

# SURFACE MOUNT GLASS PASSIVATED FAST RECOVERY SILICON RECTIFIER

## USM101 THRU USM108

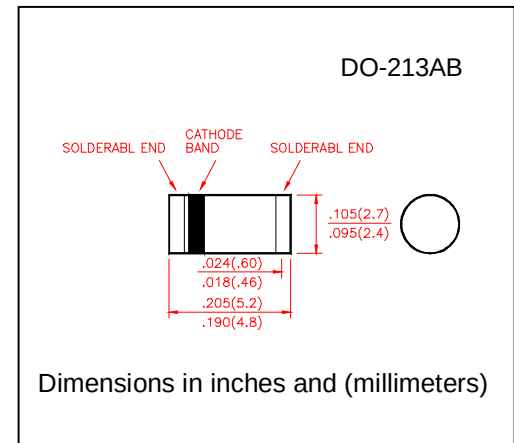
|               |                  |
|---------------|------------------|
| VOLTAGE RANGE | 50 to 1000 Volts |
| CURRENT       | 1.0 Ampere       |

### FEATURES

- For surface mounted applications
- Glass passivated chip junction
- Low leakage current
- Fast switching
- Plastic package has underwrites laboratory flammability Classification 94V-0
- High temperature soldering guaranteed 250°C/10 second at terminals

### MECHANICAL DATA

- Case: molded plastic
- Polarity: band indicate cathode
- Mounting position: Any
- Weight: 0.12 grams



### 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 derate current by 20%

|                                                                                                        |                        | SYMBOLS                          | USM 101     | USM 102 | USM 103 | USM 104 | USM 105 | USM 106 | USM 107 | USM 108 | UNIT  |
|--------------------------------------------------------------------------------------------------------|------------------------|----------------------------------|-------------|---------|---------|---------|---------|---------|---------|---------|-------|
| Maximum Repetitive Peak Reverse Voltage                                                                |                        | V <sub>RRM</sub>                 | 50          | 100     | 200     | 300     | 400     | 600     | 800     | 1000    | Volts |
| Maximum RMS Voltage                                                                                    |                        | V <sub>RMS</sub>                 | 35          | 70      | 140     | 210     | 280     | 420     | 560     | 700     | Volts |
| Maximum DC Blocking Voltage                                                                            |                        | V <sub>DC</sub>                  | 50          | 100     | 200     | 300     | 400     | 600     | 800     | 1000    | Volts |
| Maximum Average Forward Rectified Current at T <sub>T</sub> =100°C                                     |                        | I <sub>(AV)</sub>                | 1.0         |         |         |         |         |         |         |         | Amps  |
| Peak Forward Surge Current<br>8.3ms single half sine wave superimposed on<br>rated load (JEDEC Method) |                        | I <sub>FSM</sub>                 | 30          |         |         |         |         |         |         |         | Amps  |
| Maximum Instantaneous Forward Voltage at 1.0A                                                          |                        | V <sub>F</sub>                   | 1.0         |         |         | 1.3     |         | 1.7     |         |         | Volts |
| Maximum DC Reverse Current<br>at rated DC Blocking Voltage at                                          | T <sub>A</sub> = 25°C  | I <sub>R</sub>                   | 5.0         |         |         |         |         |         |         |         | μA    |
|                                                                                                        | T <sub>A</sub> = 125°C |                                  | 100         |         |         |         |         |         |         |         |       |
| Typical Reverse Recovery Time (NOTE 1)                                                                 |                        | T <sub>rr</sub>                  | 50          |         |         |         |         | 100     |         |         | ns    |
| Typical Junction Capacitance (Note 2)                                                                  |                        | C <sub>J</sub>                   | 15          |         |         |         |         |         |         |         | PF    |
| Typical Thermal Resistance (Note 3)                                                                    |                        | R <sub>θJT</sub>                 | 40          |         |         |         |         |         |         |         | °C/W  |
| Operating and Storage Temperature Range                                                                |                        | T <sub>J</sub> ,T <sub>STG</sub> | -55 to +150 |         |         |         |         |         |         |         | °C    |

#### Notes:

- Reverse recovery test conditions:  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{RR}=0.25\text{A}$
- Measured at 1.0MHz and applied reverse voltage of 4.0 Volts.
- Thermal resistance Junction to terminal 6.0mm<sup>2</sup> copper pads to each terminal.

