

## Silicon Fast Recovery Diode

$V_{RRM} = 50 \text{ V} - 600 \text{ V}$

$I_F = 30 \text{ A}$

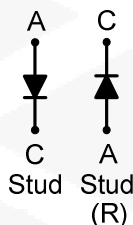
### Features

- High Surge Capability
- Types from 50 V to 600 V  $V_{RRM}$
- Not ESD Sensitive

### Note:

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

DO-5 Package



Maximum ratings, at  $T_j = 25^\circ\text{C}$ , unless otherwise specified ("R" devices have leads reversed)

| Parameter                                            | Symbol     | Conditions                                        | FR30A(R)02 | FR30B(R)02 | FR30D(R)02 | FR30G(R)02 | FR30J(R)02 | Unit             |
|------------------------------------------------------|------------|---------------------------------------------------|------------|------------|------------|------------|------------|------------------|
| Repetitive peak reverse voltage                      | $V_{RRM}$  |                                                   | 50         | 100        | 200        | 400        | 600        | 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                           | $I_F$      | $T_C \leq 100^\circ\text{C}$                      | 30         | 30         | 30         | 30         | 30         | A                |
| Surge non-repetitive forward current, Half Sine Wave | $I_{F,SM}$ | $T_C = 25^\circ\text{C}$ , $t_p = 8.3 \text{ ms}$ | 300        | 300        | 300        | 300        | 300        | A                |
| Operating temperature                                | $T_j$      |                                                   | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | $^\circ\text{C}$ |
| Storage temperature                                  | $T_{stg}$  |                                                   | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | -55 to 150 | $^\circ\text{C}$ |

Electrical characteristics, at  $T_j = 25^\circ\text{C}$ , unless otherwise specified

| Parameter             | Symbol | Conditions                                       | FR30A(R)02 | FR30B(R)02 | FR30D(R)02 | FR30G(R)02 | FR30J(R)02 | Unit          |
|-----------------------|--------|--------------------------------------------------|------------|------------|------------|------------|------------|---------------|
| Diode forward voltage | $V_F$  | $I_F = 30 \text{ A}$ , $T_j = 25^\circ\text{C}$  | 1.0        | 1.0        | 1.0        | 1.0        | 1.0        | V             |
| Reverse current       | $I_R$  | $V_R = 50 \text{ V}$ , $T_j = 25^\circ\text{C}$  | 25         | 25         | 25         | 25         | 25         | $\mu\text{A}$ |
|                       |        | $V_R = 50 \text{ V}$ , $T_j = 125^\circ\text{C}$ | 10         | 10         | 10         | 10         | 10         | mA            |

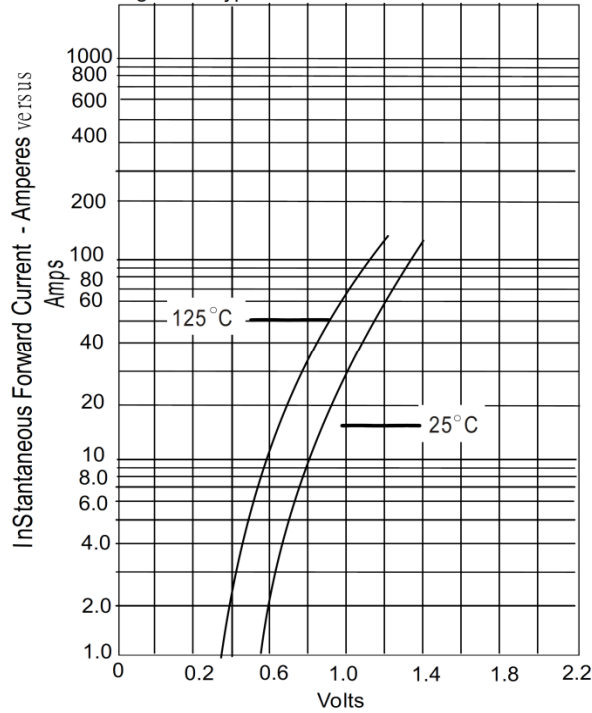
### Recovery Time

|                               |          |                                                                              |     |     |     |     |     |    |
|-------------------------------|----------|------------------------------------------------------------------------------|-----|-----|-----|-----|-----|----|
| Maximum reverse recovery time | $T_{RR}$ | $I_F = 0.5 \text{ A}$ , $I_R = 1.0 \text{ A}$ ,<br>$I_{RR} = 0.25 \text{ A}$ | 200 | 200 | 200 | 200 | 250 | nS |
|-------------------------------|----------|------------------------------------------------------------------------------|-----|-----|-----|-----|-----|----|

