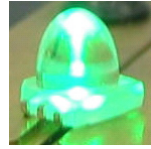


Data Sheet



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 autofocus 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
- 6° 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

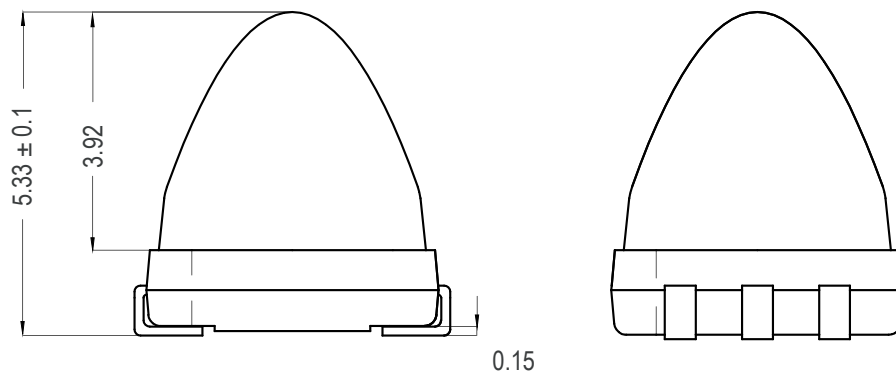
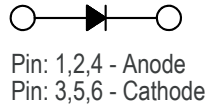
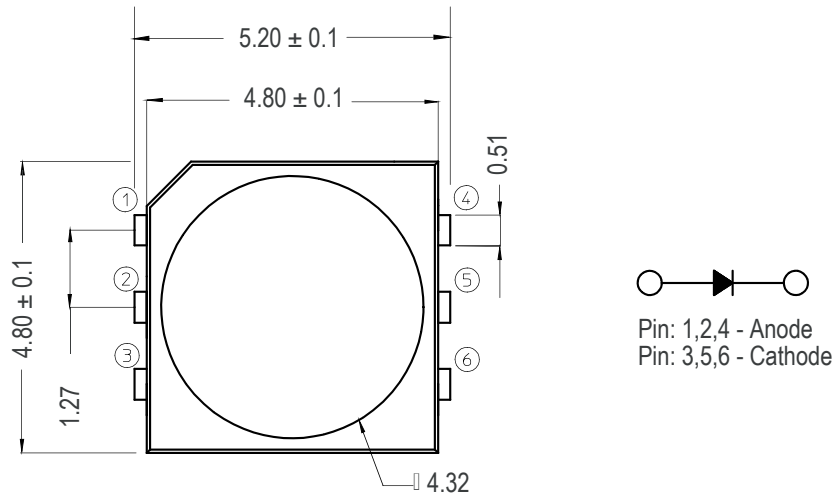
- Camera

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 ± 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-NEJ00 | 18 | 40 | 56 | 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 | |

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

| Part Number | Color | Peak Wavelength | Dominant Wave- | Viewing Angle $2\theta_{1/2}$ | Luminous Efficacy, | Luminous |
|-----------------|-------|------------------------------|--|-------------------------------|--------------------------------|-------------------|
| | | λ_{PEAK} (nm) | length λ_D ^[1] (nm) | ^[2] (Degrees) | η_V ^[3] (lm/W) | Efficiency (lm/W) |
| | | Typ. | Typ. | Typ. | Typ. | Typ |
| ASMT-FG10-NFJ00 | Green | 525 | 530 | 6 | 535 | 32 |

Notes:

1. The dominant wavelength, λ_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 η_V is the luminous efficacy in lumens/watt.

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 $\pm 0.1\text{V}$.

