

## 0.8mm Height Flat Top LED

### Features

- Package in 8mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow solder process
- Mono-color type
- RoHS compliance



### Applications

- Automotive: Backlighting in dashboards and switch
- Telecommunication: indicator and backlighting in telephone and fax
- Flat backlight for LCD, switches and symbols



### Descriptions

- The SMD series enables smaller board size, higher packing density, reduced storage space, and small equipment
- Light weight makes them ideal for miniature applications
- Applications include automotive, telecommunications and backlighting

### Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
TSP1-FF1608H8E2	AlGaInP	Brilliant Yellow Green	Water Clear

**Absolute Maximum Ratings (T<sub>a</sub>=25°C)**

Parameter	Symbol	Value	Unit
Reverse Voltage	<b>V<sub>R</sub></b>	5	V
Forward Current	<b>I<sub>F</sub></b>	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	<b>I<sub>FP</sub></b>	100	mA
Power Dissipation	<b>P<sub>d</sub></b>	60	mW
Electrostatic Discharge	<b>ESD</b>	2000	V
Soldering Temperature	<b>T<sub>so</sub></b>	260 (for 5 seconds)	°C
Operating Temperature	<b>T<sub>opr</sub></b>	-40 ~ +85	°C
Storage Temperature	<b>T<sub>stg</sub></b>	-40 ~ +90	°C

**Electro-Optical Characteristics (T<sub>a</sub>=25°C)**

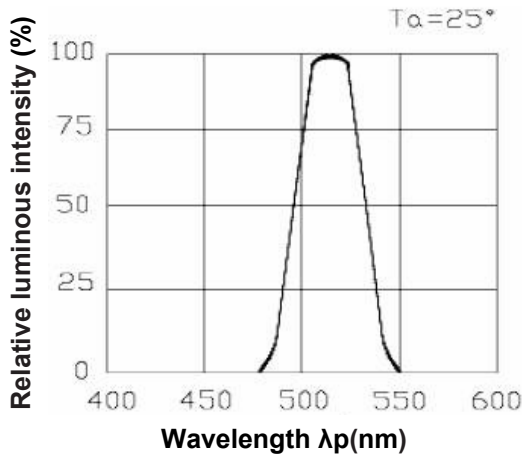
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	<b>I<sub>v</sub></b>	18	25	----	mcd	I <sub>F</sub> =20mA
Viewing Angle	<b>2θ<sub>1/2</sub></b>	----	100	----	deg	
Peak Wavelength	<b>λ<sub>p</sub></b>	----	575	----	nm	
Dominant wavelength	<b>λ<sub>d</sub></b>	----	573	----	nm	
Spectrum Radiation Bandwidth	<b>Δλ</b>	----	20	----	nm	
Forward Voltage	<b>V<sub>F</sub></b>	----	2.0	2.4	V	
Reverse Current	<b>I<sub>R</sub></b>	----	----	10	μA	V <sub>R</sub> =5V

**Notes:**

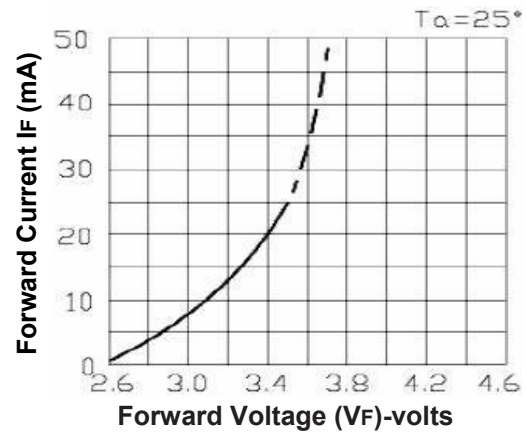
1. Tolerance of Luminous Intensity ±10%
2. Tolerance of Dominant Wavelength ±1nm
3. Tolerance of Forward Voltage ±0.05V

