# Silicon Fast Recovery Diode

**$V_{RRM}$ = 50 V - 400 V**
**$I_F$ = 12 A**

### Features

- High Surge Capability
- Types up to 400 V $V_{RRM}$
- Not ESD Sensitive

**DO-4 Package**




**Note:**

1. Standard polarity: Stud is cathode.
2. Reverse polarity (R): Stud is anode.
3. Stud is base.

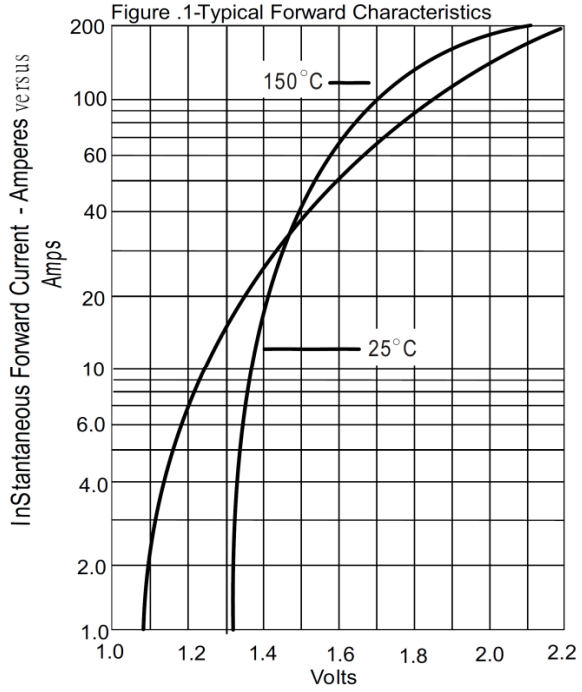
### Maximum ratings, at $T_j$ = 25 °C, unless otherwise specified ("R" devices have leads reversed)

| Parameter | Symbol | Conditions | 1N3889 (R) | 1N3890 (R) | 1N3891 (R) | 1N3892 (R) | 1N3893 (R) | Unit |
|---|---|---|---|---|---|---|---|---|
| Repetitive peak reverse voltage | $V_{RRM}$ | | 50 | 100 | 200 | 300 | 400 | V |
| RMS reverse voltage | $V_{RMS}$ | | 35 | 70 | 140 | 280 | 420 | V |
| DC blocking voltage | $V_{DC}$ | | 50 | 100 | 200 | 400 | 600 | V |
| Continuous forward current | $I_F$ | $T_C \leq 100$ °C | 12 | 12 | 12 | 12 | 12 | A |
| Surge non-repetitive forward current, Half Sine Wave | $I_{F,SM}$ | $T_C$ = 25 °C, $t_p$ = 8.3 ms | 90 | 90 | 90 | 90 | 90 | A |
| Operating temperature | $T_j$ | | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | °C |
| Storage temperature | $T_{stg}$ | | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | °C |

### Electrical characteristics, at Tj = 25 °C, unless otherwise specified

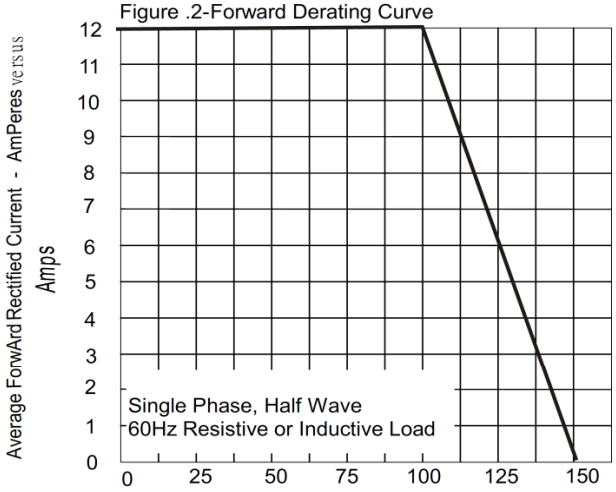
| Parameter | Symbol | Conditions | 1N3889 (R) | 1N3890 (R) | 1N3891 (R) | 1N3892 (R) | 1N3893 (R) | Unit |
|---|---|---|---|---|---|---|---|---|
| Diode forward voltage | $V_F$ | $I_F$ = 12 A, $T_j$ = 25 °C | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | V |
| Reverse current | $I_R$ | $V_R$ = 50 V, $T_j$ = 25 °C | 25 | 25 | 25 | 25 | 25 | µA |
| | | $V_R$ = 50 V, $T_j$ = 150 °C | 6 | 6 | 6 | 6 | 6 | mA |
| **Recovery Time** | | | | | | | | |
| Maximum reverse recovery time | $T_{RR}$ | $I_F$=0.5 A, $I_R$=1.0 A, $I_{RR}$= 0.25 A | 200 | 200 | 200 | 200 | 200 | nS |
| **Thermal characteristics** | | | | | | | | |
| Thermal resistance, junction - case | $R_{thJC}$ | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | °C/W |

