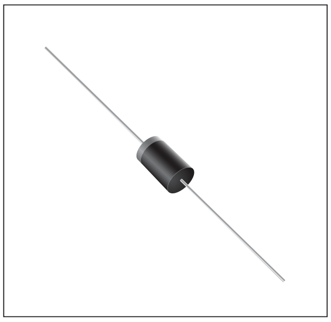
# Glass Passivated Super Fast Rectifiers

# SF48B

## Features

- ◆ Low profile package
- ◆ Ideal for automated placement
- ◆ Glass passivated chip junction
- ◆ High forward surge capability
- ◆ Super fast reverse recovery time
- ◆ Green product-halogen free



## Mechanical Data

**Case:** DO-201AD Molded plastic body

**Terminals:** Plated leads solderable per MIL-STD-750,
Method 2026

**High temperature soldering guaranteed:** 260℃/10 seconds

**Polarity:** Cathode line denotes the cathode end

**Mounting Position:** Any

## Maximum Ratings & Electrical Characteristics

Ratings at TA = 25°C unless otherwise specified

| **Characteristic** | | **Symbol** | **SF48B** | **Units** |
|---|---|---|---|---|
| Peak repetitive reverse voltage | | VRRM | 600 | V |
| RMS reverse voltage | | VRMS | 420 | V |
| DC blocking voltage | | VDC | 600 | V |
| Maximum average forward output current | | IF(AV) | 4 | A |
| Peak forward surge current,8.3ms single half-sine-wave, | @TJ = 25°C | IFSM | 80 | A |
| Rating for fusig (t<8.3ms) | | I2t | 26.65 | A2sec |
| Maximum instantaneous forward voltage | @ 4A | VF | 1.25 | V |
| Maximum reverse recovery time (Note 1) | | Trr | 50 | nS |
| Maximum Reverse current Rated VR | @TA =25°C | IR | 5 | μ A |
| | @TA =125°C | | 150 | |

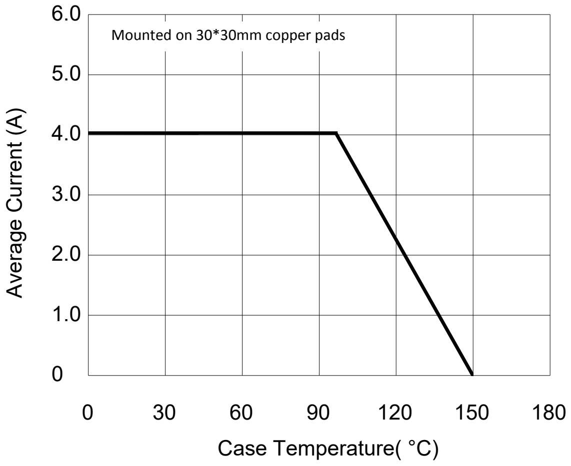
## Thermal Characteristics

| **Characteristic** | **Symbol** | **SF48B** | **Units** |
|---|---|---|---|
| Typical thermal resistance (Note 2) | R ΘJA | 30 | °C /W |
| | R ΘJL | 10 | |
| Operating junction temperature range | TJ | - 55 ---- + 150 | °C |
| Storage temperature range | TSTG | - 55 ---- + 150 | °C |

