



November 2014

# 1N4001 - 1N4007

## General-Purpose Rectifiers

### Features

- Low Forward Voltage Drop
- High Surge Current Capability

**DO-41**

COLOR BAND DENOTES CATHODE

### Ordering Information

| Part Number | Top Mark | Package          | Packing Method |
|-------------|----------|------------------|----------------|
| 1N4001      | 1N4001   | DO-204AL (DO-41) | Tape and Reel  |
| 1N4002      | 1N4002   | DO-204AL (DO-41) | Tape and Reel  |
| 1N4003      | 1N4003   | DO-204AL (DO-41) | Tape and Reel  |
| 1N4004      | 1N4004   | DO-204AL (DO-41) | Tape and Reel  |
| 1N4005      | 1N4005   | DO-204AL (DO-41) | Tape and Reel  |
| 1N4006      | 1N4006   | DO-204AL (DO-41) | Tape and Reel  |
| 1N4007      | 1N4007   | DO-204AL (DO-41) | Tape and Reel  |

### Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol      | Parameter                                                                           | Value       |            |            |            |            |            |            | Unit               |
|-------------|-------------------------------------------------------------------------------------|-------------|------------|------------|------------|------------|------------|------------|--------------------|
|             |                                                                                     | 1N<br>4001  | 1N<br>4002 | 1N<br>4003 | 1N<br>4004 | 1N<br>4005 | 1N<br>4006 | 1N<br>4007 |                    |
| $V_{RRM}$   | Peak Repetitive Reverse Voltage                                                     | 50          | 100        | 200        | 400        | 600        | 800        | 1000       | V                  |
| $I_{F(AV)}$ | Average Rectified Forward Current<br>.375 " Lead Length at $T_A = 75^\circ\text{C}$ | 1.0         |            |            |            |            |            |            | A                  |
| $I_{FSM}$   | Non-Repetitive Peak Forward Surge Current<br>8.3 ms Single Half-Sine-Wave           | 30          |            |            |            |            |            |            | A                  |
| $I^2t$      | Rating for Fusing ( $t < 8.3$ ms)                                                   | 3.7         |            |            |            |            |            |            | A <sup>2</sup> sec |
| $T_{STG}$   | Storage Temperature Range                                                           | -55 to +175 |            |            |            |            |            |            | $^\circ\text{C}$   |
| $T_J$       | Operating Junction Temperature                                                      | -55 to +175 |            |            |            |            |            |            | $^\circ\text{C}$   |

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol          | Parameter                               | Value | Unit               |
|-----------------|-----------------------------------------|-------|--------------------|
| $P_D$           | Power Dissipation                       | 3.0   | W                  |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 50    | $^\circ\text{C/W}$ |

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol   | Parameter                                     | Conditions                                  | Value | Unit          |
|----------|-----------------------------------------------|---------------------------------------------|-------|---------------|
| $V_F$    | Forward Voltage                               | $I_F = 1.0\text{ A}$                        | 1.1   | V             |
| $I_{rr}$ | Maximum Full Load Reverse Current, Full Cycle | $T_A = 75^\circ\text{C}$                    | 30    | $\mu\text{A}$ |
| $I_R$    | Reverse Current at Rated $V_R$                | $T_A = 25^\circ\text{C}$                    | 5.0   | $\mu\text{A}$ |
|          |                                               | $T_A = 100^\circ\text{C}$                   | 50    |               |
| $C_T$    | Total Capacitance                             | $V_R = 4.0\text{ V}$ , $f = 1.0\text{ MHz}$ | 15    | pF            |

