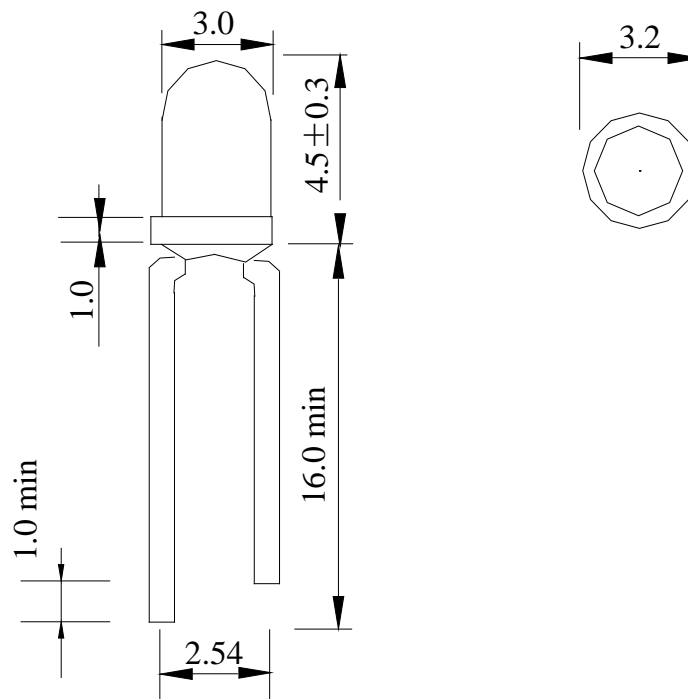


Features

- 3mm DIA LED Lamp
- Low Power Consumption
- High Efficiency
- Various Colors and Viewing Angle
- Long Solid State Reliability
- Package: 1000pcs/Packing

Applications

- Indicator

Package Dimensions**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ (.01") unless otherwise noted.
3. Protruded Resin under flange is 1.0mm(0.04") max.
4. Specifications are subject to change without notice.

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Selection Guide

Part No	Lens Type	Dice	Emitted Color
FDL-3451R-ZWACSW	Red Clear	InGaN	Water Clear

Electrical / Optical Characteristics At Ta=25 °C

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
Iv	Luminous Intensity	80		250	mcd	IF=20mA
2θ1/2	Viewing Angle		90		deg	IF=20mA
λ Peak	Peak Emission Wavelength		632		nm	IF=20mA
λ d	Dominant Wavelength		624		nm	IF=20mA
Δλ	Spectral Line Half-Width		20		nm	IF=20mA
VF	Forward Voltage		2.0	2.4	V	IF=20mA
IR	Reverse Current			100	uA	VR 5V

Note:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 optical centerline value

