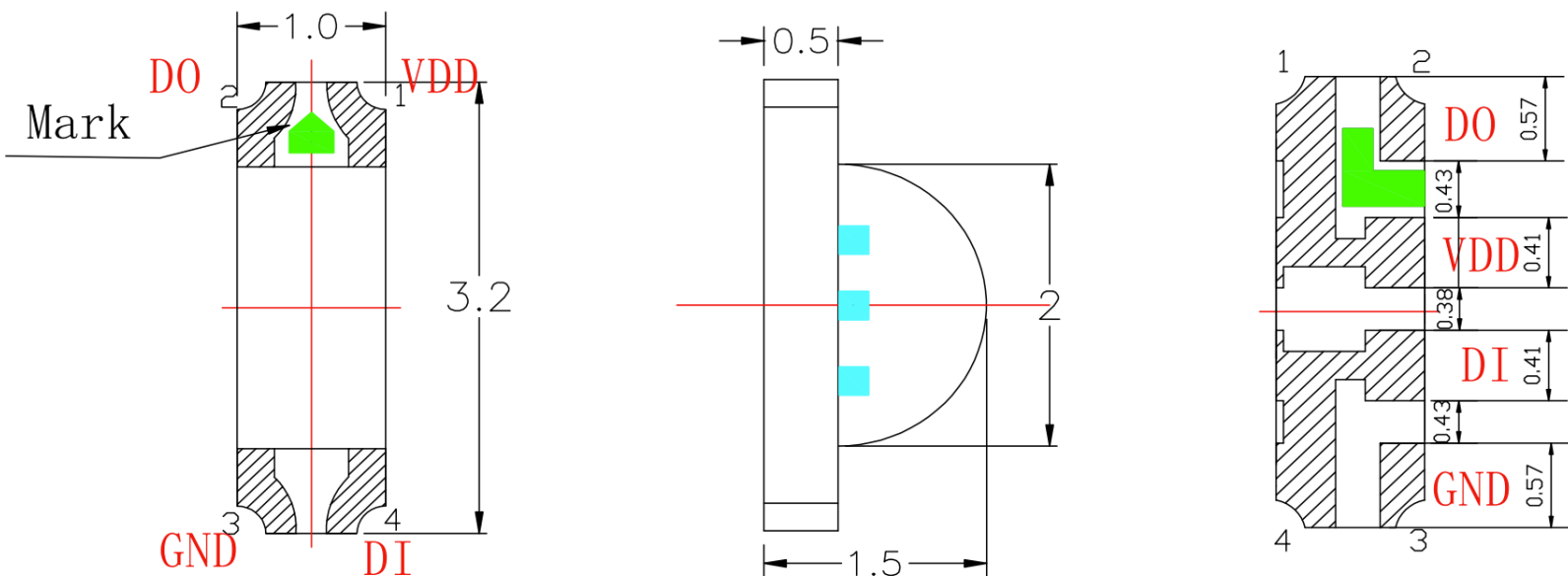
Applicable to infrared reflow soldering and wave soldering processes

### 2. Finished Product Dimensions

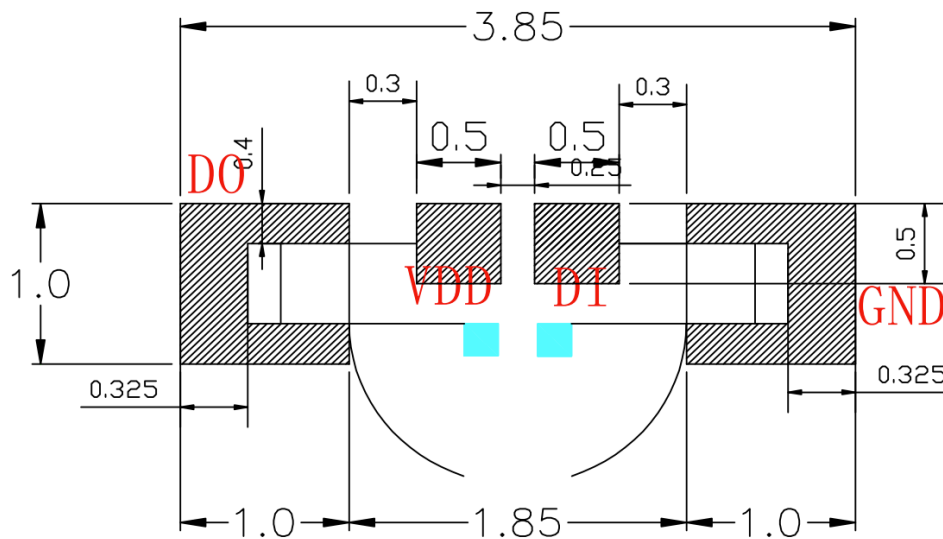
All dimensions are in millimeters (mm).

