



# America Semiconductor

## Silicon Fast Recovery Diode

FR30K05 thru  
FR30MR05

$V_{RRM} = 800\text{ V} - 1000\text{ V}$

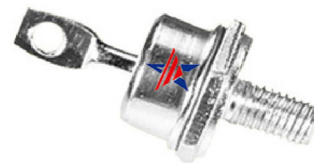
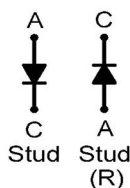
$I_F = 30\text{ A}$

### Features

- High Surge Capability
- Types up to 1000 V  $V_{RRM}$

### 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                                                 | FR30K(R)05 | FR30M(R)05 | Unit               |
|------------------------------------------------------|------------|------------------------------------------------------------|------------|------------|--------------------|
| Repetitive peak reverse voltage                      | $V_{RRM}$  |                                                            | 800        | 1000       | V                  |
| RMS reverse voltage                                  | $V_{RMS}$  |                                                            | 560        | 700        | V                  |
| DC blocking voltage                                  | $V_{DC}$   |                                                            | 800        | 1000       | V                  |
| Continuous forward current                           | $I_F$      | $T_C \leq 100\text{ }^{\circ}\text{C}$                     | 30         | 30         | A                  |
| Surge non-repetitive forward current, Half Sine Wave | $I_{F,SM}$ | $T_C = 25\text{ }^{\circ}\text{C}$ , $t_p = 8.3\text{ ms}$ | 300        | 300        | A                  |
| Operating temperature                                | $T_j$      |                                                            | -40 to 125 | -40 to 125 | $^{\circ}\text{C}$ |
| Storage temperature                                  | $T_{stg}$  |                                                            | -40 to 150 | -40 to 150 | $^{\circ}\text{C}$ |

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

| Parameter                           | Symbol            | Conditions                                                                | FR30K(R)05 | FR30M(R)05 | Unit |
|-------------------------------------|-------------------|---------------------------------------------------------------------------|------------|------------|------|
| Diode forward voltage               | V <sub>F</sub>    | I <sub>F</sub> = 30 A, T <sub>j</sub> = 25 °C                             | 1.4        | 1.4        | V    |
| Reverse current                     | I <sub>R</sub>    | V <sub>R</sub> = 800 V, T <sub>j</sub> = 25 °C                            | 25         | 25         | μA   |
|                                     |                   | V <sub>R</sub> = 800 V, T <sub>j</sub> = 125 °C                           | 10         | 10         | mA   |
| Recovery Time                       |                   |                                                                           |            |            |      |
| Maximum reverse recovery time       | T <sub>RR</sub>   | I <sub>F</sub> =0.5 A, I <sub>R</sub> =1.0 A,<br>I <sub>RR</sub> = 0.25 A | 500        | 500        | nS   |
| Thermal characteristics             |                   |                                                                           |            |            |      |
| Thermal resistance, junction - case | R <sub>thJC</sub> |                                                                           | 0.46       | 0.46       | °C/W |



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Figure .1-Typical Forward Characteristics

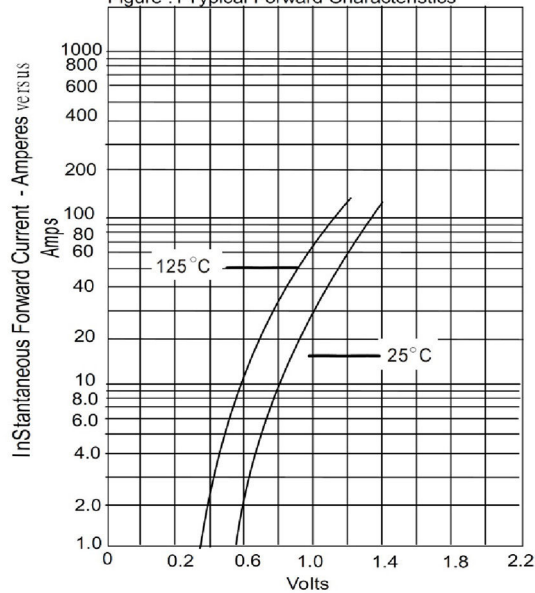


Figure .2-Forward Derating Curve

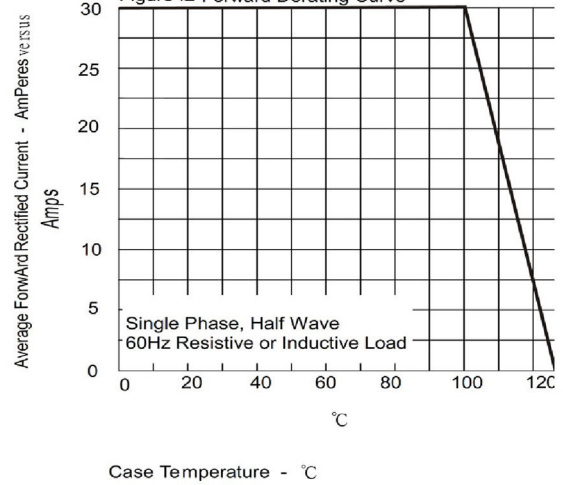


Figure .3- Peak Forward Surge Current

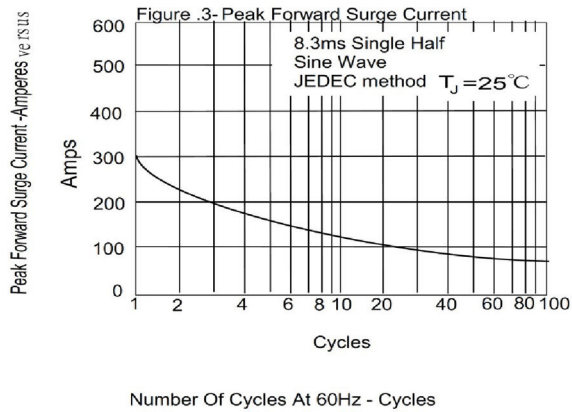


Figure .4-Typical Reverse Characteristics

