



## Surface Mount Glass Passivated Junction Rectifier

## SUPERECTIFIER®



DO-213AB

## FEATURES

- Superrectifier structure for high reliability condition
- Ideal for automated placement
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

RoHS  
COMPLIANT

## PRIMARY CHARACTERISTICS

|                  |                                                 |
|------------------|-------------------------------------------------|
| $I_{F(AV)}$      | 1.0 A                                           |
| $V_{RRM}$        | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$        | 30 A                                            |
| $I_R$            | 10 $\mu$ A                                      |
| $V_F$            | 1.1 V                                           |
| $T_J$ max.       | 175 °C                                          |
| Package          | DO-213AB                                        |
| Diode variations | Single die                                      |

## MECHANICAL DATA

**Case:** DO-213AB, molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Two bands indicate cathode end - 1<sup>st</sup> band denotes device type and 2<sup>nd</sup> band denotes repetitive peak reverse voltage rating

## TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

MAXIMUM RATINGS ( $T_A = 25$  °C unless otherwise noted)

| PARAMETER                                                                          | SYMBOL         | 1N6478        | 1N6479 | 1N6480 | 1N6481 | 1N6482 | 1N6483 | 1N6484 | UNIT    |
|------------------------------------------------------------------------------------|----------------|---------------|--------|--------|--------|--------|--------|--------|---------|
| <b>STANDARD RECOVERY DEVICE:<br/>1<sup>ST</sup> BAND IS WHITE</b>                  |                |               |        |        |        |        |        |        |         |
| Polarity color bands (2 <sup>nd</sup> band)                                        |                | Gray          | Red    | Orange | Yellow | Green  | Blue   | Violet |         |
| Max. repetitive peak reverse voltage                                               | $V_{RRM}$      | 50            | 100    | 200    | 400    | 600    | 800    | 1000   | V       |
| Max. RMS voltage                                                                   | $V_{RMS}$      | 35            | 70     | 140    | 280    | 420    | 560    | 700    | V       |
| Max. DC blocking voltage                                                           | $V_{DC}$       | 50            | 100    | 200    | 400    | 600    | 800    | 1000   | V       |
| Max. average forward rectified current                                             | $I_{F(AV)}$    | 1.0           |        |        |        |        |        |        | A       |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 30            |        |        |        |        |        |        | A       |
| Max. full load reverse current, full cycle average at $T_A = 75$ °C                | $I_{R(AV)}$    | 100           |        |        |        |        |        |        | $\mu$ A |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | - 65 to + 175 |        |        |        |        |        |        | °C      |

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                            | TEST CONDITIONS |                         | SYMBOL         | 1N6478 | 1N6479 | 1N6480 | 1N6481 | 1N6482 | 1N6483 | 1N6484 | UNIT |
|------------------------------------------------------|-----------------|-------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|------|
| Max. instantaneous forward voltage                   | 1.0 A           | T <sub>A</sub> = 25 °C  | V <sub>F</sub> | 1.1    |        |        |        |        |        |        | V    |
|                                                      |                 | T <sub>A</sub> = 75 °C  |                | 1.0    |        |        |        |        |        |        |      |
| Max. DC reverse current at rated DC blocking voltage |                 | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 10     |        |        |        |        |        |        | μA   |
|                                                      |                 | T <sub>A</sub> = 125 °C |                | 200    |        |        |        |        |        |        |      |
| Typical junction capacitance                         | 4.0 V, 1 MHz    |                         | C <sub>J</sub> | 8.0    |        |        |        |        |        |        | pF   |

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER               | SYMBOL                          | 1N6478 | 1N6479 | 1N6480 | 1N6481 | 1N6482 | 1N6483 | 1N6484 | UNIT |
|-------------------------|---------------------------------|--------|--------|--------|--------|--------|--------|--------|------|
| Max. thermal resistance | R <sub>θJA</sub> <sup>(1)</sup> | 50     |        |        |        |        |        |        | °C/W |
|                         | R <sub>θJT</sub> <sup>(2)</sup> | 20     |        |        |        |        |        |        |      |

**Notes**

- (1) Thermal resistance from junction to ambient, 0.24" x 0.24" (6.0 mm x 6.0 mm) copper pads to each terminal  
(2) Thermal resistance from junction to terminal, 0.24" x 0.24" (6.0 mm x 6.0 mm) copper pads to each terminal

**ORDERING INFORMATION** (Example)

| PREFERRED P/N               | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|-----------------------------|-----------------|------------------------|---------------|------------------------------------|
| 1N6482-E3/96                | 0.114           | 96                     | 1500          | 7" diameter plastic tape and reel  |
| 1N6482-E3/97                | 0.114           | 97                     | 5000          | 13" diameter plastic tape and reel |
| 1N6482HE3/96 <sup>(1)</sup> | 0.114           | 96                     | 1500          | 7" diameter plastic tape and reel  |
| 1N6482HE3/97 <sup>(1)</sup> | 0.114           | 97                     | 5000          | 13" diameter plastic tape and reel |

**Note**

- (1) AEC-Q101 qualified

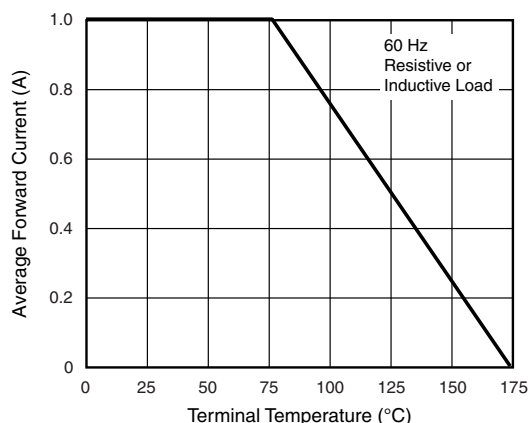
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