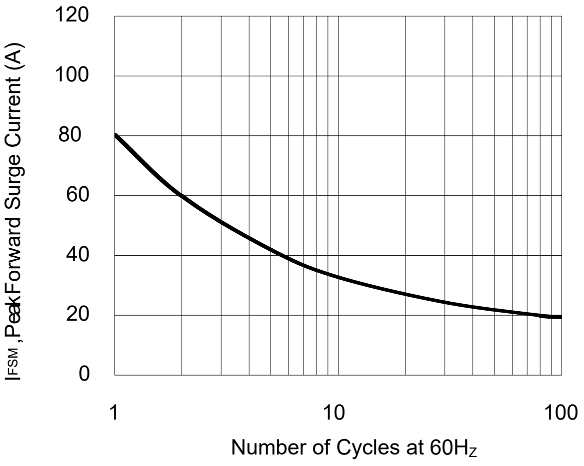
Note:
(1) IF=0.5A,IR=1A,IRR=0.25A

## Ratings and Characteristic Curves (T$_A$=25°C unless otherwise noted)

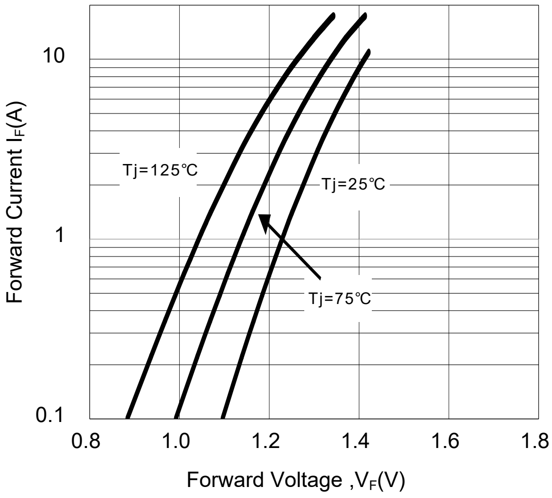
### Fig.1-Forward Current Derating Curve



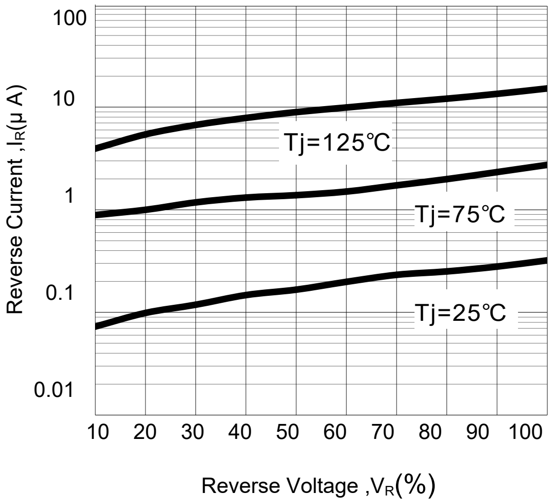
### Fig.2- Surge Current Derating Curve



### Fig.3- Typical Forward Voltage Characteristic

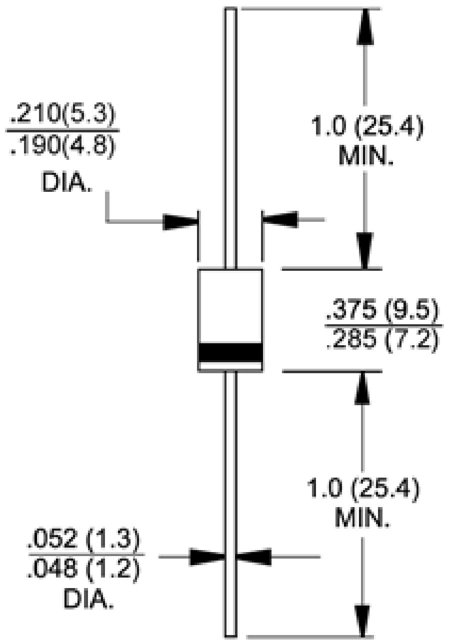


### Fig.4- Typical Reverse Characteristic



## Package Outline Dimensions(unit:mm)

### DO-201AD



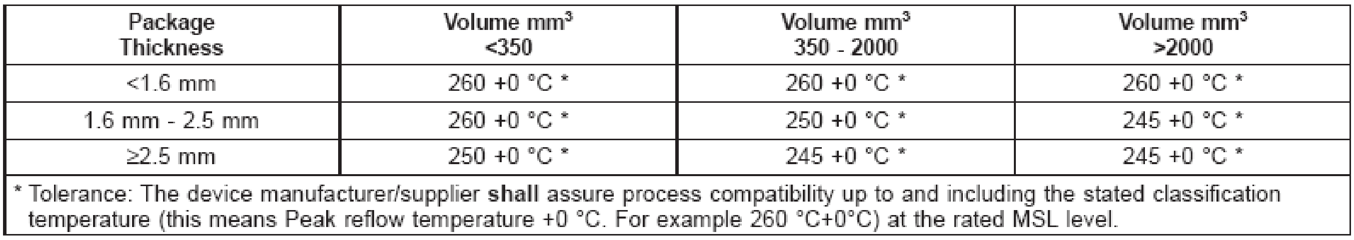
Dimensions in inches and (millimeters)