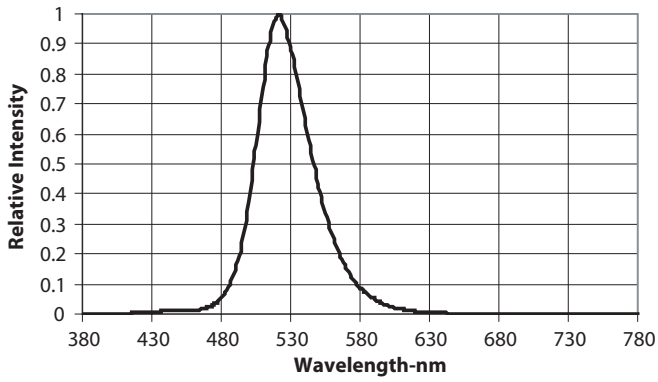


Figure 1. Relative Intensity vs. Wavelength

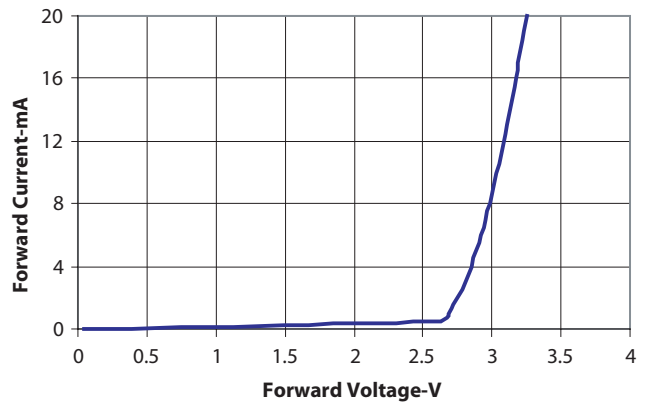


Figure 2. Forward Current vs Forward Voltage

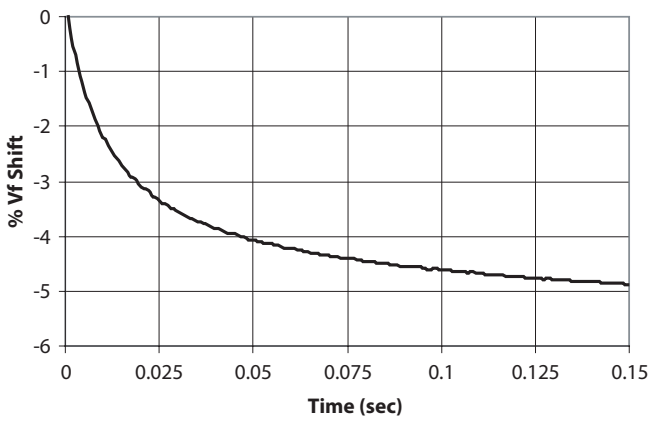


Figure 3. Vf stabilization vs time

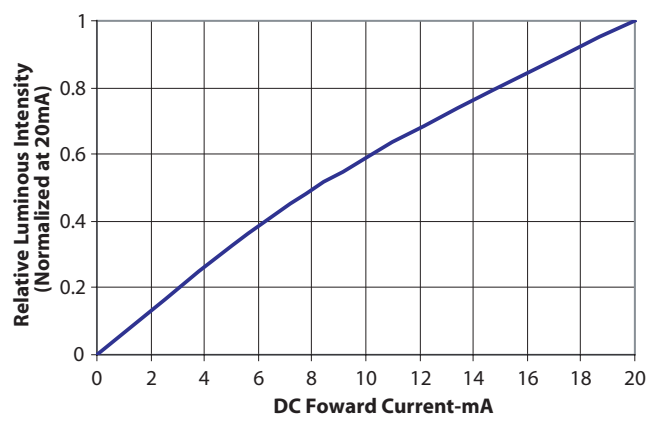


Figure 4. Relative Intensity vs. Forward Current

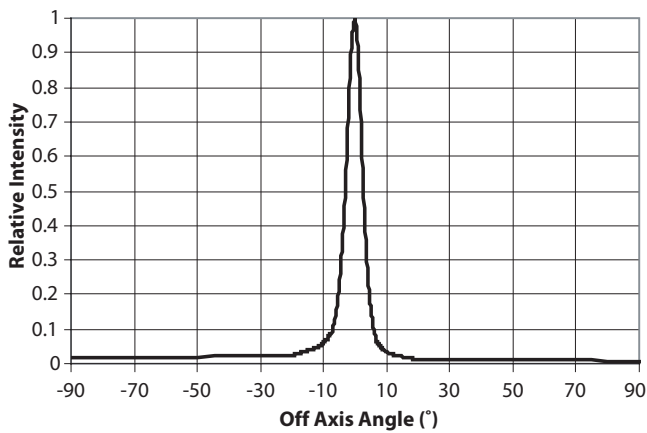


