

## Data Sheet



### Description

Avago Technologies ASMT-FG10-NFJ00 is a SMT (Surface Mount Technology) dome lamp uses an untinted, nondiffused lens to provide a high luminous intensity within a narrow radiation pattern. The device is made by encapsulating LED chip on axial lead frame to form molded epoxy lamp package with 6 bended leads for surfacing mounting.

This lamp type LED utilizes Indium Gallium Nitrate (InGaN) material technology. The InGaN material has a very high luminous efficiency, capable of producing high light output over a wide range of drive currents. The color available for this SMT Lamp package is 530nm Green.

This narrow angle SMT lamp package is designed for applications that require long distance illumination and narrow beam pattern such as auxiliary flash for auto-focus function in digital still camera etc. In order to facilitate pick and place operation, this SMT Lamp is shipped in tape and reel, with 1000 units per reel.

This package is compatible with Pb-free 2x reflow soldering process.

### Features

- Smooth, Consistent Narrow Radiation Pattern
- 11° View Angle
- 4.8 L x 4.8 X 5.33H mm Package Dimension
- Good Intensity Output
- Compatible with 2x Solder Reflow
- Available in 16mm tape on 15inch (380mm) Diameter reels
- Clear, Non-diffused Epoxy
- RoHS compliance

### Applications

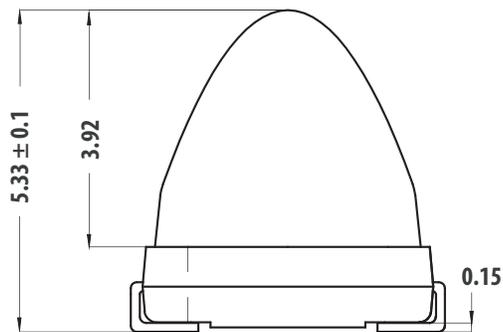
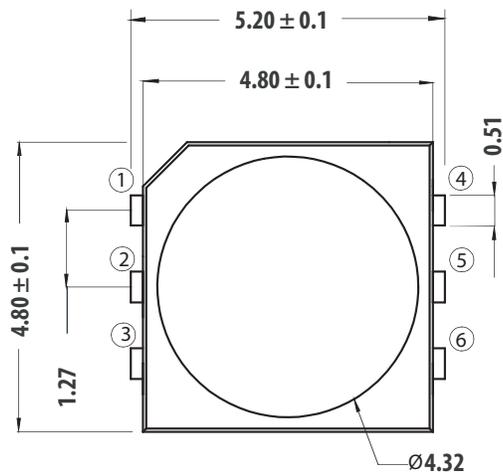
- Camera

### Eye Safety

This LED is tested Class 1 to IEC/EN 60825-1 (2001) under operation at 20mA. This LED is not recommended to drive beyond 20mA as some of this LED might fall in the classification of Class 2M to IEC/EN 60825-1 (2001).

**CAUTION:** ASMT-FG10 LEDS ARE CLASS 1 ESD SENSITIVE. PLEASE OBSERVE APPROPRIATE PRECAUTIONS DURING HANDLING AND PROCESSING. REFER TO AVAGO APPLICATION NOTE AN-1142 FOR ADDITIONAL DETAILS.

## Package Dimensions



### Notes:

1. All Dimensions in millimeters.
2. Tolerance is  $\pm 0.1$ mm unless otherwise specified.

## Device Selection Guide

Color	Part Number	Min. IV (cd)	Typ. IV (cd)	Max. IV (cd)	Test Current (mA)	Dice Technology
Green	ASMT-FG10-NFJ00	18	-	96	20	InGaN

### Notes:

1. The luminous intensity IV, is measured at the mechanical axis of the lamp package. The actual peak of the spatial radiation pattern may not be aligned with this axis.
2. Iv Tolerance =  $\pm 15\%$

### Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

Parameter	ASMT-FG10-NFJ00	Units
DC Forward Current	20	mA
Power Dissipation	80	mW
LED Junction Temperature	110	$^\circ\text{C}$
Operating Temperature Range	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	-40 to +100	$^\circ\text{C}$
Soldering Temperature	Refer to Figure 7	

### Electrical Characteristic ( $T_A = 25^\circ\text{C}$ )

Part Number	Forward Voltage $V_F$ [1](Volts) @ $I_F = 20\text{mA}$		Reverse Voltage $V_R$ @ $10\mu\text{A}$	Capacitance $C$ (pF), $V_F = 0$ f = 1MHz
	Typ	Max	Min	Typ.
ASMT-FG10-NFJ00	3.3	3.9	5	65

Notes:

1.  $V_F$  will reach stabilization stage after switch on > 50ms
2.  $V_F$  tolerance is  $\pm 0.1\text{V}$ .

