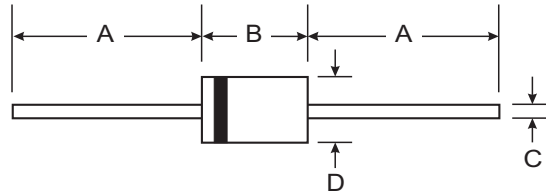


### Features

- Diffused Junction
- Fast Switching for High Efficiency
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 30A Peak
- Low Reverse Leakage Current
- **Lead Free Finish, RoHS compliant (Note 4)**



### Mechanical Data

- Case: DO-41, A-405
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish - Bright Tin. Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Ordering Information: See Last Page
- Marking: Type Number
- DO-41 Weight: 0.35 grams (approximate)
- A-405 Weight: 0.2 grams (approximate)

| Dim                         | DO-41 Plastic |       | A-405 |      |
|-----------------------------|---------------|-------|-------|------|
|                             | Min           | Max   | Min   | Max  |
| A                           | 25.40         | —     | 25.40 | —    |
| B                           | 4.06          | 5.21  | 4.10  | 5.20 |
| C                           | 0.71          | 0.864 | 0.53  | 0.64 |
| D                           | 2.00          | 2.72  | 2.00  | 2.70 |
| <b>All Dimensions in mm</b> |               |       |       |      |

"L" Suffix Designates A-405 Package  
No Suffix Designates DO-41 Package

### Maximum Ratings and Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic  | Symbol                            | PR 1001/L                | PR 1002/L | PR 1003/L | PR 1004/L | PR 1005/L | Unit |
|---|-----------------------------------|--------------------------|-----------|-----------|-----------|-----------|------|
| Peak Repetitive Reverse Voltage   | V <sub>RRM</sub>                  | 50                       | 100       | 200       | 400       | 600       | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub>                  |                          |           |           |           |           |      |
| DC Blocking Voltage   | V <sub>R</sub>                    |                          |           |           |           |           |      |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub>               | 35                       | 70        | 140       | 280       | 420       | V    |
| Average Rectified Output Current (Note 1)   | I <sub>O</sub>                    | 1.0                      |           |           |           |           | A    |
|   |                                   | @ T <sub>A</sub> = 75°C  |           |           |           |           |      |
| Non-Repetitive Peak Forward Surge Current (8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method)) | I <sub>FSM</sub>                  | 30                       |           |           |           |           | A    |
| Forward Voltage Drop  | V <sub>FM</sub>                   | 1.2                      |           |           |           |           | V    |
|   |                                   | @ I <sub>F</sub> = 1.0A  |           |           |           |           |      |
| Peak Reverse Current  | I <sub>RM</sub>                   | 5.0                      |           |           |           |           | μA   |
|   |                                   | @ T <sub>A</sub> = 25°C  |           |           |           |           |      |
|   |                                   | @ T <sub>A</sub> = 100°C |           |           |           |           |      |
| Reverse Recovery Time (Note 3)  | t <sub>rr</sub>                   | 150                      |           |           |           | 250       | ns   |
| Typical Junction Capacitance (Note 2)   | C <sub>j</sub>                    | 15                       |           |           |           | 8.0       | pF   |
| Typical Thermal Resistance Junction to Ambient  | R <sub>θJA</sub>                  | 75                       |           |           |           |           | K/W  |
| Operating and Storage Temperature Range   | T <sub>j</sub> , T <sub>STG</sub> | -65 to +150              |           |           |           |           | °C   |

- Notes:
1. Valid provided that leads are maintained at ambient temperature at a distance of 9.5mm from the case.
  2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  3. Measured with I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1A, I<sub>rr</sub> = 0.25A. See figure 5.
  4. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.