### Typical Electro-Optical Characteristics Curves

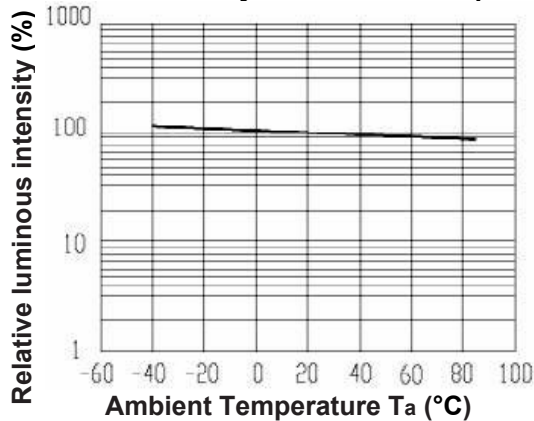
**Spectrum Distribution**



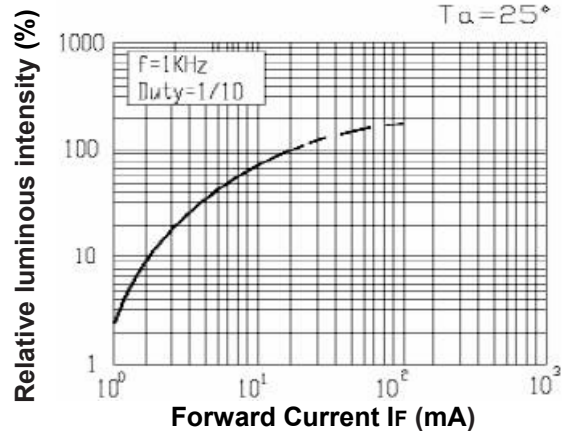
**Forward Current vs. Forward Voltage**



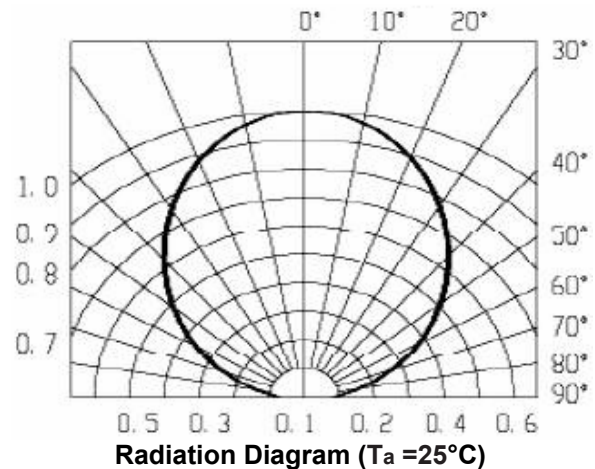
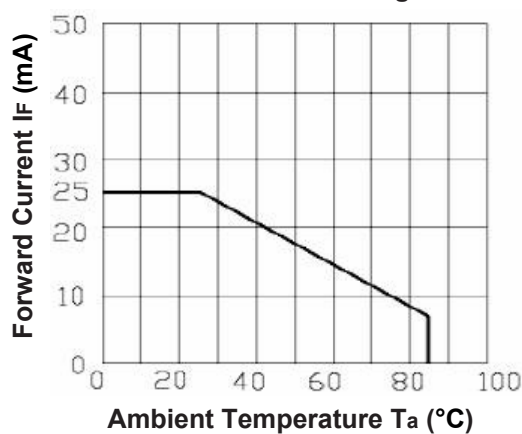
**Luminous Intensity vs. Ambient Temperature**



**Luminous Intensity vs. Forward Current**



**Forward Current Derating Curve**



## Reliability Test Items and Conditions

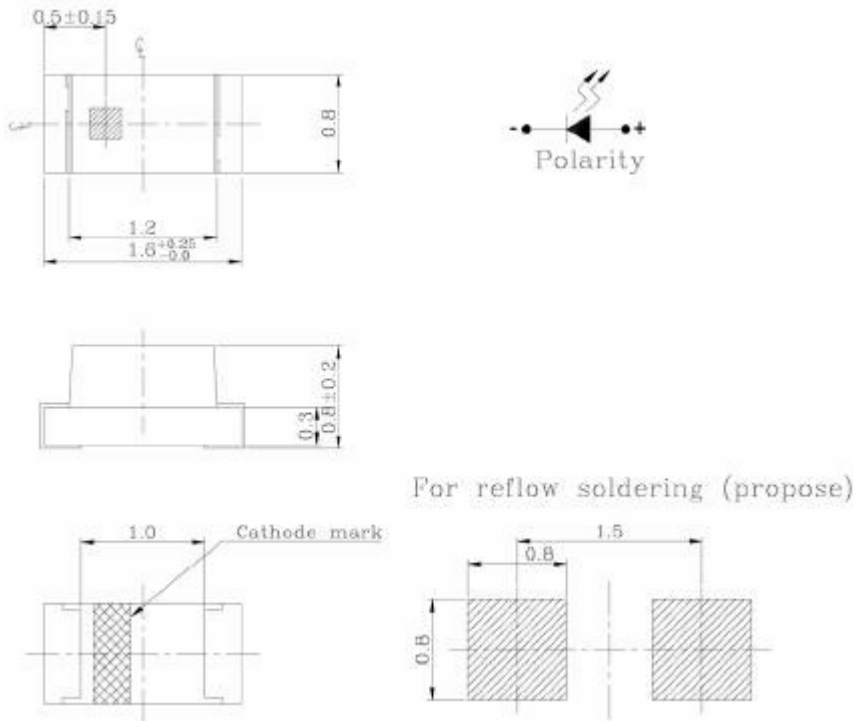
The reliability of products shall be satisfied with items listed below.

