

### Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead Free Finish, RoHS Compliant (Note 1)**

### Mechanical Data

- Case: DO-201AD
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Tin. Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking: Type Number
- Weight: 1.1 grams (approximate)

### Ordering Information (Note 2)

| Device   | Packaging | Shipping                  |
|----------|-----------|---------------------------|
| 1N5820-B | DO-201AD  | 500 Bulk                  |
| 1N5820-T | DO-201AD  | 1.2K/Tape & Reel, 13-inch |
| 1N5821-B | DO-201AD  | 500 Bulk                  |
| 1N5821-T | DO-201AD  | 1.2K/Tape & Reel, 13-inch |
| 1N5822-B | DO-201AD  | 500 Bulk                  |
| 1N5822-T | DO-201AD  | 1.2K/Tape & Reel, 13-inch |

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic   | Symbol       | 1N5820 | 1N5821                     | 1N5822 | Unit |
|--|--------------|--------|----------------------------|--------|------|
| Peak Repetitive Reverse Voltage  | $V_{RRM}$    |        |                            |        |      |
| Working Peak Reverse Voltage   | $V_{RWM}$    | 20     | 30                         | 40     | V    |
| DC Blocking Voltage (Note 3)   | $V_R$        |        |                            |        |      |
| RMS Reverse Voltage  | $V_{R(RMS)}$ | 14     | 21                         | 28     | V    |
| Average Rectified Output Current (Note 4)  | $I_o$        |        | 3.0                        |        | A    |
|  |              |        | @ $T_L = 95^\circ\text{C}$ |        |      |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$    |        | 80                         |        | A    |
|  |              |        | @ $T_L = 75^\circ\text{C}$ |        |      |

### Thermal Characteristics

| Characteristic                          | Symbol          | Value       | Unit               |
|---|-----------------|-------------|--------------------|
| Typical Thermal Resistance (Note 5)     | $R_{\theta JA}$ | 40          | $^\circ\text{C/W}$ |
|   | $R_{\theta JL}$ | 10          |                    |
| Operating and Storage Temperature Range | $T_J, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic   | Symbol   | 1N5820                      | 1N5821 | 1N5822 | Unit |
|--|----------|-----------------------------|--------|--------|------|
| Forward Voltage @ $I_F = 3.0\text{A}$<br>@ $I_F = 9.4\text{A}$ | $V_{FM}$ | 0.475                       | 0.500  | 0.525  | V    |
|  |          | 0.850                       | 0.900  | 0.950  |      |
| Peak Reverse Current at Rated DC Blocking Voltage (Note 3)     | $I_{RM}$ | @ $T_A = 25^\circ\text{C}$  | 2.0    |        | mA   |
|  |          | @ $T_A = 100^\circ\text{C}$ | 20     |        |      |

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
  2. For packaging details, go to our website at <http://www.diodes.com>.
  3. Short duration pulse test used to minimize self-heating effect.
  4. Measured at ambient temperature at a distance of 9.5mm from the case
  5. Thermal resistance from junction to lead vertical P.C.B. mounted, 0.500" (12.7mm) lead length with 2.5 x 2.5" (63.5 x 63.5mm) copper pad.