Figure 5. Radiation Pattern

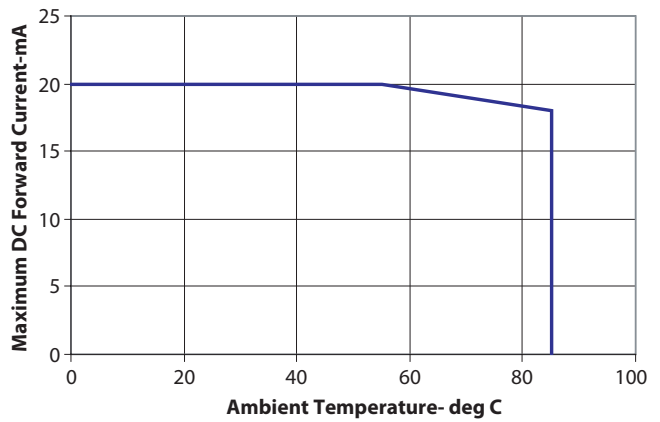


Figure 6. Maximum forward current vs ambient temperature

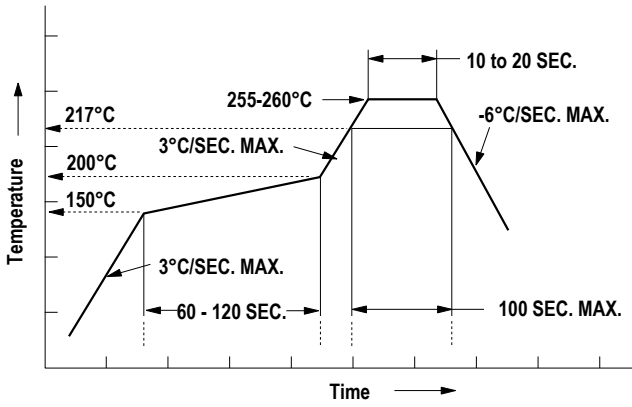


Figure 7. Recommended reflow soldering

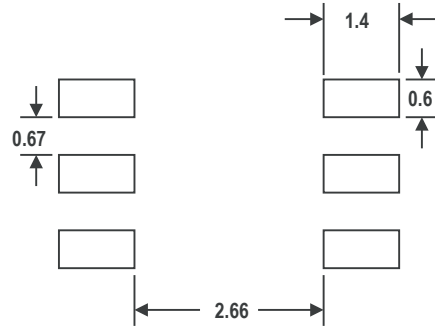


Figure 8. Recommended soldering land pattern

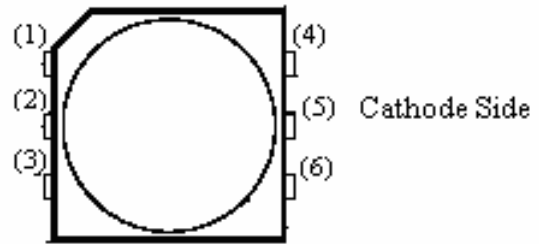
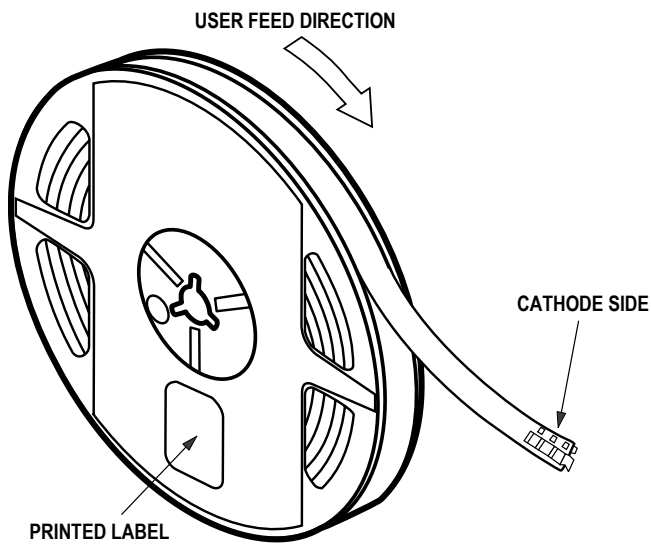