Tolerance is ±0.1 mm unless otherwise specified.

Refer to mechanical drawings for polarity marking, structure, and recommended solder pads.



## Recommended Footprint:



## 3. Limit Parameters (Ta = 25 °C)

Parameter	Symbol	Maximum Rating	Unit
Power Dissipation (Red)	Pd	70	mW
Power Dissipation (Green)	Pd	75	mW
Power Dissipation (Blue)	Pd	75	mW
Peak Pulse Forward Current (Red)	IFP	70	mA

Peak Pulse Forward Current (Green)	IFP	80	mA
Peak Pulse Forward Current (Blue)	IFP	80	mA
DC Forward Current	IF	20	mA
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-30 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +90	°C
Reflow Soldering	Tsol	260 °C / 10 s	
Manual Soldering	Tsol	350 °C / 3 s	

#### 4. Typical Photoelectric Parameters (Ta = 25 °C)

Forward Voltage (IF = 12 mA)

Color	Min	Typ	Max	Unit
Red	1.7	2.0	2.2	V
Green	2.5	2.7	3.2	V
Blue	2.5	2.8	3.2	V

Reverse Current (VR = 5 V): ≤10 μA

Wavelength (IF = 12 mA)

Color	Peak λ (nm)	Dominant λ (nm)	Half Width Δλ (nm)
Red	630	618–621	20
Green	522	522–527	35
Blue	465	465–470	25

Luminous Intensity (IF = 12 mA):

Red: 100–200 mcd

Green: 400–600 mcd

Blue: 120–220 mcd

Viewing Half Angle (2θ1/2): 120°

#### 5. IC Chip Description

This product integrates an intelligent RGB LED driver IC with MCU, digital interface, data latch, and LED driving circuits. Supports cascade connection using a single signal line.

Main Features:

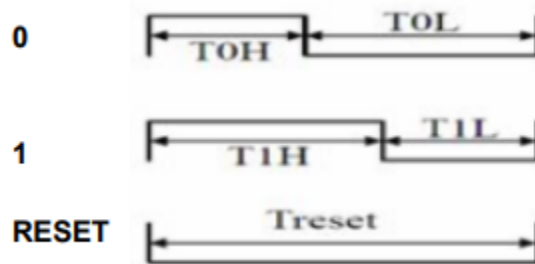
- Default output current: 12 mA
- Built-in power-on reset circuitry
- 256-level brightness PWM control

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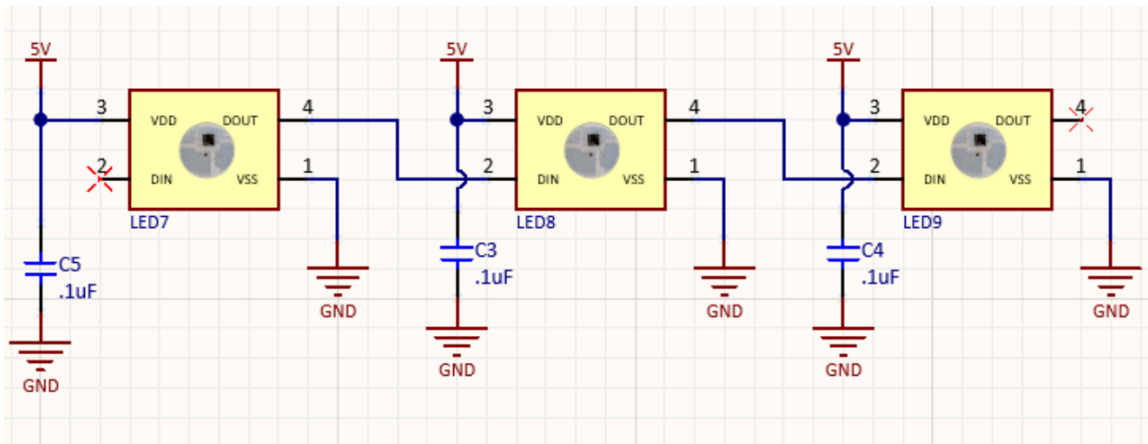
- Internal oscillator and waveform shaping circuit
- Automatic data reshaping and data latch

## 6. Application Description

The FZ2812-1204 LED adopts a single-line return-to-zero coding method. Each data bit must contain a low-level period. The high-level width determines a logic “0” or “1”.