Figure .1-Typical Forward Characteristics



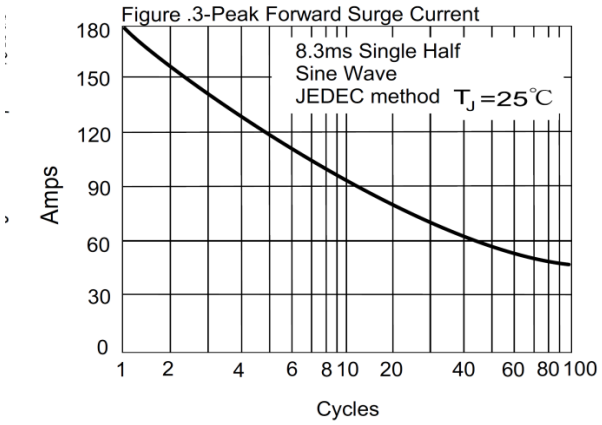

Instantaneous Forward Voltage - Volts

Figure .2-Forward Derating Curve



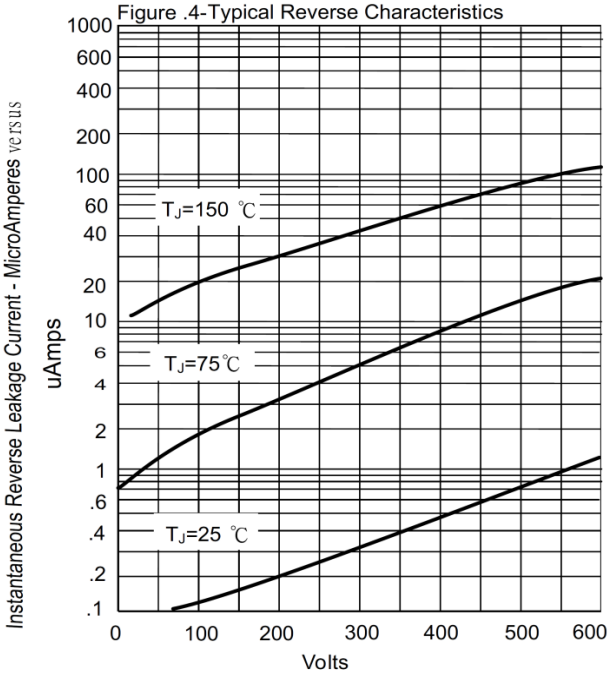

Case Temperature - ℃

Figure .3-Peak Forward Surge Current




Number Of Cycles At 60Hz - Cycles

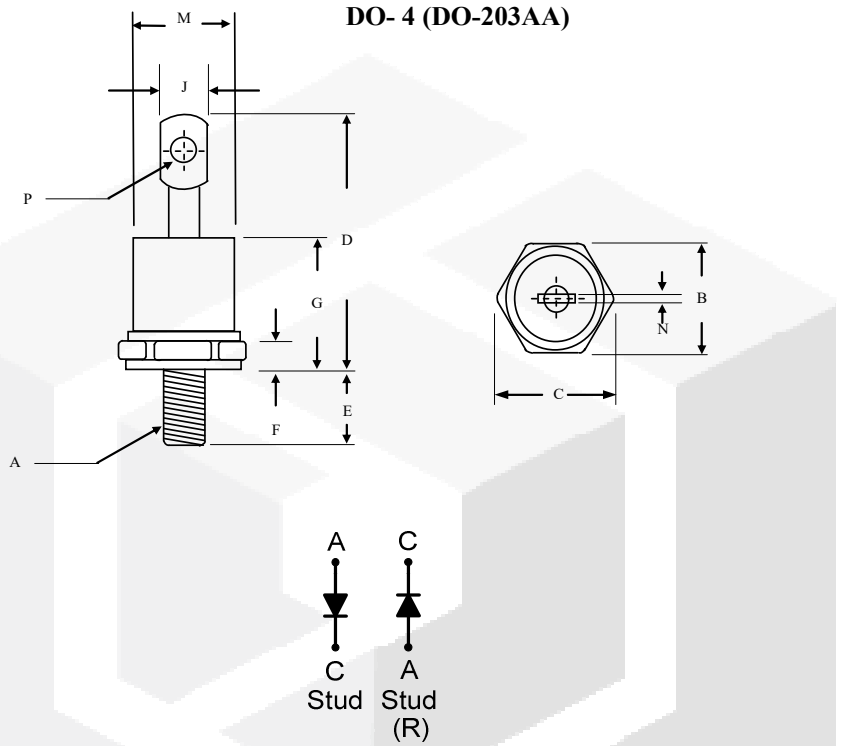
Figure .4-Typical Reverse Characteristics




Reverse Voltage - Volts

## Package dimensions and terminal configuration

Product is marked with part number and terminal configuration.




| | Inches | | Millimeters | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 10-32 UNF | | | |
| B | 0.424 | 0.437 | 10.77 | 11.10 |
| C | ----- | 0.505 | ----- | 12.82 |
| D | ------ | 0.800 | ----- | 20.30 |
| E | 0.453 | 0.492 | 11.50 | 12.50 |
| F | 0.114 | 0.140 | 2.90 | 3.50 |
| G | ----- | 0.405 | ----- | 10.29 |
| J | ----- | 0.216 | ----- | 5.50 |
| M | ----- | φ0.302 | ----- | φ7.68 |
| N | 0.031 | 0.045 | 0.80 | 1.15 |
| P | 0.070 | 0.79 | 1.80 | 2.00 |