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## RATINGS AND CHARACTERISTIC CURVES USM101 THRU USM108

FIG.1-FORWARD CURRENT DERATING CURVE

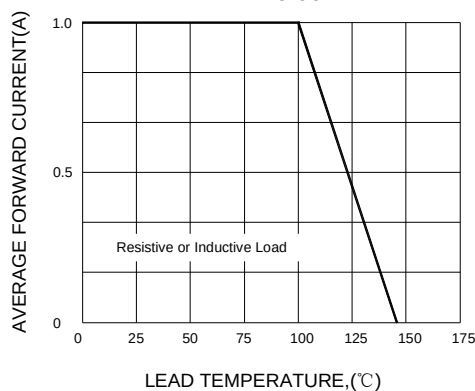


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

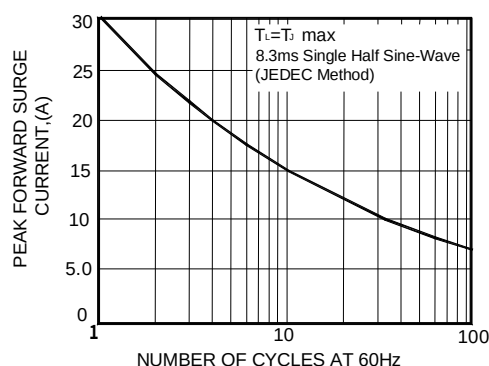


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

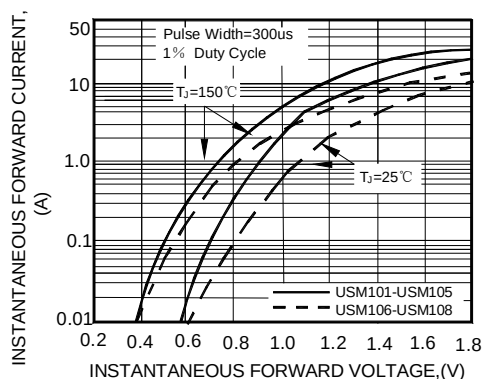


FIG.4-TYPICAL REVERSE LEAKAGE CHARACTERISTICS

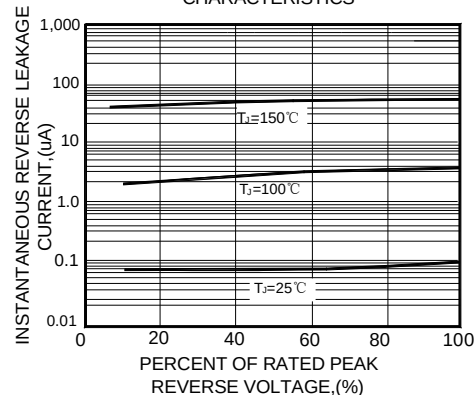


FIG.5-TYPICAL JUNCTION CAPACITANCE

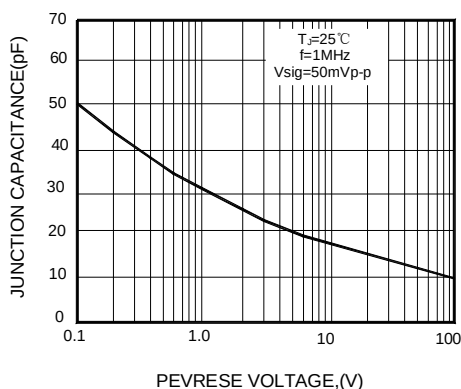


FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

