

Silicon Fast Recovery Diode

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

$I_F = 20\text{ A}$

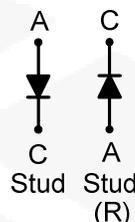
Features

- 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 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | | -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 | μA |
| | | $V_R = 50\text{ V}$, $T_j = 150\text{ }^\circ\text{C}$ | 10 | 10 | 10 | 10 | 10 | mA |

Recovery Time

| Parameter | Symbol | Conditions | FR20A(R)02 | FR20B(R)02 | FR20D(R)02 | FR20G(R)02 | FR20J(R)02 | Unit |
|-------------------------------|----------|---|------------|------------|------------|------------|------------|------|
| Maximum reverse recovery time | T_{RR} | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{RR} = 0.25\text{ A}$ | 200 | 200 | 200 | 200 | 250 | nS |

Thermal characteristics

| Parameter | Symbol | Conditions | FR20A(R)02 | FR20B(R)02 | FR20D(R)02 | FR20G(R)02 | FR20J(R)02 | Unit |
|-------------------------------------|------------|------------|------------|------------|------------|------------|------------|--------------------|
| 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

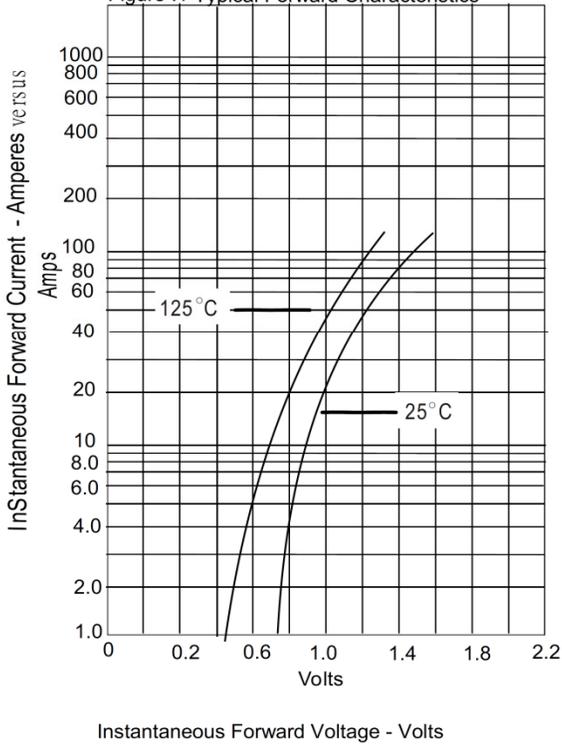


Figure .2- Forward Derating Curve

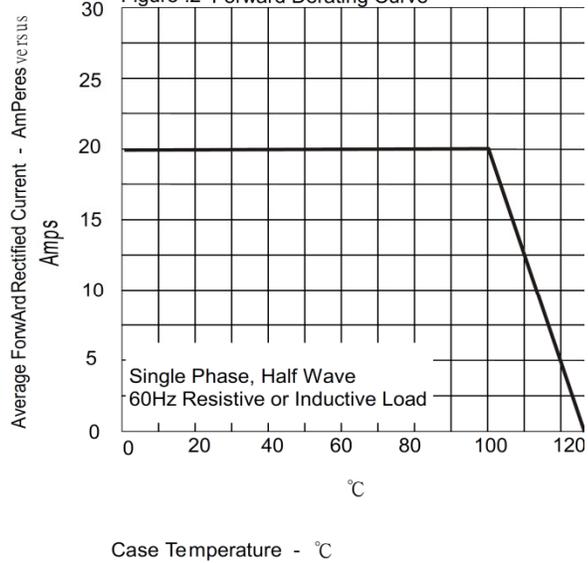


Figure .4 Typical Reverse Characteristics

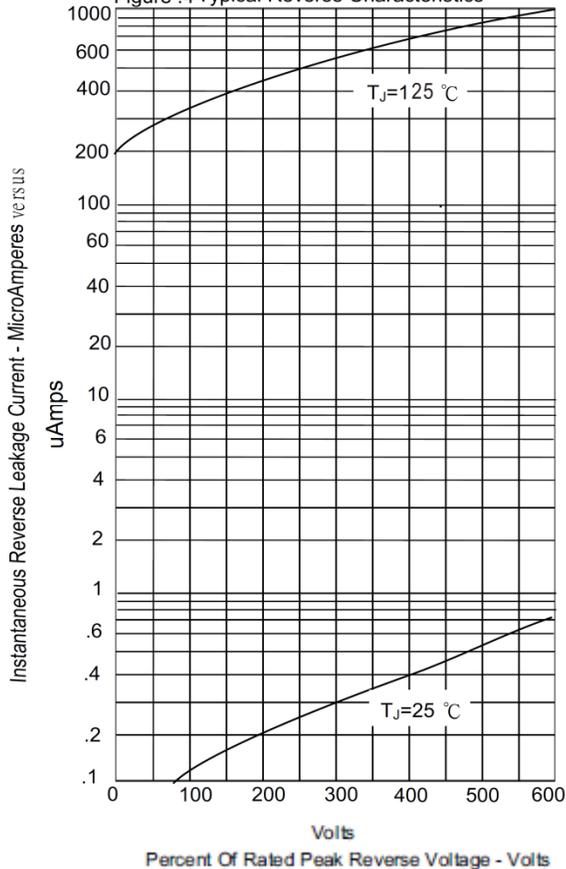
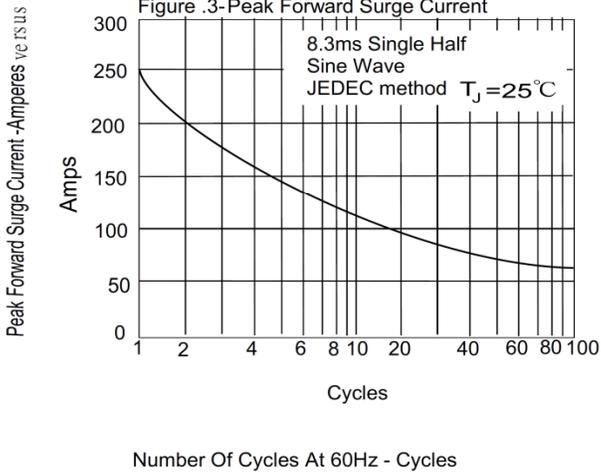
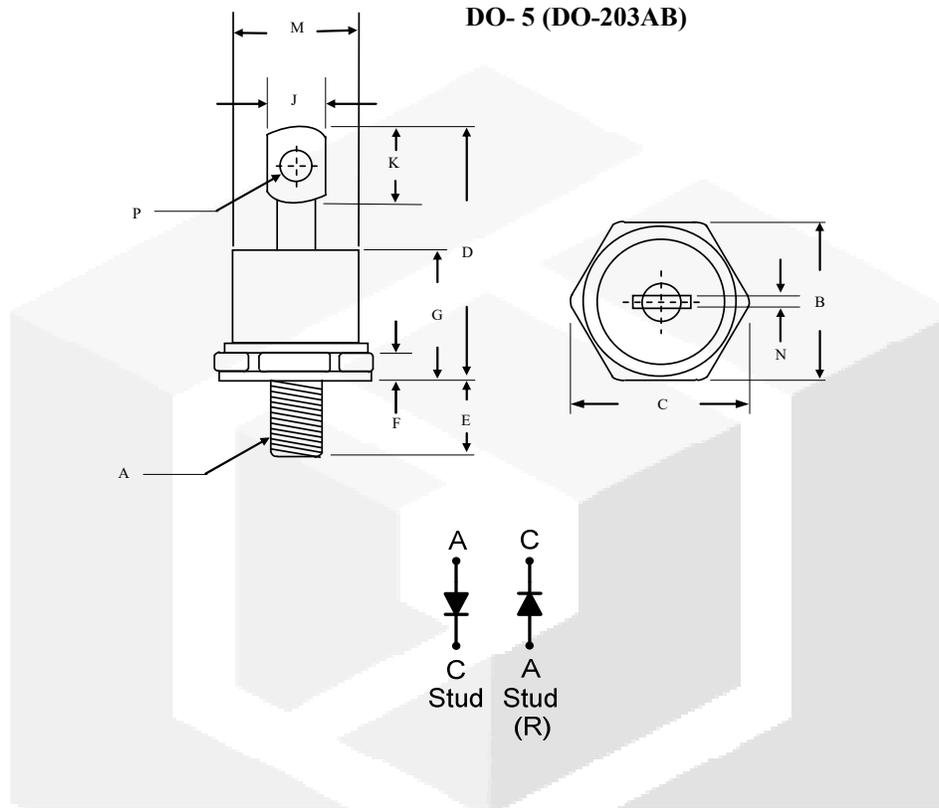


Figure .3-Peak Forward Surge Current



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 |

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