

## Silicon Fast Recovery Diode

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

$I_F = 20\text{ A}$

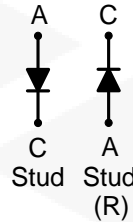
### Features

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

| Parameter  | Symbol     | Conditions   | FR20A(R)02 | FR20B(R)02 | FR20D(R)02 | FR20G(R)02 | FR20J(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                           | $I_F$      | $T_C \leq 100\text{ }^\circ\text{C}$                     | 20         | 20         | 20         | 20         | 20         | A                |
| Surge non-repetitive forward current, Half Sine Wave | $I_{F,SM}$ | $T_C = 25\text{ }^\circ\text{C}$ , $t_p = 8.3\text{ ms}$ | 250        | 250        | 250        | 250        | 250        | 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 $T_j = 25\text{ }^\circ\text{C}$ , unless otherwise specified

| Parameter             | Symbol | Conditions  | FR20A(R)02 | FR20B(R)02 | FR20D(R)02 | FR20G(R)02 | FR20J(R)02 | Unit          |
|-----------------------|--------|---|------------|------------|------------|------------|------------|---------------|
| Diode forward voltage | $V_F$  | $I_F = 20\text{ A}$ , $T_j = 25\text{ }^\circ\text{C}$  | 1.0        | 1.0        | 1.0        | 1.0        | 1.0        | V             |
| Reverse current       | $I_R$  | $V_R = 50\text{ V}$ , $T_j = 25\text{ }^\circ\text{C}$  | 25         | 25         | 25         | 25         | 25         | $\mu\text{A}$ |
|                       |        | $V_R = 50\text{ V}$ , $T_j = 150\text{ }^\circ\text{C}$ | 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 | $R_{thJC}$ |  | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | $^\circ\text{C/W}$ |
|-------------------------------------|------------|--|-----|-----|-----|-----|-----|--------------------|