Confidence level: 90%,

LTPD: 10%

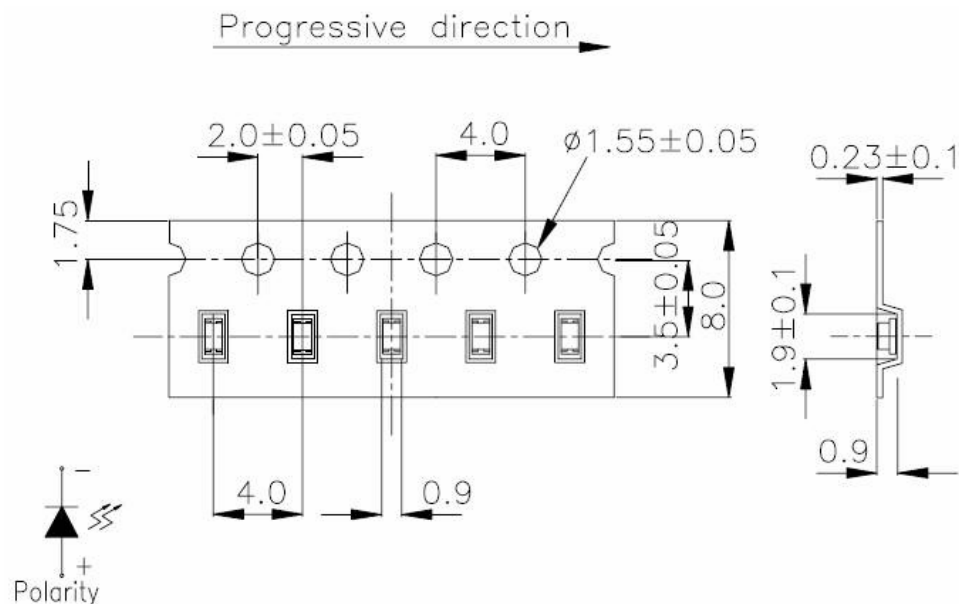
No.	Items	Test Condition	Test Hours / Cycles	Sample Size	Ac/Re
1	Solder Heat	Temp.: 260°C ±5°C.	5 Sec	76 PCS.	0/1
2	Temperature Cycle	H: +85°C 30min ↓ 5 min L: -55°C 15min	50 Cycles	76 PCS.	0/1
3	Thermal Shock	H: +100°C 5min ↓ 10 sec L: -10°C 5min	50 Cycles	76 PCS.	0/1
4	High Temperature Storage	Temp: 100°C	1000 Hrs.	76 PCS.	0/1
5	Low Temperature Storage	Temp: -40°C	1000 Hrs.	76 PCS.	0/1
6	DC Operating Life	I <sub>F</sub> = 20 mA	1000 Hrs.	76 PCS.	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs.	76 PCS.	0/1