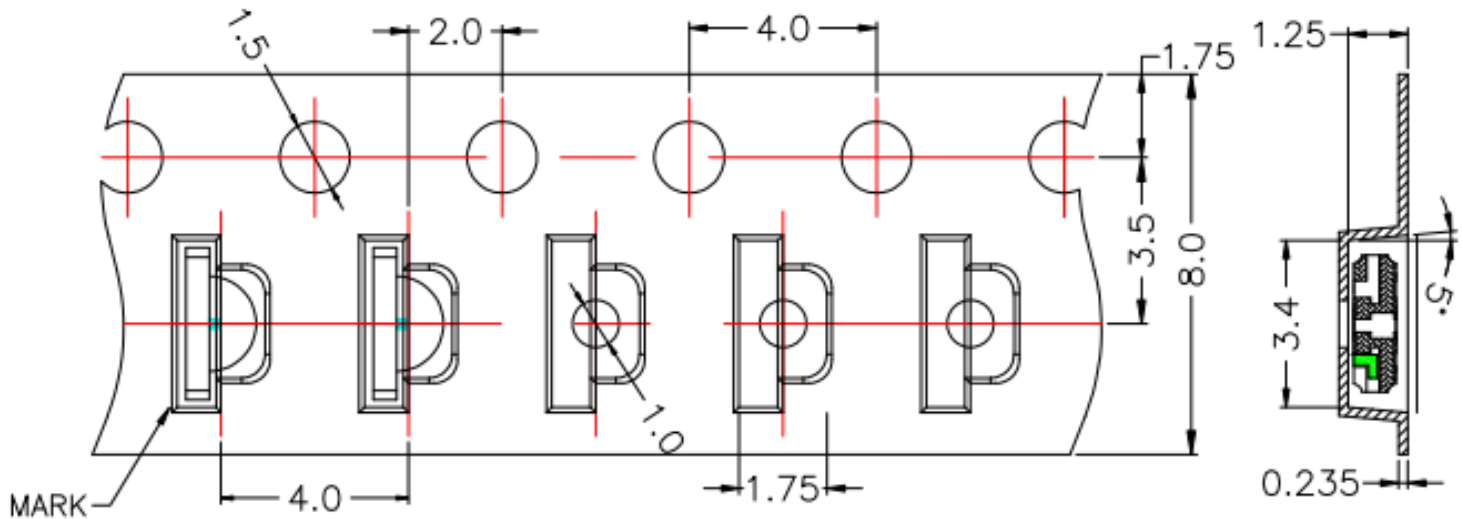
## Application Circuit:



## 7. Timing Characteristics

Symbol	Description	Typical	Unit
T0H	Logic 0 high-level time	0.295	$\mu\text{s}$
T0L	Logic 0 low-level time	0.595	$\mu\text{s}$
T1H	Logic 1 high-level time	0.595	$\mu\text{s}$
T1L	Logic 1 low-level time	0.295	$\mu\text{s}$
TRST	Reset low-level time	$\geq 80$	$\mu\text{s}$

## 8. Tape Dimensions



## 9. Soldering Guidance

Manual Soldering:

- Soldering iron power <25 W
- Tip temperature <350 °C
- Soldering time  $\leq 3$  seconds
- Do not touch epoxy resin

#### Reflow Soldering:

- Lead-free solder
- Ramp-up rate  $\leq 4$  °C/s
- Preheat: 150–200 °C ( $\leq 100$  s)
- Peak temperature  $\leq 260$  °C ( $\leq 10$  s)
- Time above 217 °C  $\leq 80$  s
- Single reflow cycle only

### 10. Cleaning

After soldering, it is recommended to clean using isopropyl alcohol.

At  $\leq 30$  °C for 3 minutes or  $\leq 50$  °C for 30 seconds.

Other solvents must be verified not to damage the epoxy package.

Ultrasonic cleaning is generally not recommended.

### 11. Storage Precautions

Store sealed at 5–30 °C with RH <60%.

Shelf life is 30 days from certification date.

If exceeded, bake at 65 °C  $\pm 5$  °C for 24 hours.

### 12. ESD Protection

Electrostatic discharge and surge can permanently damage this product.

All equipment must be properly grounded.

Use anti-static wrist straps, mats, garments, shoes, gloves, and containers.

### 13. Design Recommendations & Temperature Protection

LED current must not exceed maximum rated values.

Current-limiting resistors are required.

Voltage-driven circuits are not recommended.

Temperature rise will reduce luminous efficiency and shift color.

Recommended LED surface temperature  $\leq 55$  °C and lead temperature  $\leq 75$  °C.