PACKAGE:

| OUTLINE | PACKING METHOD | PCS/BOX | PCS/CARTON |
|---|---|---|---|
| DO-201AD | TAPE PACKING | 1250 | 12500 |

SOLDER_REFLOW_PROFILE

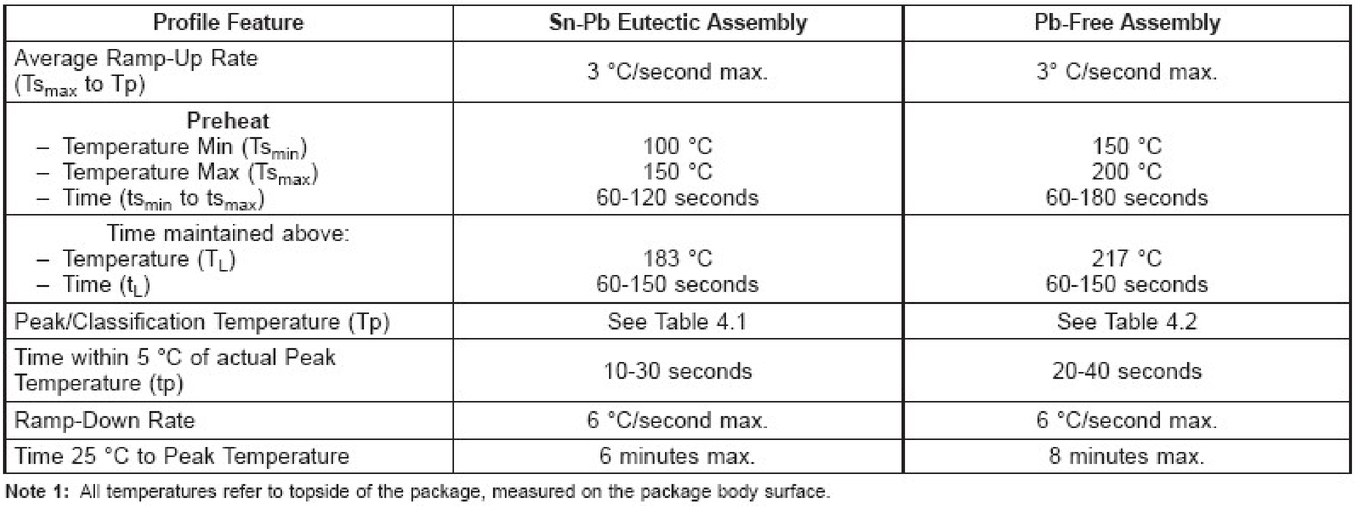
Table 4-2 Pb-free Process – Package Classification Reflow Temperatures



| Package Thickness | Volume mm$^3$ <350 | Volume mm$^3$ 350 - 2000 | Volume mm$^3$ >2000 |
|---|---|---|---|
| <1.6 mm | 260 +0 °C * | 260 +0 °C * | 260 +0 °C * |
| 1.6 mm - 2.5 mm | 260 +0 °C * | 250 +0 °C * | 245 +0 °C * |
| ≥2.5 mm | 250 +0 °C * | 245 +0 °C * | 245 +0 °C * |

* Tolerance: The device manufacturer/supplier **shall** assure process compatibility up to and including the stated classification temperature (this means Peak reflow temperature +0 °C. For example 260 °C+0°C) at the rated MSL level.