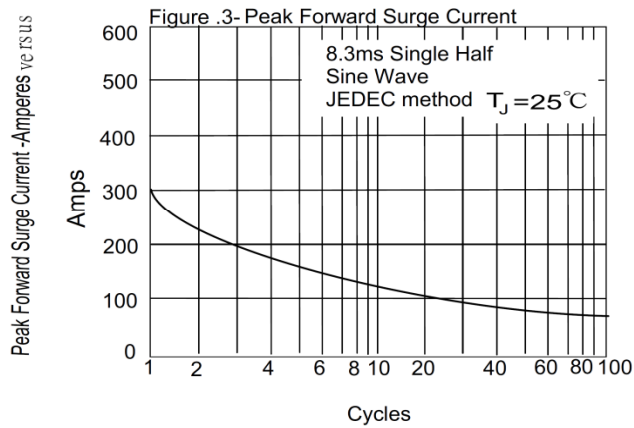
### Thermal characteristics

|                                     |            |  |      |      |      |      |      |                    |
|-------------------------------------|------------|--|------|------|------|------|------|--------------------|
| Thermal resistance, junction - case | $R_{thJC}$ |  | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | $^\circ\text{C/W}$ |
|-------------------------------------|------------|--|------|------|------|------|------|--------------------|

Figure .1-Typical Forward Characteristics

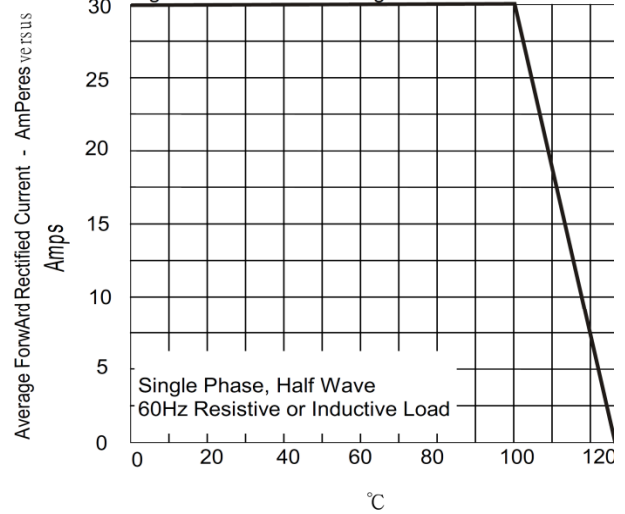


Instantaneous Forward Voltage - Volts



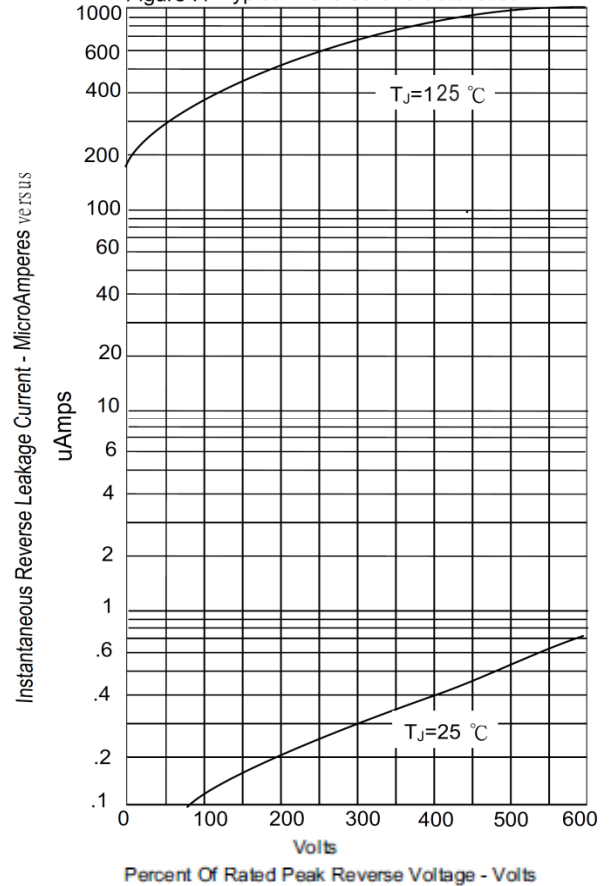
Number Of Cycles At 60Hz - Cycles

Figure .2-Forward Derating Curve



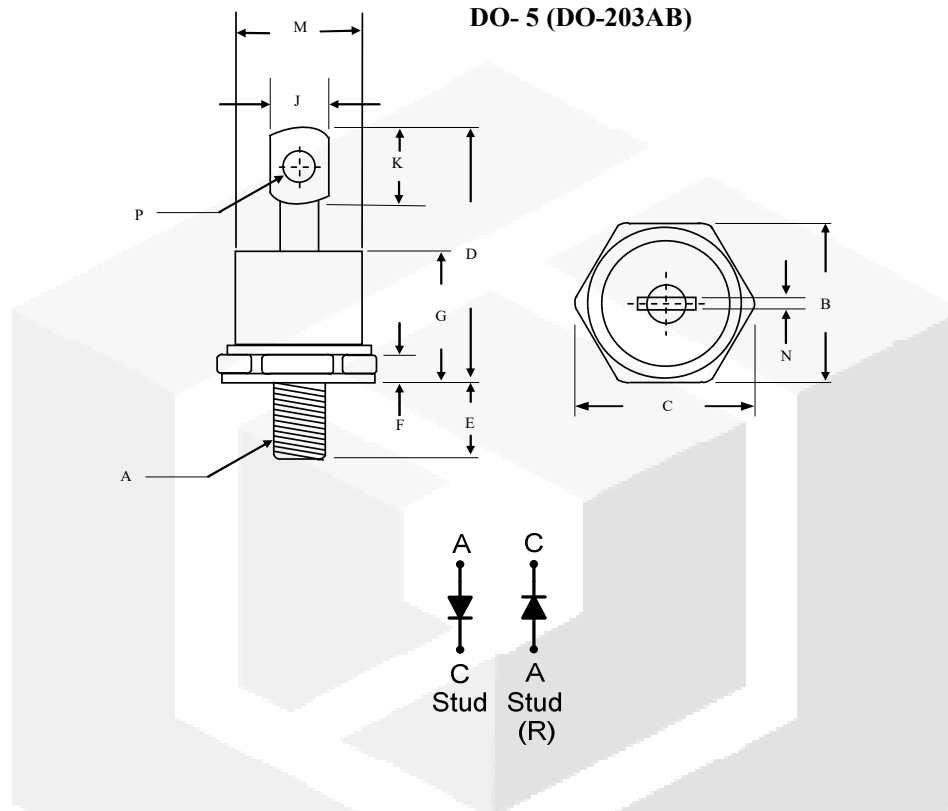
Case Temperature - °C

Figure .4-Typical Reverse Characteristics



## Package dimensions and terminal configuration

Product is marked with part number and terminal configuration.



|   | Inches      |       | Millimeters |       |
|---|-------------|-------|-------------|-------|
|   | Min         | Max   | Min         | Max   |
| A | 1/4 -28 UNF |       |             |       |
| B | 0.669       | 0.687 | 17.19       | 17.44 |
| C | -----       | 0.794 | -----       | 20.16 |
| D | -----       | 1.020 | -----       | 25.91 |
| E | 0.422       | 0.453 | 10.72       | 11.50 |
| F | 0.115       | 0.200 | 2.93        | 5.08  |
| G | -----       | 0.460 | -----       | 11.68 |
| J | -----       | 0.280 | -----       | 7.00  |
| K | 0.236       | ----- | 6.00        | ----- |
| M | -----       | 0.589 | -----       | 14.96 |
| N | -----       | 0.063 | -----       | 1.60  |
| P | 0.140       | 0.175 | 3.56        | 4.45  |