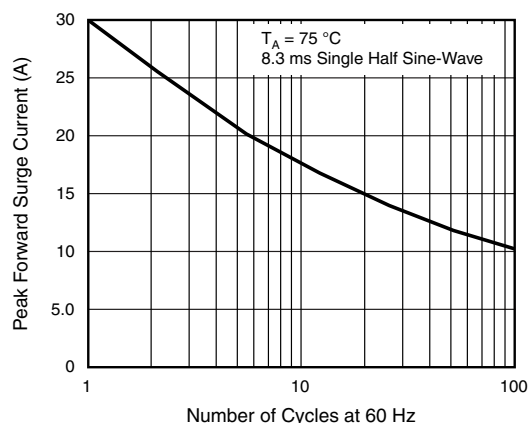


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

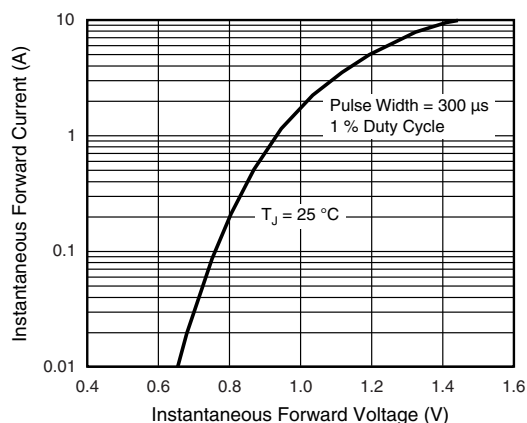


Fig. 3 - Typical Instantaneous Forward Characteristics

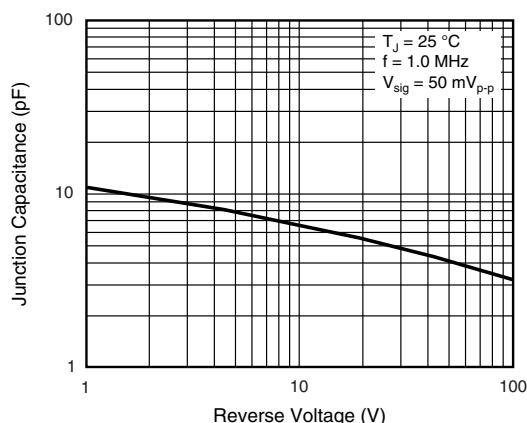


Fig. 5 - Typical Junction Capacitance

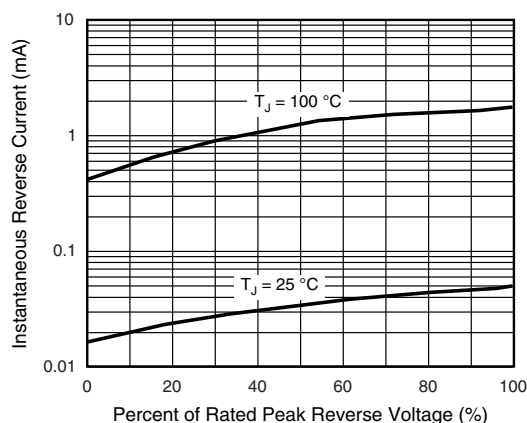


Fig. 4 - Typical Reverse Characteristics

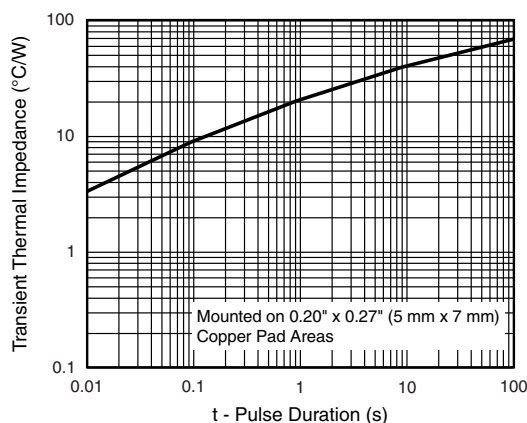
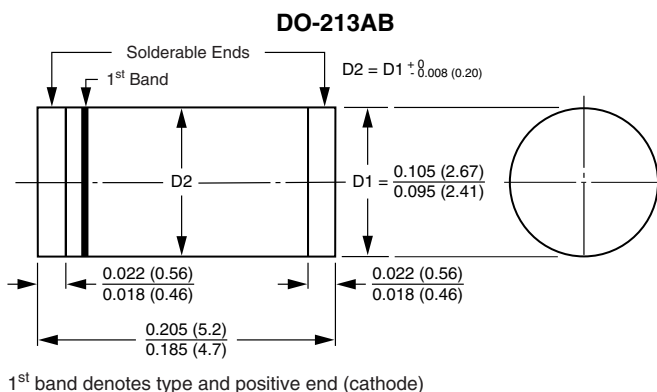
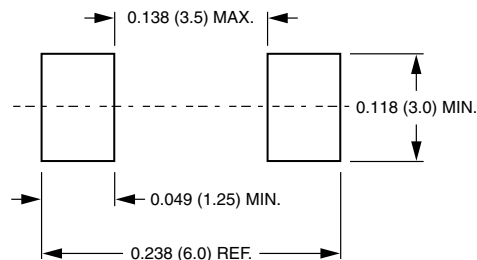


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



## Mounting Pad Layout





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