### Optical Characteristics ( $T_A = 25^\circ\text{C}$ )

Part Number	Color	Peak Wavelength $\lambda_{\text{PEAK}}$ (nm)	Dominant Wave-length $\lambda_D$ [1] (nm)	Viewing Angle $2\theta_{1/2}$ [2] (Degrees)	Luminous Efficacy, $\eta_V$ [3] (lm/W)	Luminous Efficiency (lm/W)
		Typ.	Typ.	Typ.	Typ.	Typ
ASMT-FG10-NFJ00	Green	525	530	11	535	32

Notes:

1. The dominant wavelength,  $\lambda_D$ , is derived from the CIE Chromaticity Diagram and represents the color of the device.
2.  $\theta_{1/2}$  is the off-axis angle where the luminous intensity is  $1/2$  the peak intensity.
3. Radiant intensity,  $I_e$  in watts/steradian, may be calculated from the equation  $I_e = I_v/\eta_V$ , where  $I_v$  is the luminous intensity in candelas and  $\eta_V$  is the luminous efficacy in lumens/watt.

### Iv Bin Category

Bin ID	Min	Max
I	33.0	43.0
J	43.0	56.0
K	56.0	73.0
L	73.0	96.0
M	96.0	125.0
N	125.0	163.0
O	163.0	212.0