### Package Dimensions (In mm)

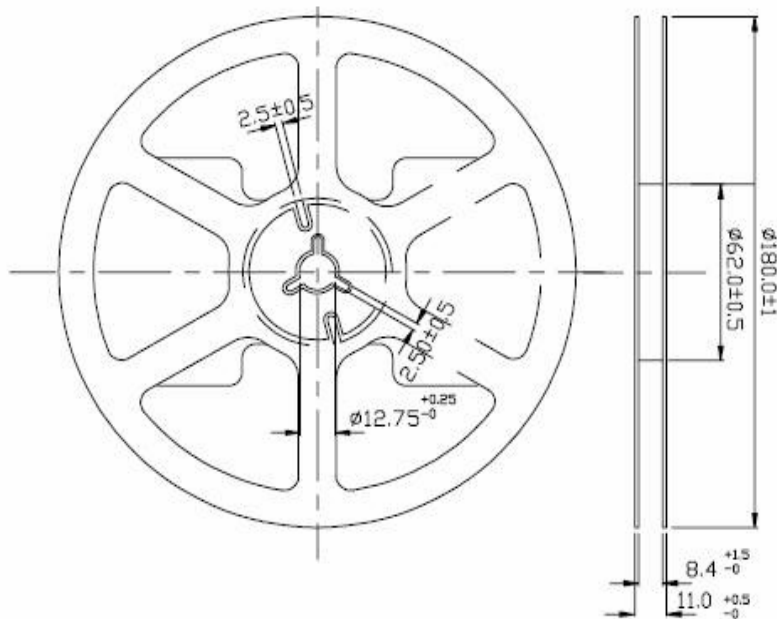


**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm, Unit = mm

### Carrier Tape Dimensions Loaded quantity 3000pcs per reel (In mm)

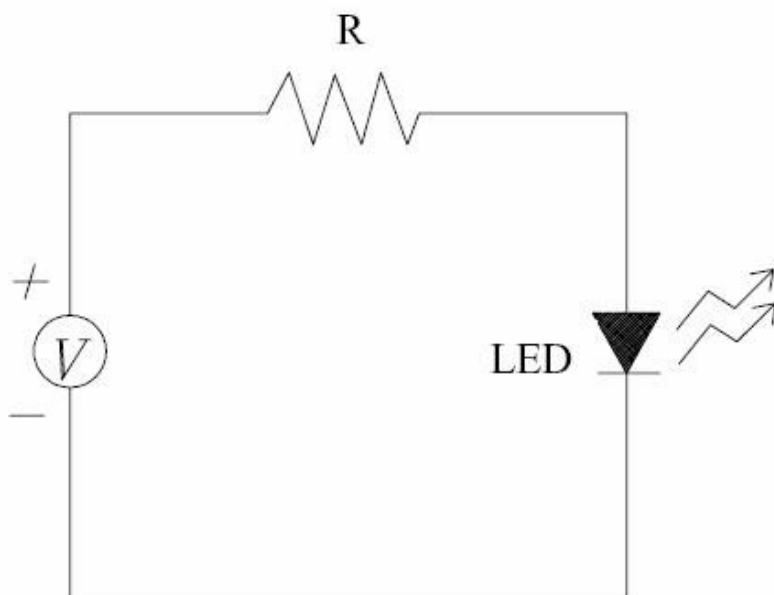


### Reel Dimensions



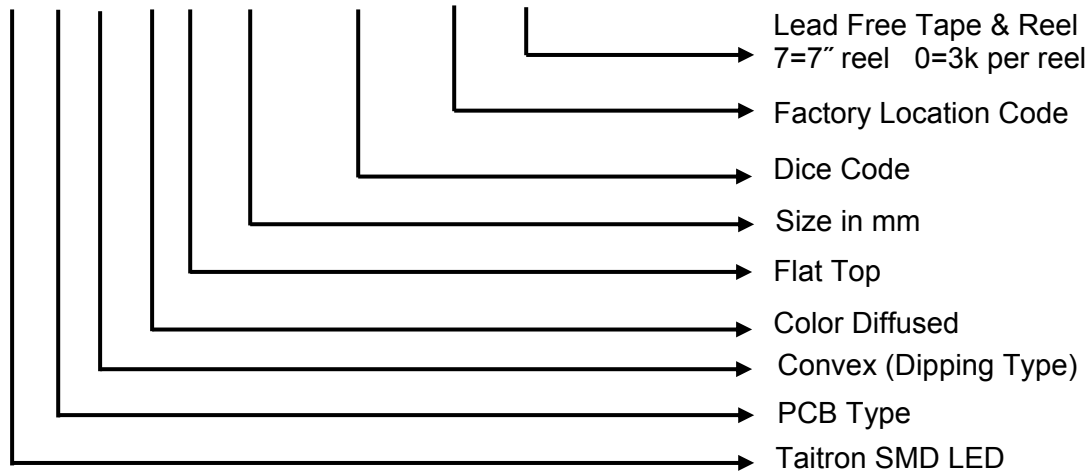
**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm, Unit = mm

### Test Circuit



### Ordering Information

T S P 1 - F F 1608 H8E2 - 92 - TR70



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