

# Power Diode

## Fast Recovery



### Features:

- Fast reverse recovery time,  $t_{rr}$
- Low forward voltage drop,  $V_F$
- Low cost axial packages
- High current capability
- High reliability
- High surge current capability

### Mechanical Data:

|                                       |                                                                           |
|---------------------------------------|---------------------------------------------------------------------------|
| Cases                                 | : Moulded plastic DO-201AD                                                |
| Lead                                  | : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed          |
| Polarity                              | : Colour band denotes cathode end                                         |
| High temperature soldering guaranteed | : 260°C/10 seconds/0.375", (9.5mm) lead lengths at 5lbs., (2.3kg) tension |

### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Type Number                                                                                                | Symbol            | HER305      | HER307 | Unit |
|------------------------------------------------------------------------------------------------------------|-------------------|-------------|--------|------|
| Maximum recurrent peak reverse voltage                                                                     | V <sub>RRM</sub>  | 400         | 800    | V    |
| Maximum RMS voltage                                                                                        | V <sub>RMS</sub>  | 280         | 560    |      |
| Maximum DC blocking voltage                                                                                | V <sub>DC</sub>   | 400         | 800    |      |
| Maximum average forward rectified current 0.375" (9.5mm) lead length at T <sub>A</sub> = 55°C              | I <sub>(AV)</sub> | 3           |        | A    |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC method)          | I <sub>FSM</sub>  | 150         |        |      |
| Maximum instantaneous forward voltage at 3A                                                                | V <sub>F</sub>    | 1.3         | 1.7    | V    |
| Maximum DC reverse current at T <sub>A</sub> = 25°C at rated DC blocking voltage at T <sub>A</sub> = 100°C | I <sub>R</sub>    | 10<br>200   |        | μA   |
| Maximum reverse recovery time (Note 1)                                                                     | T <sub>rr</sub>   | 50          | 75     | ns   |
| Typical junction capacitance (Note 2)                                                                      | C <sub>j</sub>    | 70          | 50     | pF   |
| Typical thermal resistance (Note 3)                                                                        | RθJA              | 40          |        | °C/W |
| Operating temperature range                                                                                | T <sub>J</sub>    | -65 to +150 |        | °C   |
| Storage temperature range                                                                                  | T <sub>STG</sub>  |             |        |      |

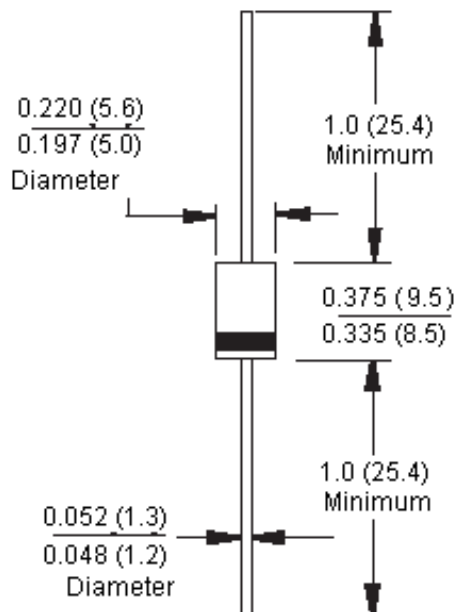
### Notes:

1. Reverse recovery test conditions:  $I_F = 0.5\text{A}$ ,  $I_R = 1\text{A}$ ,  $I_{RR} = 0.25\text{A}$
2. Measured at 1MHz and applied reverse voltage of 4V DC
3. Mount on Cu-Pad Size 16mm  $\times$  16mm on PCB

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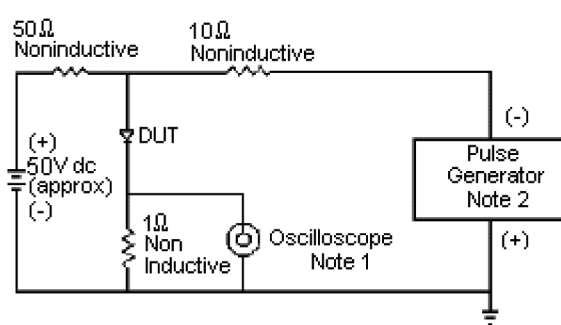
## DO-201AD