Table 5-2 Classification Reflow Profiles



| Profile Feature | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|---|---|---|
| Average Ramp-Up Rate ($Ts_{max}$ to Tp) | 3 °C/second max. | 3° C/second max. |
| **Preheat**<br>– Temperature Min ($Ts_{min}$)<br>– Temperature Max ($Ts_{max}$)<br>– Time ($ts_{min}$ to $ts_{max}$) | <br>100 °C<br>150 °C<br>60-120 seconds | <br>150 °C<br>200 °C<br>60-180 seconds |
| Time maintained above:<br>– Temperature ($T_L$)<br>– Time ($t_L$) | <br>183 °C<br>60-150 seconds | <br>217 °C<br>60-150 seconds |
| Peak/Classification Temperature (Tp) | See Table 4.1 | See Table 4.2 |
| Time within 5 °C of actual Peak Temperature (tp) | 10-30 seconds | 20-40 seconds |
| Ramp-Down Rate | 6 °C/second max. | 6 °C/second max. |
| Time 25 °C to Peak Temperature | 6 minutes max. | 8 minutes max. |

**Note 1:** All temperatures refer to topside of the package, measured on the package body surface.

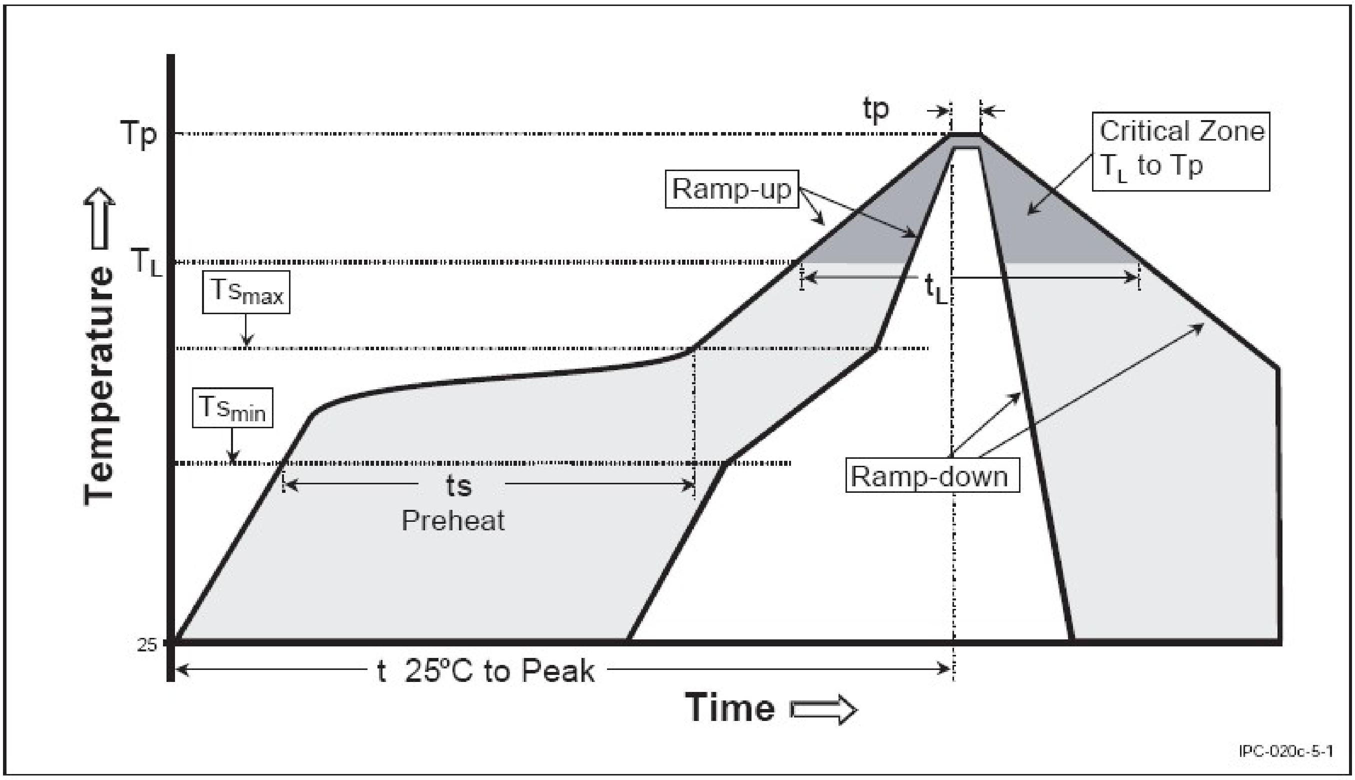


Figure 5-1 Classification Reflow Profile

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