Figure 9. Reeling Orientations

Note: Cathode side is based on the center leads

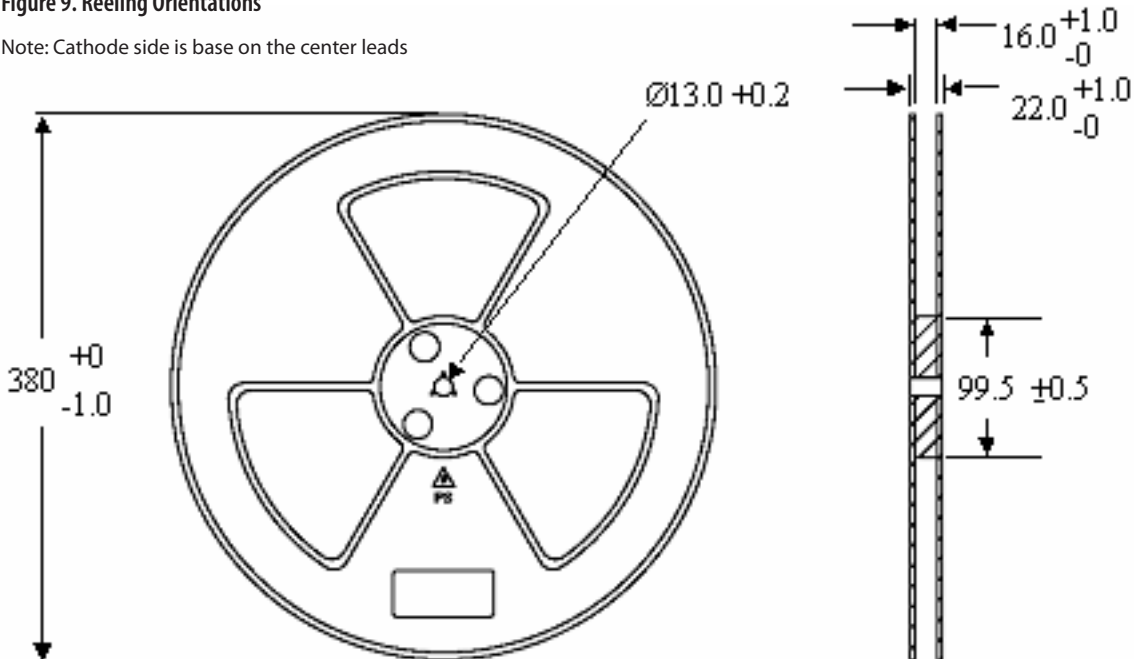


Figure 10. Reel Dimensions

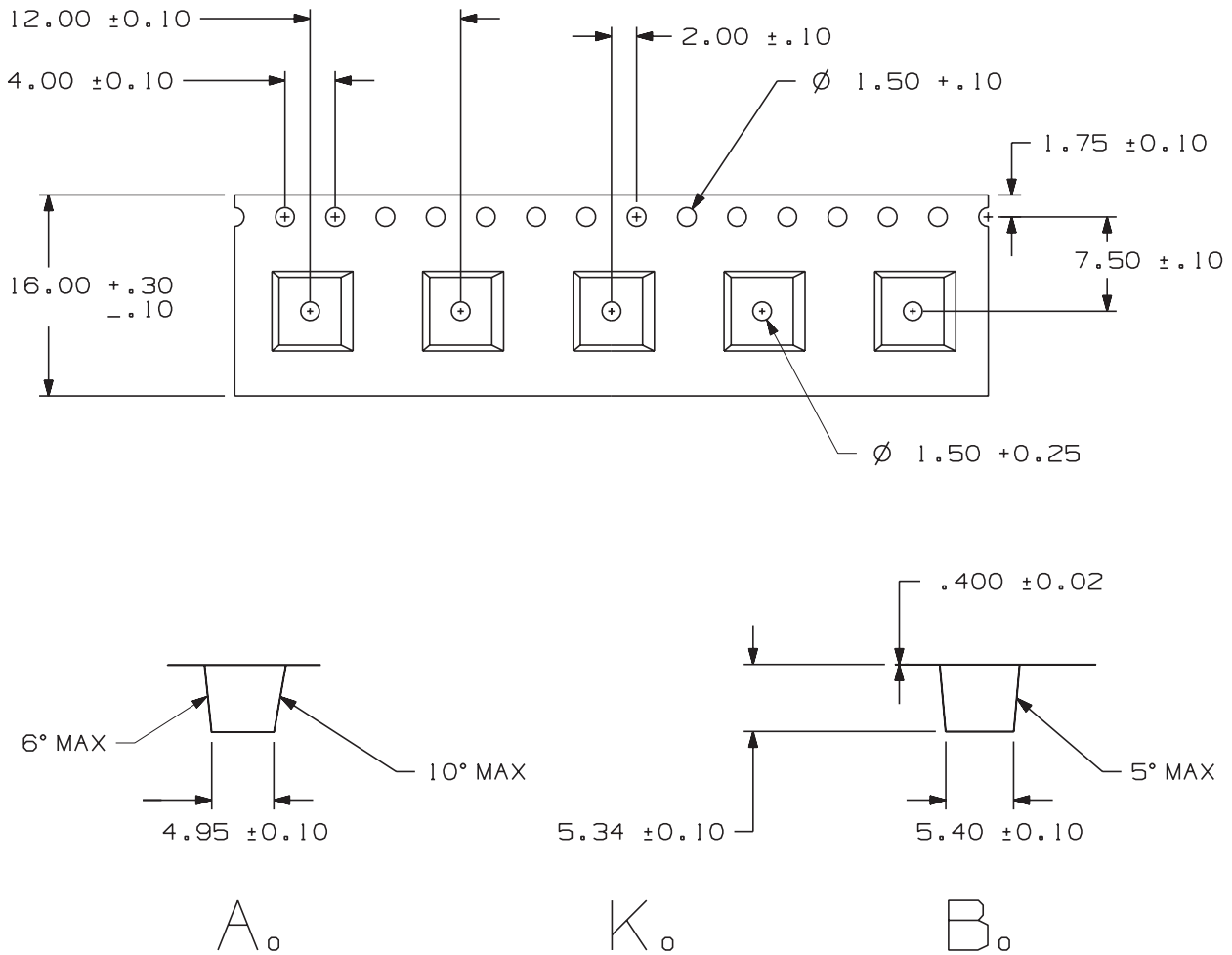


Figure 11. Tape Dimensions

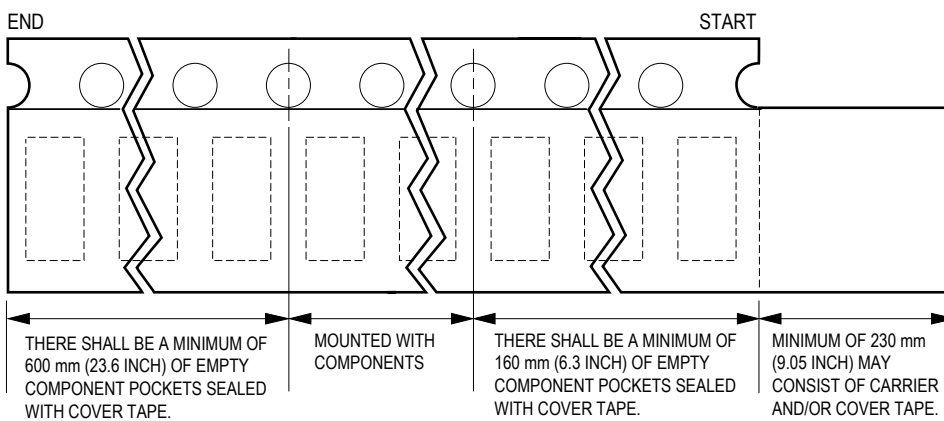


Figure 12. Tape Leader and Trailer Dimensions.

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 ± 0.1 mm unless otherwise specified.

Iv Bin Category

| Bin ID | Min | Max |
|--------|------|------|
| F+ | 18.0 | 19.5 |
| G | 19.5 | 25.5 |
| H | 25.5 | 33.0 |
| I | 33.0 | 43.0 |
| J | 43.0 | 56.0 |

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 = $\pm 1\text{nm}$

Handling Precaution

This products 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

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