Iv Tolerance =  $\pm 15\%$

### Color Bin Category

Green	Min (nm)	Max (nm)
A	515.0	520.0
B	520.0	525.0
C	525.0	530.0
D	530.0	535.0

Tolerance =  $\pm 1\text{nm}$

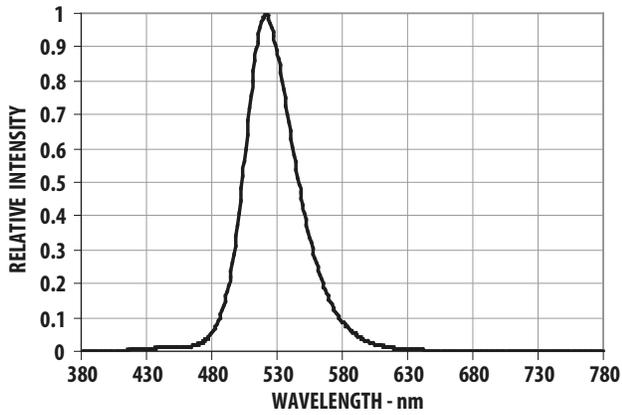


Figure 1. Relative Intensity vs. Wavelength

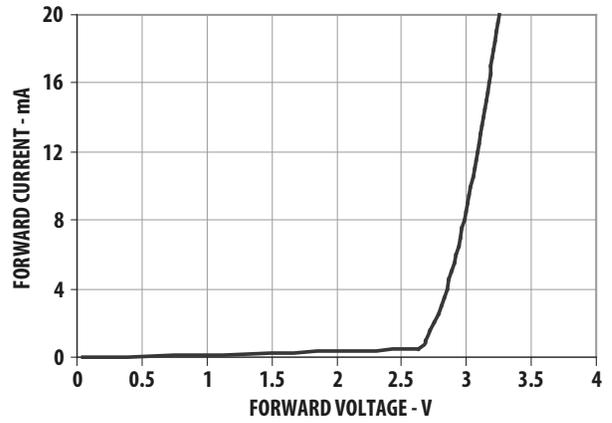


Figure 2. Forward Current vs Forward Voltage

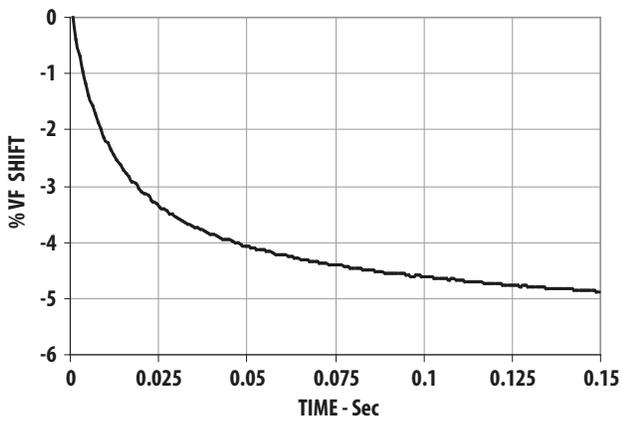


Figure 3. Vf stabilization vs time

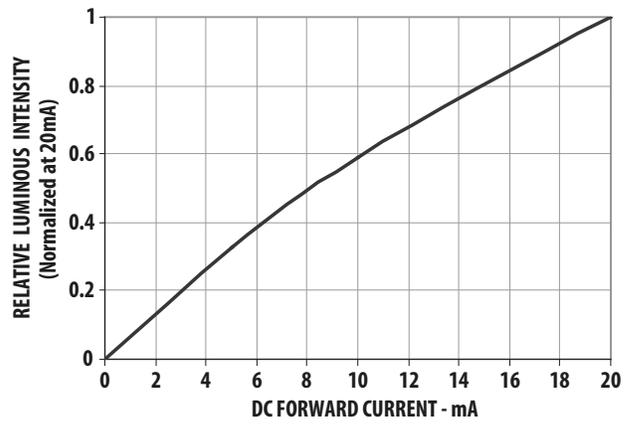


Figure 4. Relative Intensity vs. Forward Current