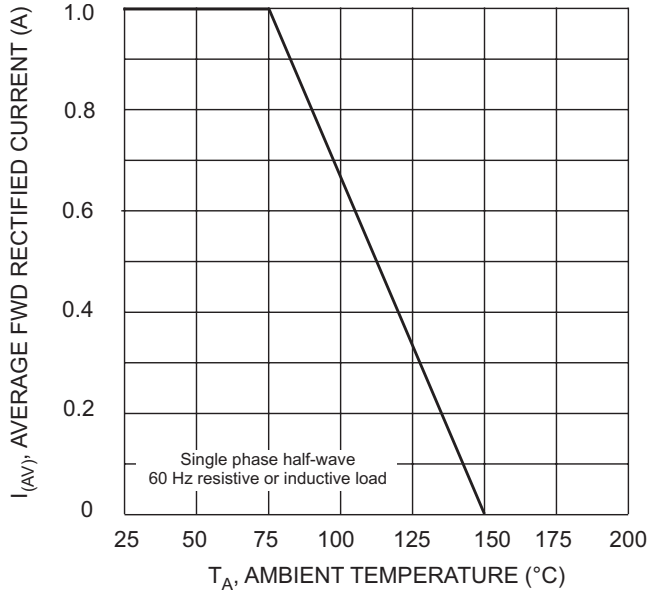


Fig. 1 Forward Derating Curve

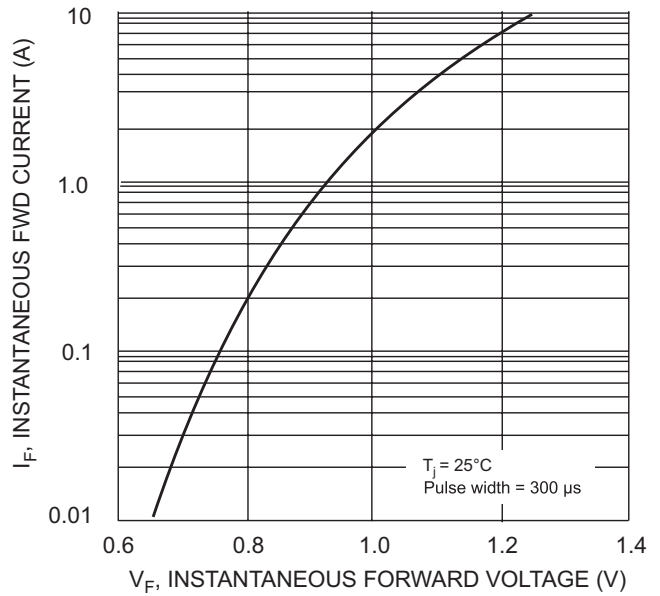


Fig. 2 Typical Forward Characteristics

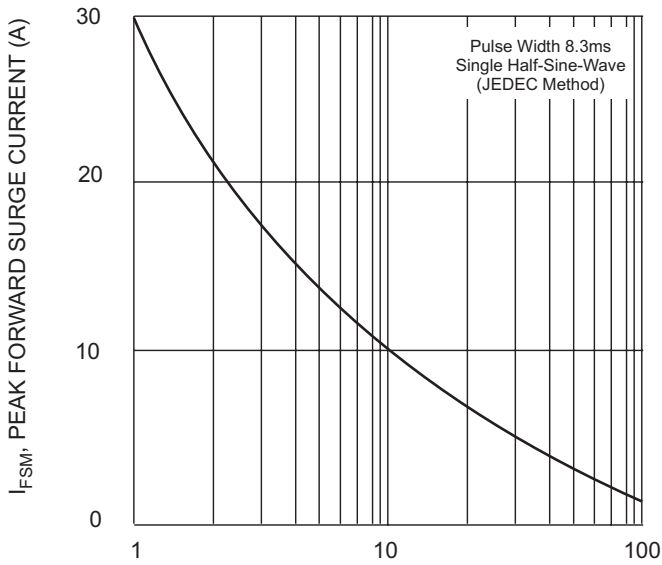


Fig. 3 Peak Forward Surge Current

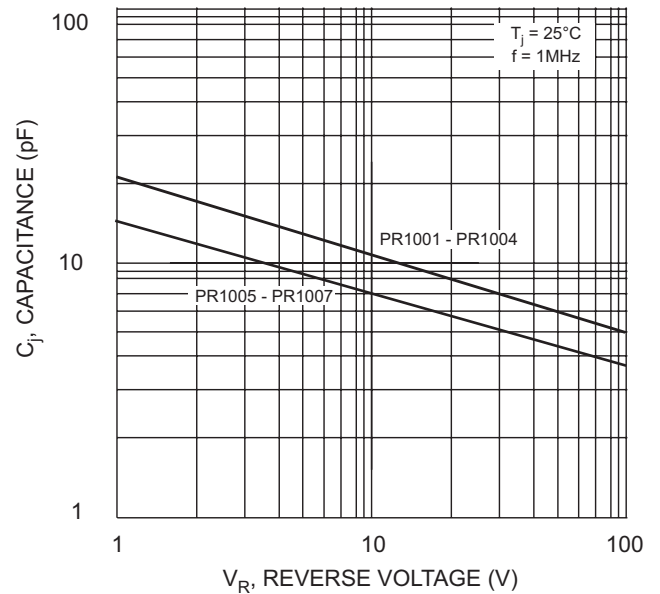
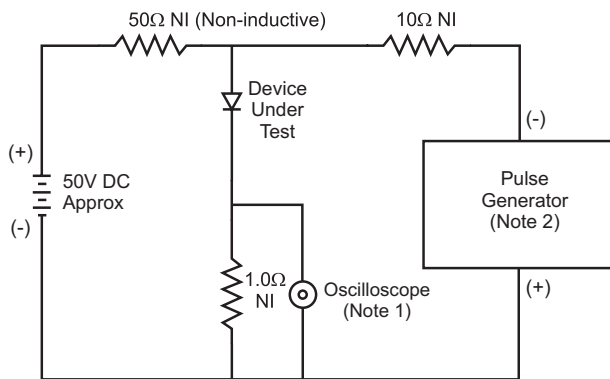
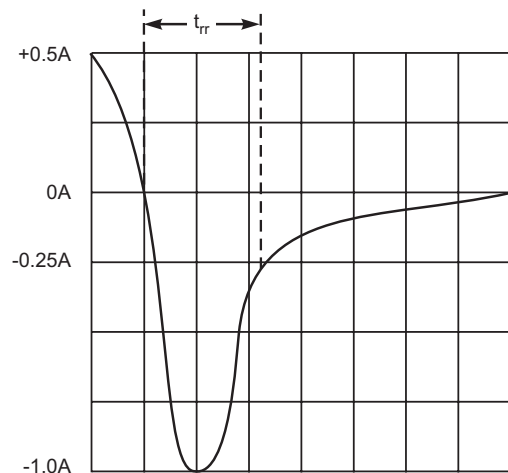


Fig. 4 Typical Junction Capacitance



- Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MW, 22pF.
  2. Rise Time = 10ns max. Input Impedance = 50W.



Set time base for 50/100 ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

**Ordering Information** (Note 5)

| <b>Device</b> | <b>Packaging</b> | <b>Shipping</b>         |
|---------------|------------------|-------------------------|
| PR1001-A      | DO-41            | 5K/Ammo Pack            |
| PR1001-B      | DO-41            | 1K/Bulk                 |
| PR1001-T      | DO-41            | 5K/Tape & Reel, 13-inch |
| PR1002-A      | DO-41            | 5K/Ammo Pack            |
| PR1002-B      | DO-41            | 1K/Bulk                 |
| PR1002-T      | DO-41            | 5K/Tape & Reel, 13-inch |
| PR1003-A      | DO-41            | 5K/Ammo Pack            |
| PR1003-B      | DO-41            | 1K/Bulk                 |
| PR1003-T      | DO-41            | 5K/Tape & Reel, 13-inch |
| PR1004-A      | DO-41            | 5K/Ammo Pack            |
| PR1004-B      | DO-41            | 1K/Bulk                 |
| PR1004-T      | DO-41            | 5K/Tape & Reel, 13-inch |
| PR1005-A      | DO-41            | 5K/Ammo Pack            |
| PR1005-B      | DO-41            | 1K/Bulk                 |
| PR1005-T      | DO-41            | 5K/Tape & Reel, 13-inch |
| PR1001L-T     | A-405            | 5K/Tape & Reel, 13-inch |
| PR1002L-T     | A-405            | 5K/Tape & Reel, 13-inch |
| PR1003L-T     | A-405            | 5K/Tape & Reel, 13-inch |
| PR1004L-T     | A-405            | 5K/Tape & Reel, 13-inch |
| PR1005L-T     | A-405            | 5K/Tape & Reel, 13-inch |

Notes: 5. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>