Dimensions : Millimetres (Inches)

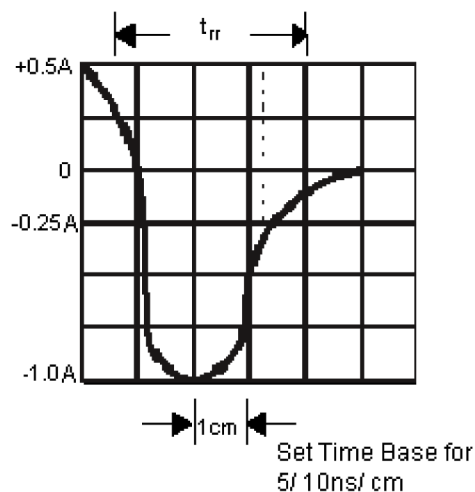
## Ratings and Characteristic Curves

Figure 1 Reverse Recovery Time Characteristic and Test Circuit Diagram



Note:

1. Rise Time = 7nS maximum  
Input Impedance = 1M $\Omega$ , 22pF
2. Rise Time = 10nS maximum  
Source Impedance = 50 $\Omega$



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Figure 2 Maximum Average Forward Current Derating

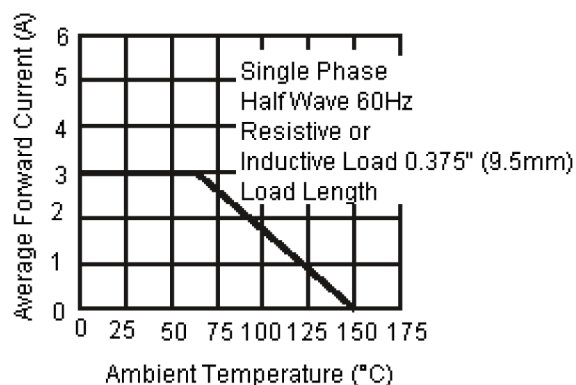


Figure 3 Typical Reverse Characteristics

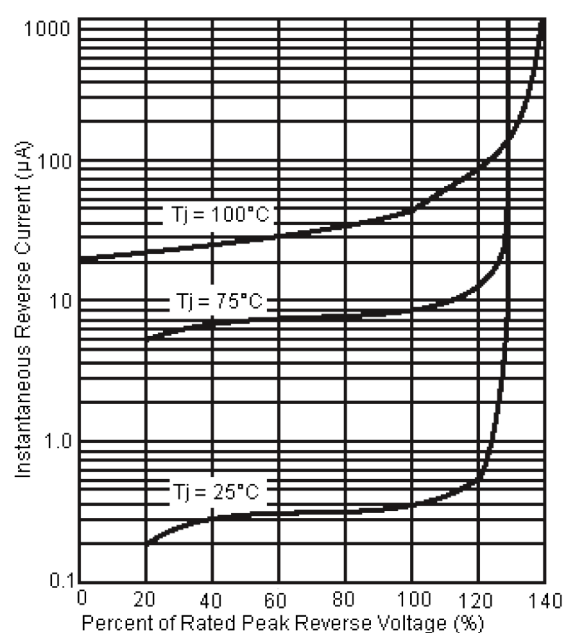
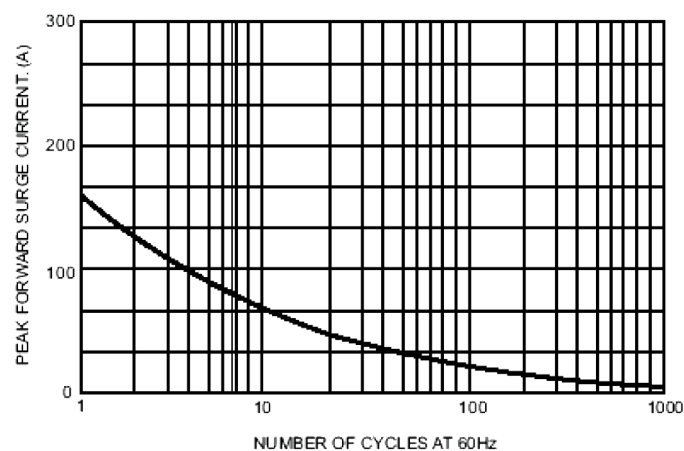