Figure .1-Typical Forward Characteristics

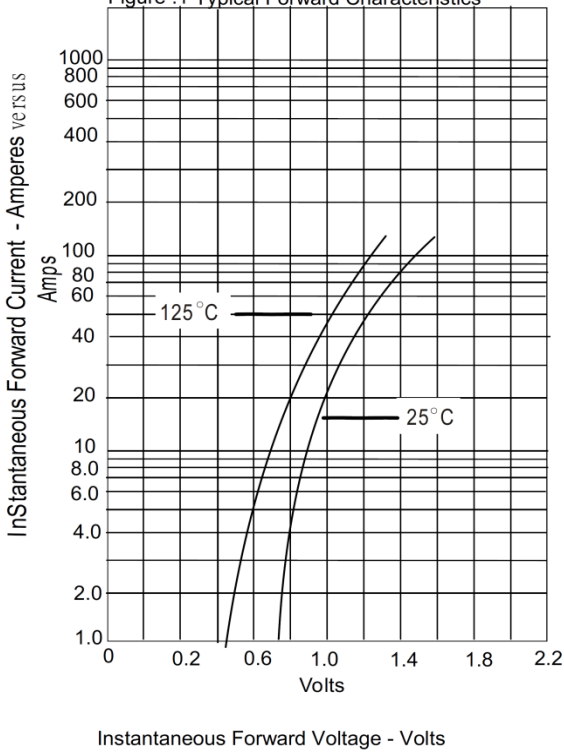


Figure .2- Forward Derating Curve

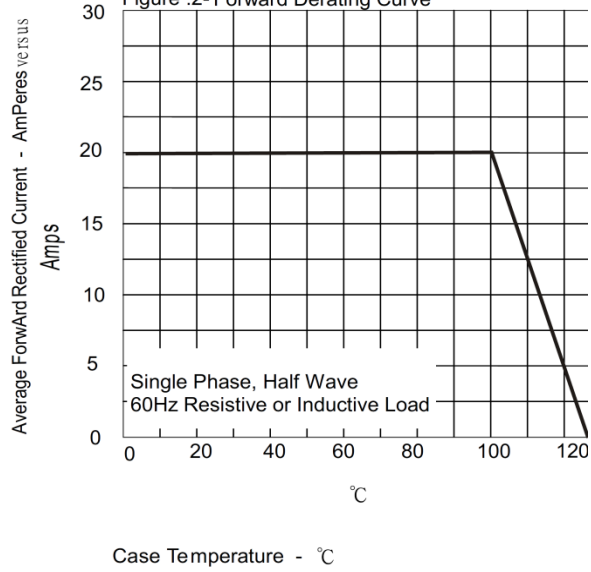


Figure .4 Typical Reverse Characteristics

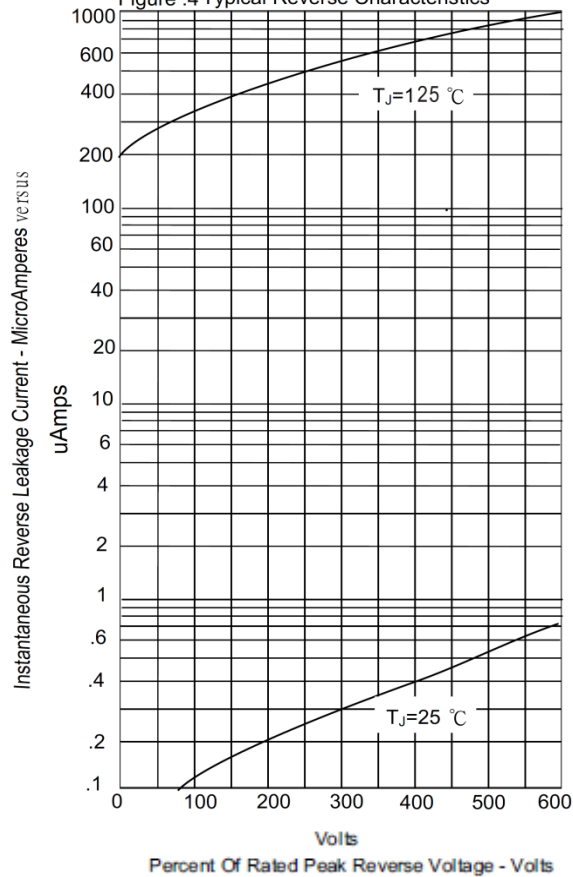
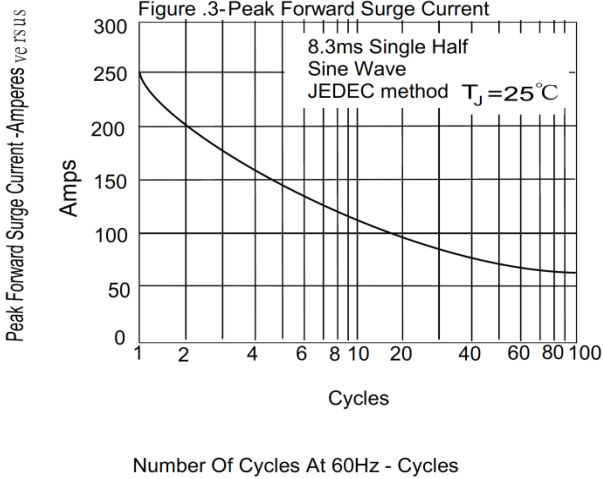
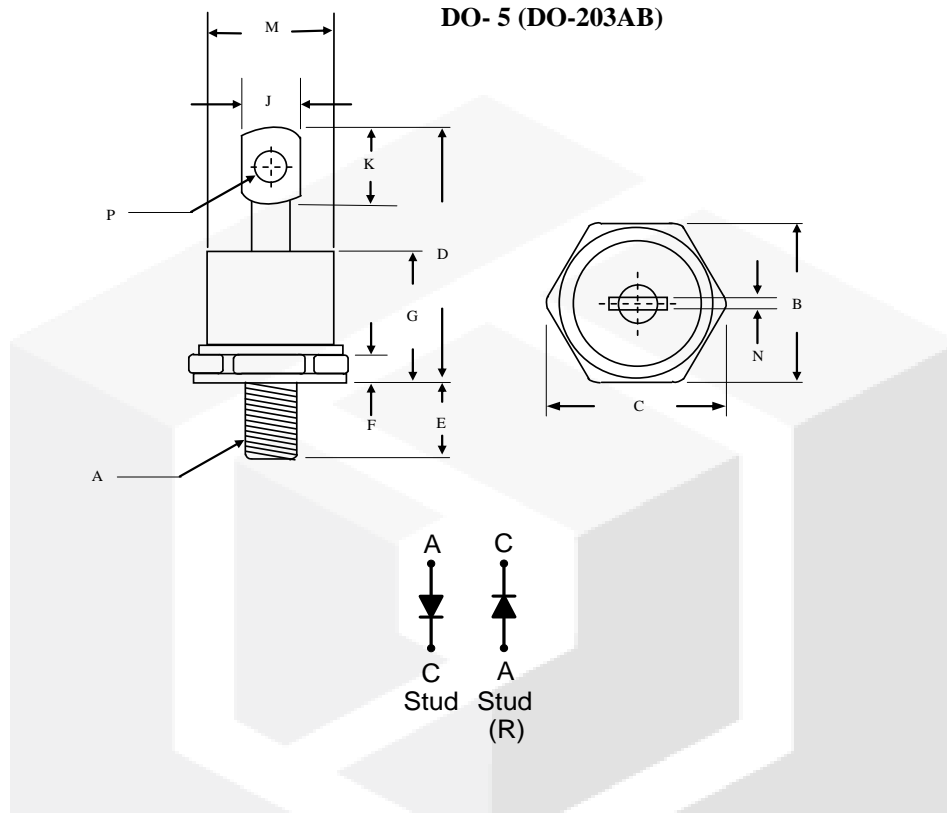


Figure .3-Peak Forward Surge Current



**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  |