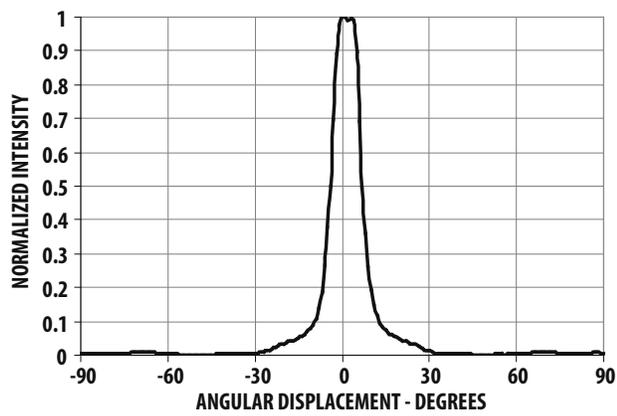


Figure 5. Radiation Pattern

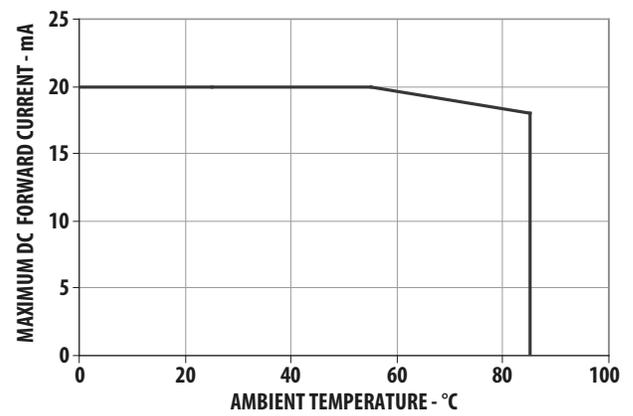


Figure 6. Maximum forward current vs ambient temperature

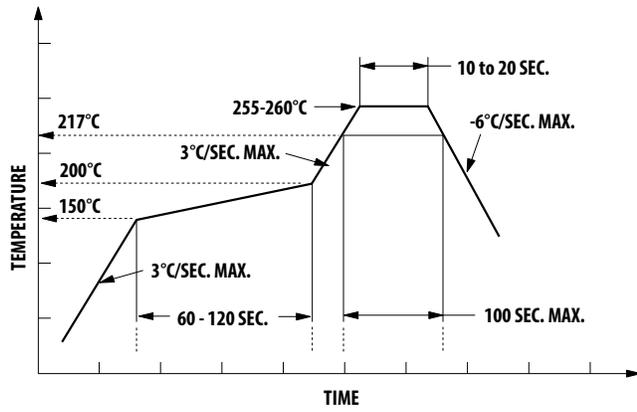


Figure 7. Recommended reflow soldering

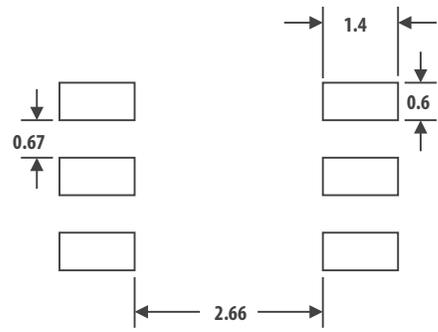


Figure 8. Recommended soldering land pattern

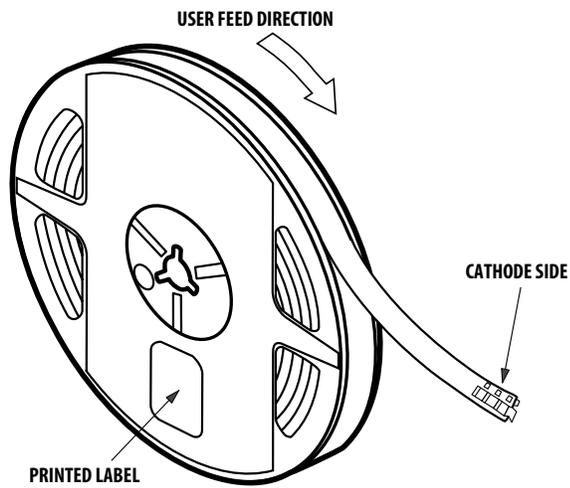


Figure 9. Reeling Orientations

Note: Cathode side is base on the center leads

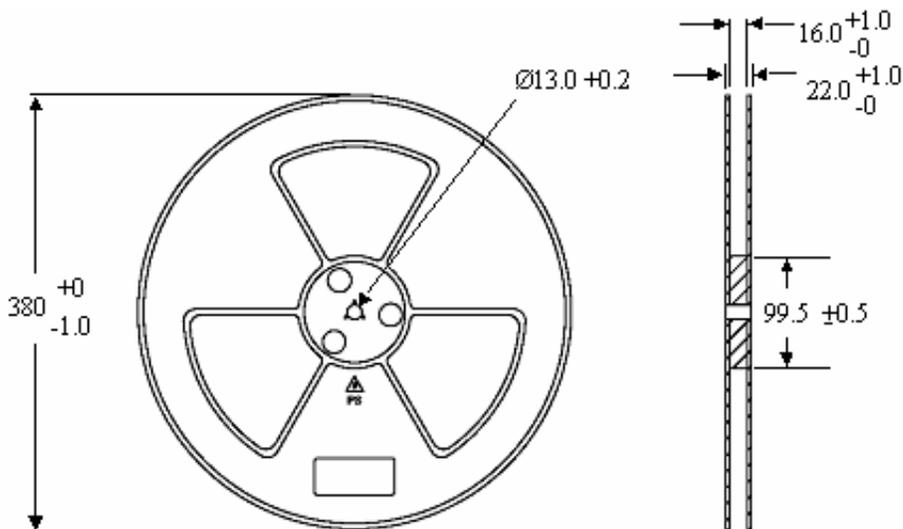
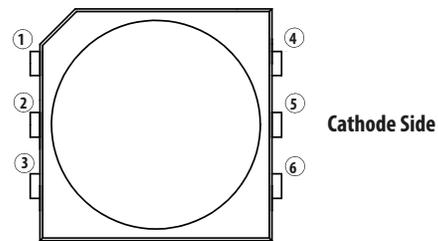


