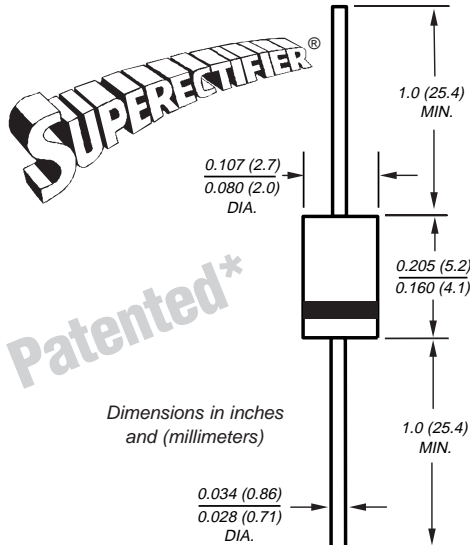


## Glass Passivated Ultrafast Rectifier

**Reverse Voltage** 600V  
**Forward Current** 1.0A

**DO-204AL (DO-41)**


\* Glass-plastic encapsulation technique is covered by Patent No. 3,996,602, and brazed-lead assembly by Patent No. 3,930,306

### Features

- High temperature metallurgically bonded construction
- Cavity-free glass passivated junction
- Ultrafast recovery time for high efficiency
- Low forward voltage, high current capability
- Capable of meeting environmental standards of MIL-S-19500
- Hermetically sealed package
- Low leakage current • High surge current capability
- Specified reverse surge capability
- High temperature soldering guaranteed: 350°C/10 seconds, 0.375" (9.5mm) lead length, 5 lbs. (2.3kg) tension

### Mechanical Data

**Case:** JEDEC DO-204AL, molded plastic over glass body  
**Terminals:** Plated axial leads, solderable per MIL-STD-750, Method 2026  
**Polarity:** Color band denotes cathode end  
**Mounting Position:** Any **Weight:** 0.012 oz., 0.3 g

### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

| Parameter   | Symbol                               | Value       | Unit |
|---|--------------------------------------|-------------|------|
| Maximum repetitive peak reverse voltage   | V <sub>RRM</sub>                     | 600         | V    |
| Maximum RMS voltage   | V <sub>RMS</sub>                     | 420         | V    |
| Maximum DC blocking voltage   | V <sub>DC</sub>                      | 600         | V    |
| Maximum average forward rectified current<br>0.375" (9.5mm) lead length at T <sub>L</sub> = 85°C (See Fig. 1) | I <sub>F(AV)</sub>                   | 1.0         | A    |
| Peak forward surge current 10ms single half sine-wave superimposed on rated load                              | I <sub>FSM</sub>                     | 30          | A    |
| Non repetitive peak reverse energy (Note 1)   | E <sub>RSM</sub>                     | 5           | mJ   |
| Typical thermal resistance (Note 2,3)   | R <sub>θJA</sub><br>R <sub>θJL</sub> | 70<br>16    | °C/W |
| Operating junction and storage temperature range  | T <sub>J</sub> , T <sub>STG</sub>    | -65 to +175 | °C   |

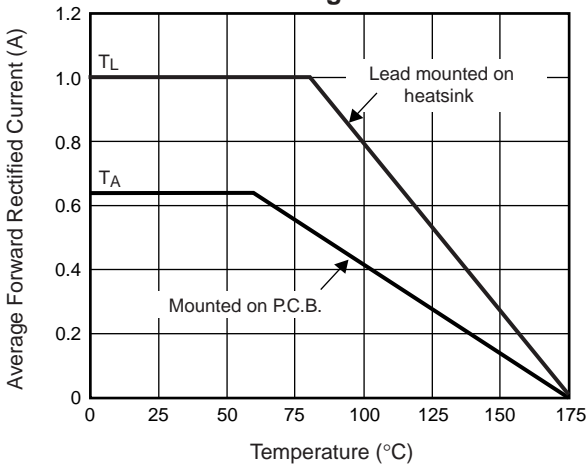
### Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

|   |                     |            |      |
|---|---------------------|------------|------|
| Minimum avalanche breakdown voltage at 100μA  | V <sub>BR</sub>     | 600        | V    |
| Maximum instantaneous forward voltage at 1.0A   | V <sub>F</sub>      | 2.5<br>1.3 | V    |
| Maximum DC reverse current at rated DC blocking voltage   | I <sub>R</sub>      | 5.0<br>150 | μA   |
| Max. reverse recovery time at I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1.0A, I <sub>rr</sub> = 0.25A               | t <sub>rr</sub>     | 30         | ns   |
| Maximum junction capacitance at 4.0V, 1MHz  | C <sub>J</sub>      | 45         | pF   |
| Maximum reverse recovery current slope at I <sub>F</sub> = 1A, V <sub>R</sub> = 30V, di <sub>r</sub> /dt = -1A/μs | di <sub>r</sub> /dt | 7          | A/μs |