## Typical Performance Characteristics

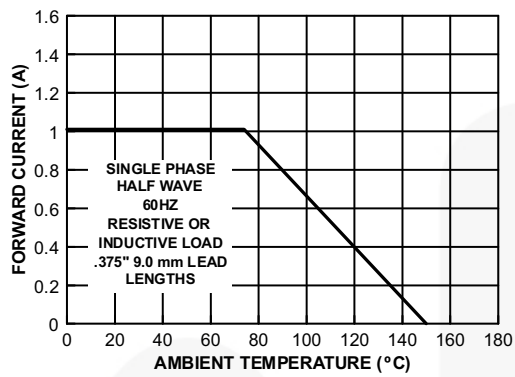


Figure 1. Forward Current Derating Curve

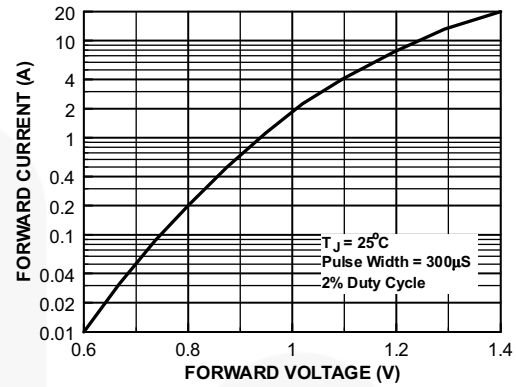


Figure 2. Forward Characteristics

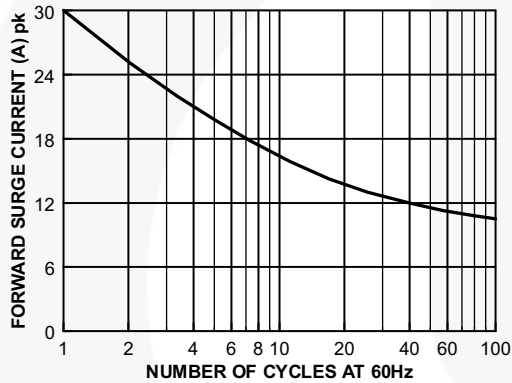


Figure 3. Non-Repetitive Surge Current

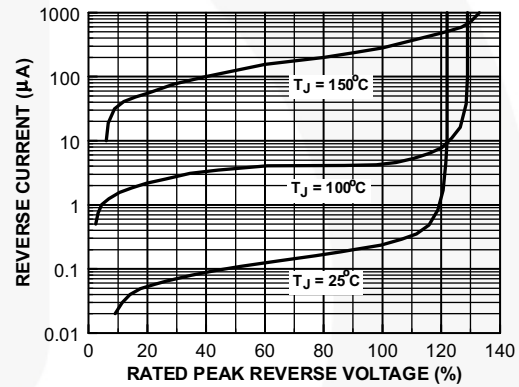
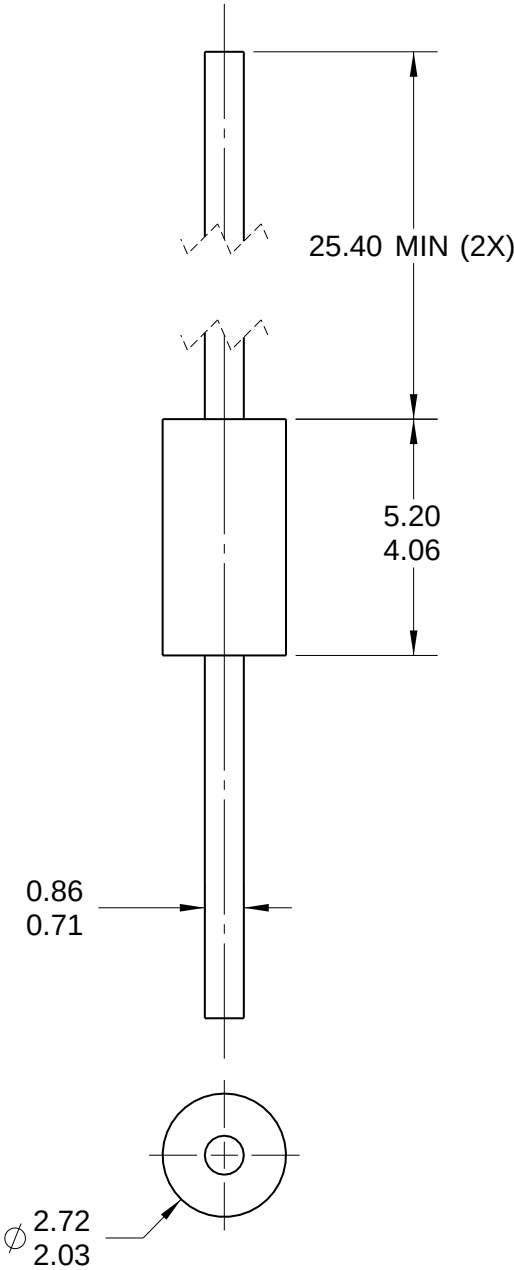


Figure 4. Reverse Characteristics

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| REVISIONS |                                                                                         |         |               |
|-----------|-----------------------------------------------------------------------------------------|---------|---------------|
| NBR       | DESCRIPTION                                                                             | DATE    | BY/APP'D      |
| 1         | RELEASED TO DCC                                                                         | 29JUL08 | HYANG/ SUZHOU |
| 2         | CHANGE 5.20 TO 5.21.<br>CHANGE NOTE "B" ADDED PLASTCI BODY.<br>REMOVE "GLASS" ON TITLE. | 19SEP08 | HYANG/ SUZHOU |



NOTES: UNLESS OTHERWISE SPECIFIED

- A) PACKAGE STANDARD REFERENCE: JEDEC DO-204 VARIATION AL.
- B) PACKAGE BODY CAN BE PLASTIC OR HERMETICALLY SEALED GLASS .
- D) ALL DIMENSIONS ARE IN MILLIMETERS.
- E) DRAWING FILE NAME: DO41AREV2

|                                                                                                                          |  |         |  |                                                                                                                                                                                          |      |                |                |
|--------------------------------------------------------------------------------------------------------------------------|--|---------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------|----------------|
| APPROVALS                                                                                                                |  | DATE    |  | <div><br/>FAIRCHILD<br/>SEMICONDUCTOR™</div> <div>AXIAL LEADED,<br/>JEDEC DO204, VARIATION AL</div> |      |                |                |
| DRAWN: BOBOY MALDO                                                                                                       |  | 19SEP08 |  |                                                                                                                                                                                          |      |                |                |
| CHECKED: HENRY YANG                                                                                                      |  |         |  |                                                                                                                                                                                          |      |                |                |
| APPROVED: BY HUANG                                                                                                       |  |         |  |                                                                                                                                                                                          |      |                |                |
| APPROVED: HOWARD ALLEN                                                                                                   |  |         |  |                                                                                                                                                                                          |      |                |                |
| PROJECTION                                                                                                               |  |         |  | SCALE                                                                                                                                                                                    | SIZE | DRAWING NUMBER | REV            |
| <div><div>[MM]<br/>INCH</div></div> |  |         |  | 1:1                                                                                                                                                                                      | N/A  | MKT-DO41A      | 2              |
|                                                                                                                          |  |         |  | FORMERLY: N/A                                                                                                                                                                            |      |                | SHEET : 1 OF 1 |



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