Figure 10. Reel Dimensions

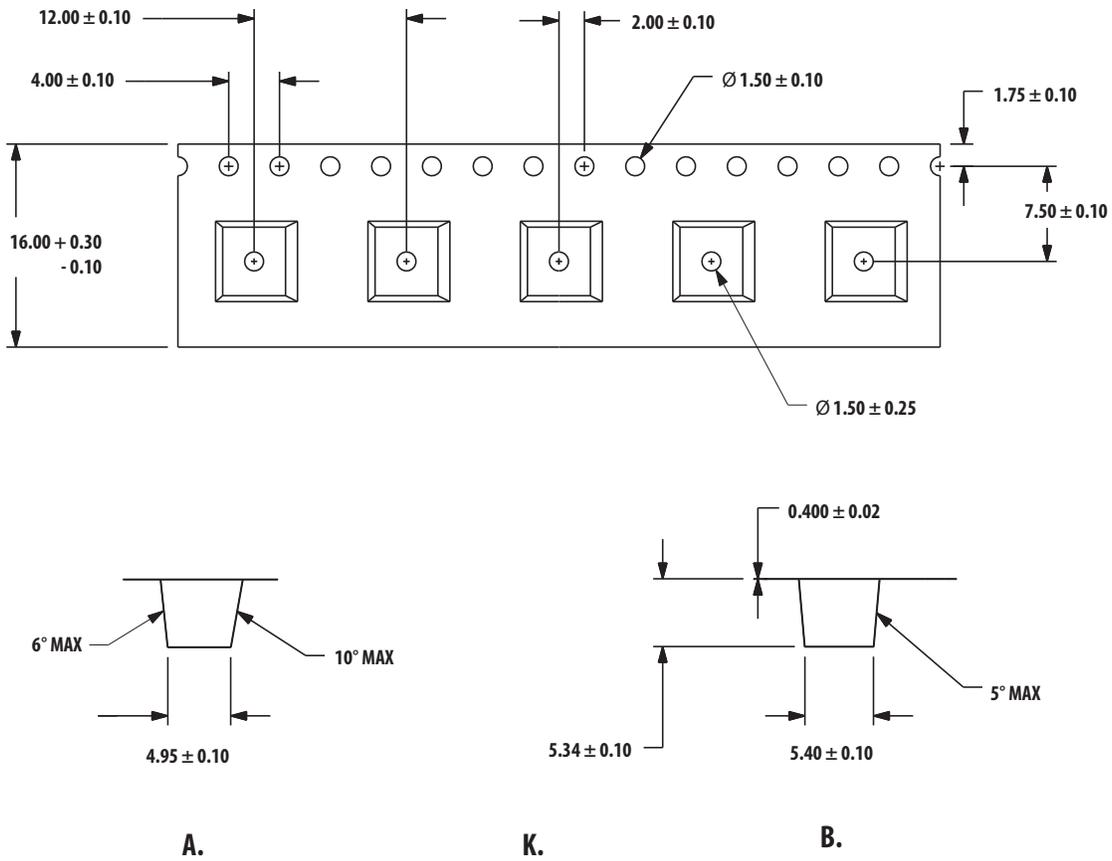


Figure 11. Tape Dimensions

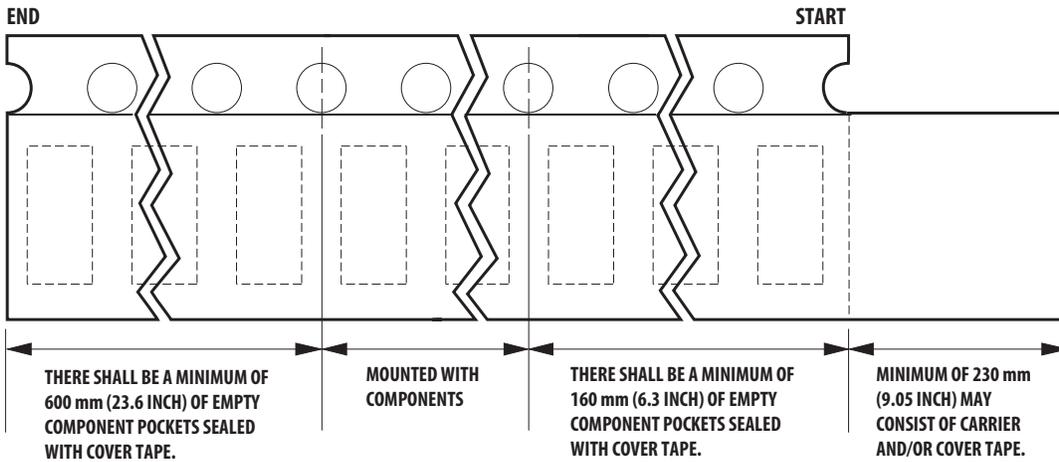


Figure 12. Tape Leader and Trailer Dimensions.

There shall be a minimum of 600mm (23.6") of empty component pockets sealed with cover tape

Notes:

1. All dimensions in millimeters.
2. Tolerance is  $\pm 0.1$  mm unless otherwise specified.

## Handling Precaution

This product is classified as moisture sensitive level 3

When the bag is opened, parts required to mount within 168 hours of factory conditions  $\leq 30\text{ }^{\circ}\text{C}/60\%$ , and stored at  $<10\%$  RH.

Devices required bake, before mounting if:

- a) The humidity indicator card is  $> 10\%$  when read at  $23\pm 5^{\circ}\text{C}$
- b) The pack has been opened for more than 168 hours.

Baking recommended condition:  $60 \pm 5^{\circ}\text{C}$  for 20 hours.

Note:

- 1. Do not stack the units after reflow.
- 2. This part is Class 1 ESD sensitive. Please observe appropriate precautions during handling and processing. Refer to Application Note AN-1142 for additional details.

For product information and a complete list of distributors, please go to our web site: [www.avagotech.com](http://www.avagotech.com)

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