Figure 4 Maximum Non-Repetitive Forward Surge Current



# Power Diode Fast Recovery



Figure 5 Typical Forward Characteristics

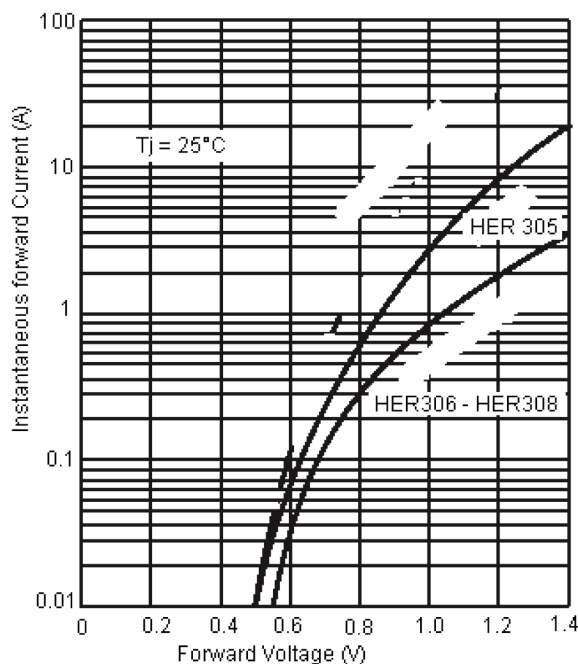
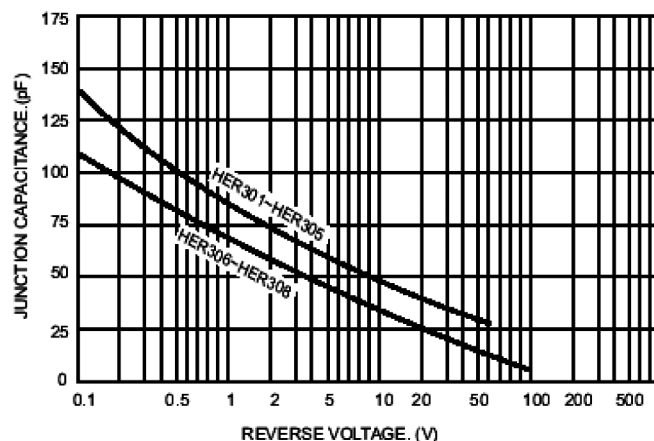


Figure 6 Typical Junction Capacitance



Part Number Table

| Description              | $V_{rrm}$<br>max.<br>(V) | $I_F$<br>(av)<br>(A) | $I_{FSM}$<br>(A) | $t_{rr}$<br>maxi.<br>(ns) | $V_F$<br>(V)<br>at $I_F = 3A$ | Length<br>(mm) | Diameter<br>(mm) | Package  | Part<br>Number |
|--------------------------|--------------------------|----------------------|------------------|---------------------------|-------------------------------|----------------|------------------|----------|----------------|
| Diode, Fast, 3A,<br>800V | 800                      | -                    | -                | -                         | -                             | 9.5            | 5.6              | DO-201AD | HER307         |
| Diode, Fast, 3A,<br>400V | 400                      | 3                    | 150              | 50                        | 1                             |                |                  |          | HER305         |

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