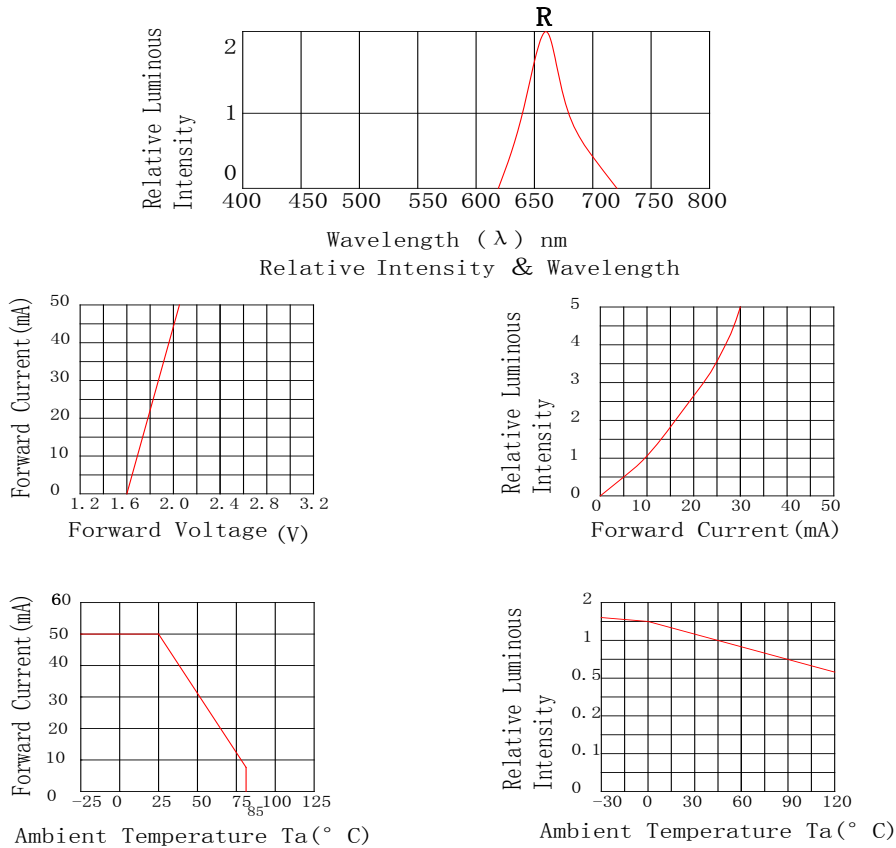
Absolute Maximum Ratings At Ta=25 °C

Parameter	Red	Unit
Power Dissipation	75	mW
Peak Forward Current[1]	80	mA
Continuous Forward Current	30	mA
Dreading Linear From 25 °C	0.4	mA/°C
Reverse Voltage	5	V
Operating Temperature Range	-55 °C to + 85 °C	
Storage Temperature Range	-55 °C to + 85 °C	
Soldering Condition	260 °C For 5 Seconds	

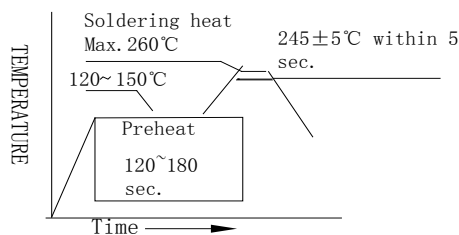
Note:

1. 1/10 Duty Cycle, 0.1 ms Pulse Width

Electrical Optical Characteristics Curves At Ta=25 °C



Reflow Soldering Instructions



Notes:

1. The LEDs should be used within a year.
2. The LEDs should be kept in 5~30°C and 60% RH for less.
3. The LEDs should be used within 24 hours, or else should be kept a 5~30°C and 30% RH or less. And LEDs should be used within 7 days after opening the package.

Reliability Test Items Conditions

Classification	Test Item	Test Conditions	Test hours	Result
Endurance Test	Opertion Life	Connect with a power $I_F=20mA$ Ta=Under room temperature	1000Hrs	0/20
	Hige Temperature High Humidity	Ta= + 65°C±5°C RH=90%-95%	240Hrs	0/20
	Hige Temperature Storage	High Ta= + 85°C±5°C	1000Hrs	0/20
	Low Temperature Storage	Low Ta=-35°C±5°C Test time=1000hrs	1000Hrs	0/20
Environmental Test	Temperature Cycling	-45°C ~ +105°C 15min 5min 15min	300 Cycles	0/20
	Thermal Shock	-35°C ~ ±5°C ~ +85°C ~ ±5°C 5min 10sec 5min	300 Cycles	0/20
	Solder Resistance	Preheating: 120°C-150°C, within 2 minutes. Operation heating : 260°C (Max.), within 5 seconds (Max.)	5Cycles	0/20

Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	$V_F(V)$	$I_F=20mA$	Over $U \times 1.2$
Reverse current	$I_R(\mu A)$	$V_R=5V$	Over $U \times 2$
Luminous intensity	$I_v(mcd)$	$I_F=20mA$	Below $S \times 0.5$

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours after the test pieces have been returned to normal ambient conditions after completion of each test.