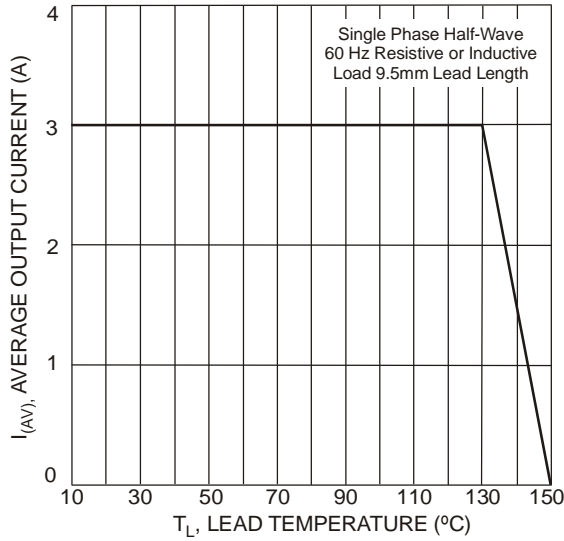


Fig. 1 Forward Current Derating Curve

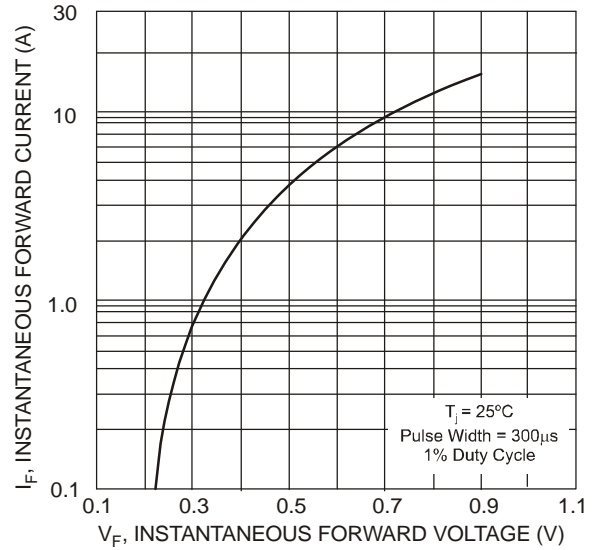


Fig. 2 Typical Forward Voltage Characteristics

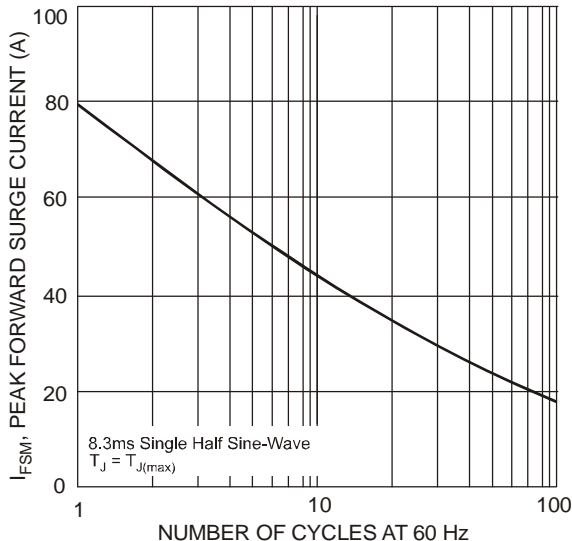


Fig. 3 Peak Forward Surge Current

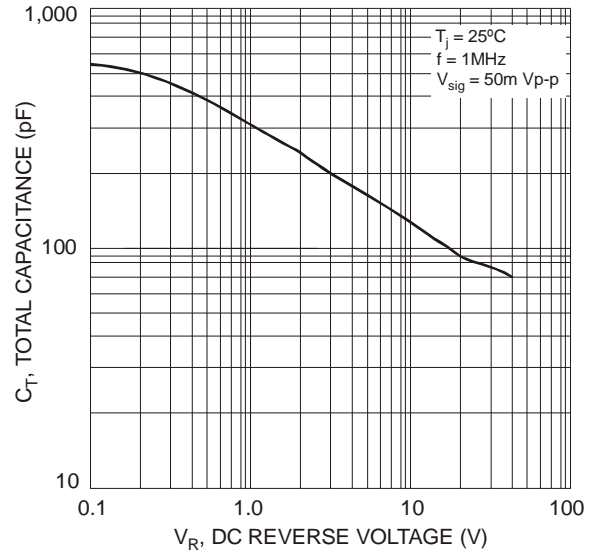
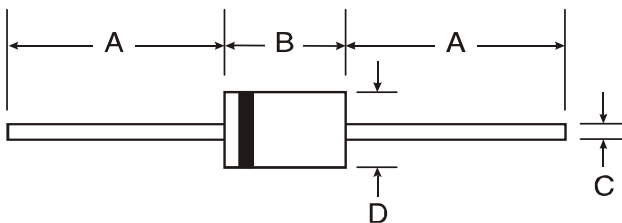


Fig. 4 Typical Total Capacitance

**Package Outline Dimensions**



| DO-201AD             |       |      |
|----------------------|-------|------|
| Dim                  | Min   | Max  |
| A                    | 25.40 | —    |
| B                    | 7.20  | 9.50 |
| C                    | 1.20  | 1.30 |
| D                    | 4.80  | 5.30 |
| All Dimensions in mm |       |      |

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