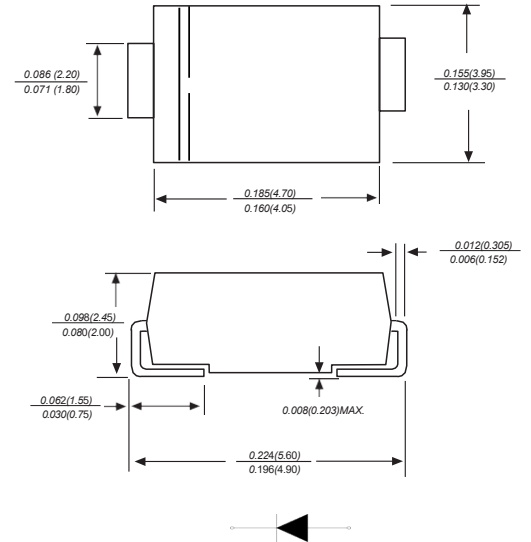


## SURFACE MOUNT ULTRA FAST RECTIFIER

### Features

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Ultra fast switching for high efficiency
- ◆ Low reverse leakage
- ◆ Built-in strain relief, ideal for automated placement
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed 250 °C/10 seconds at terminals

### DO-214AA/SMB



Dimensions in inches and (millimeters)

## Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

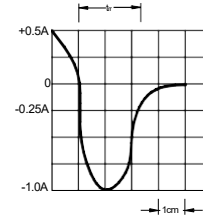
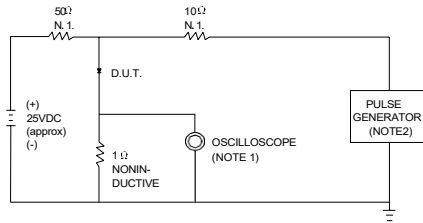
Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

| Parameter                                                                                              | SYMBOLS                           | US5AB        | US5BB | US5DB | US5GB | US5JB | US5KB | US5MB | UNITS |
|--------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|-------|-------|-------|-------|-------|-------|-------|
| Marking Code                                                                                           |                                   |              |       |       |       |       |       |       |       |
| Maximum repetitive peak reverse voltage                                                                | V <sub>RRM</sub>                  | 50           | 100   | 200   | 400   | 600   | 800   | 1000  | V     |
| Maximum RMS voltage                                                                                    | V <sub>RMS</sub>                  | 35           | 70    | 140   | 280   | 420   | 560   | 700   | V     |
| Maximum DC blocking voltage                                                                            | V <sub>DC</sub>                   | 50           | 100   | 200   | 400   | 600   | 800   | 1000  | V     |
| Maximum average forward rectified current at TL=55°C                                                   | I <sub>(AV)</sub>                 | 5.0          |       |       |       |       |       |       | A     |
| Peak forward surge current<br>8.3ms single half sine-wave<br>superimposed on rated load (JEDEC Method) | I <sub>FSM</sub>                  | 100          |       |       |       |       |       |       | A     |
| Maximum instantaneous forward voltage at 5.0A                                                          | V <sub>F</sub>                    | 1.0          |       |       | 1.40  | 1.7   |       |       | V     |
| Maximum DC reverse current    TA=25°C<br>at rated DC blocking voltage    TA=125°C                      | I <sub>R</sub>                    | 5.0<br>300.0 |       |       |       |       |       |       | µA    |
| Maximum reverse recovery time    (NOTE 1)                                                              | t <sub>rr</sub>                   | 50           |       |       |       | 75    |       |       | ns    |
| Typical junction capacitance (NOTE 2)                                                                  | C <sub>J</sub>                    | 15.0         |       |       |       | 12.0  |       |       | pF    |
| Typical thermal resistance (NOTE 3)                                                                    | RθJA                              | 15.0         |       |       |       |       |       |       | °C/W  |
| Operating junction and storage temperature range                                                       | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150  |       |       |       |       |       |       | °C    |

**Note:** 1. Reverse recovery condition  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $t_{rr}=0.25\text{A}$   
 2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.  
 3. P.C.B. mounted with 0.2x0.2" (5.0x5.0mm) copper pad areas

## Ratings And Characteristic Curves

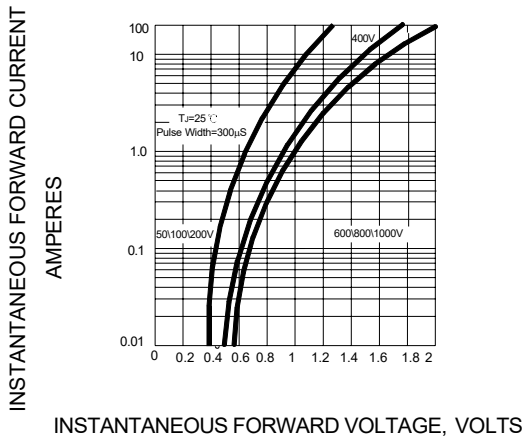
**FIG.1 – TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC**



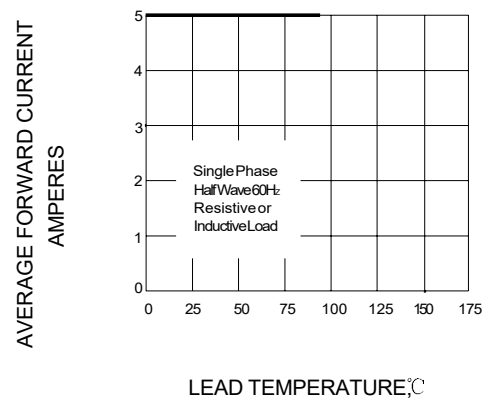
NOTES: 1. RISE TIME = 7ns MAX. INPUT IMPEDANCE = 1MΩ .22pF.  
2. RISE TIME = 10ns MAX. SOURCE IMPEDANCE = 50Ω .

SET TIME BASE FOR 20/30 ns/cm

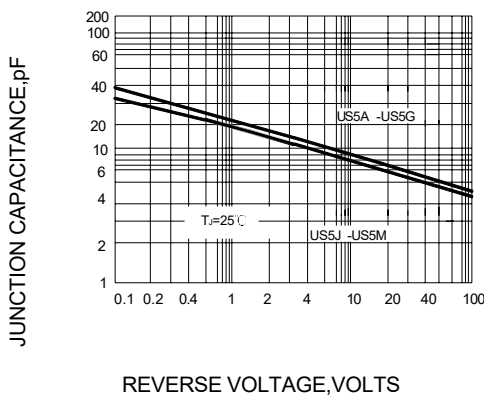
**FIG.2 -- TYPICAL FORWARD CHARACTERISTIC**



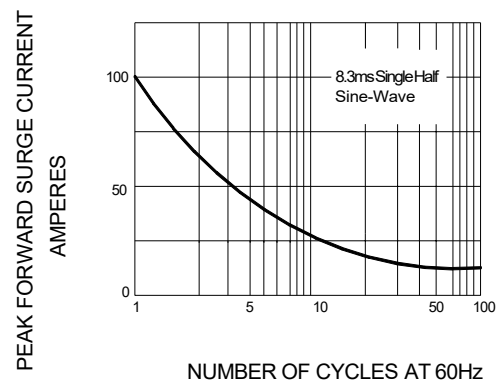
**FIG.3 -- FORWARD DERATING CURVE**



**FIG.4 -- TYPICAL JUNCTION CAPACITANCE**



**FIG.5 -- PEAK FORWARD SURGE CURRENT**



The curve above is for reference only.