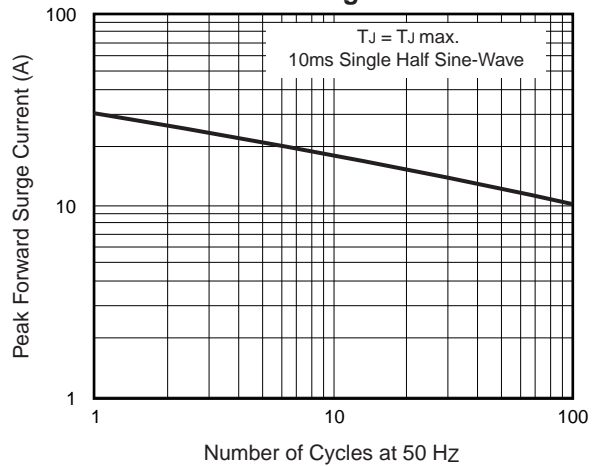
**Notes:** (1) Peak reverse energy measured with 8/20μs surge  
 (2) Thermal resistance from junction to ambient at 0.375" (9.5mm) lead length, mounted on P.C.B. with 0.5 x 0.5" (12 x 12mm) copper pads  
 (3) Thermal resistance from junction to lead at 0.375" (9.5mm) lead length with both leads attached to heatsink

**Ratings and Characteristic Curves** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

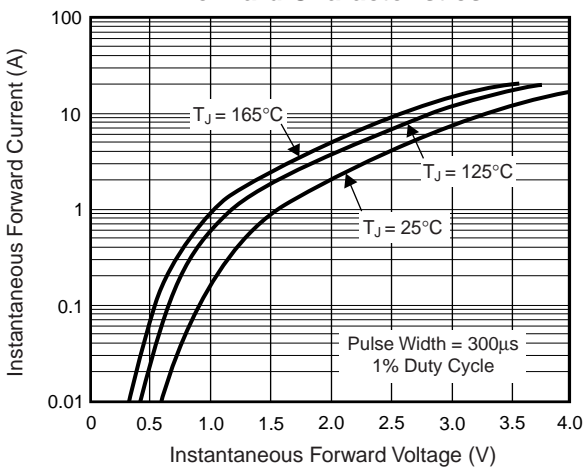
**Fig. 1 – Maximum Forward Current Derating Curve**



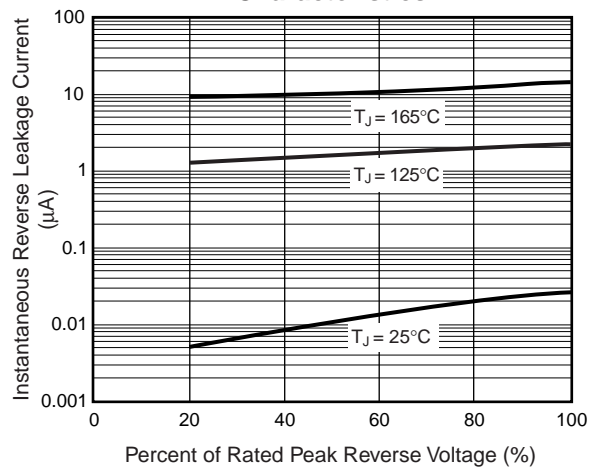
**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**



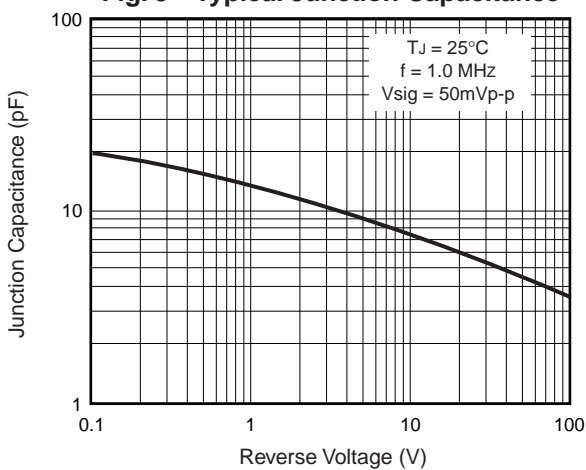
**Fig. 3 – Typical Instantaneous Forward Characteristics**



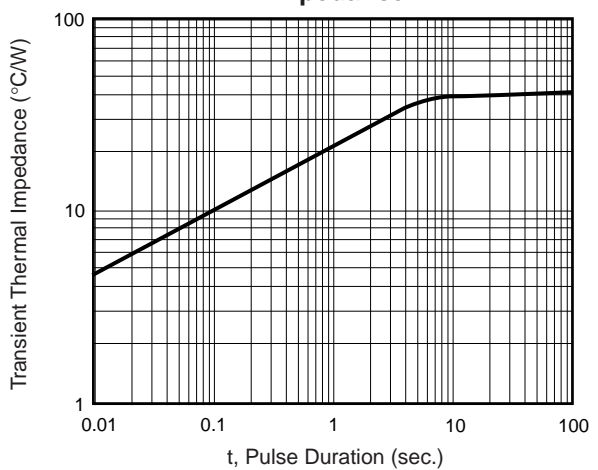
**Fig. 4 – Typical Reverse Leakage Characteristics**



**Fig. 5 – Typical Junction Capacitance**



**Fig. 6 – Typical Transient Thermal Impedance**



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