



# US3A THRU US3M

## SURFACE MOUNT ULTRA FAST RECTIFIER

Reverse Voltage - 50 to 1000 Volts Forward Current - 3.0 Amperes

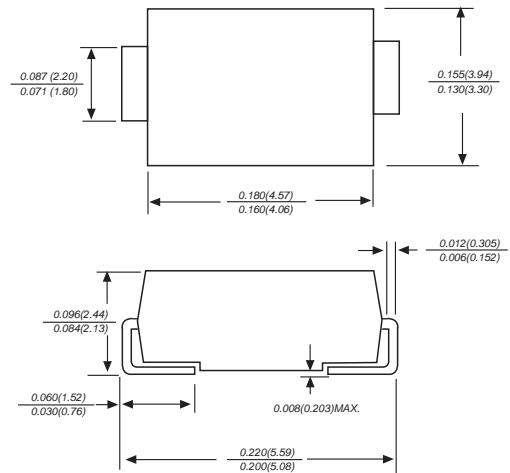
### FEATURES

The plastic package carries Underwriters Laboratory  
Flammability Classification 94V-0  
For surface mounted applications  
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  
Glass passivated chip junction

### MECHANICAL DATA

**Case:** JEDEC DO-214AA molded plastic body over passivated chip  
**Terminals:** Solder plated, solderable per MIL-STD-750,  
Method 2026  
**Polarity:** Color band denotes cathode end  
**Mounting Position:** Any  
**Weight:** 0.003 ounce, 0.093grams

### DO-214AA



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%.

|   | SYMBOLS         | US3A         | US3B | US3D | US3G | US3J | US3K | US3M | UNITS              |
|---|-----------------|--------------|------|------|------|------|------|------|--------------------|
| Maximum repetitive peak reverse voltage   | $V_{RRM}$       | 50           | 100  | 200  | 400  | 600  | 800  | 1000 | VOLTS              |
| Maximum RMS voltage   | $V_{RMS}$       | 35           | 70   | 140  | 280  | 420  | 560  | 700  | VOLTS              |
| Maximum DC blocking voltage   | $V_{DC}$        | 50           | 100  | 200  | 400  | 600  | 800  | 1000 | VOLTS              |
| Maximum average forward rectified current at $T_L=100^\circ\text{C}$                                      | $I_{(AV)}$      | 3.0          |      |      |      |      |      |      | Amps               |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed on rated load (JEDEC Method)       | $I_{FSM}$       | 100.0        |      |      |      |      |      |      | Amps               |
| Maximum instantaneous forward voltage at 3.0A   | $V_F$           | 1.0          |      | 1.4  | 1.7  |      |      |      | Volts              |
| Maximum DC reverse current $T_A=25^\circ\text{C}$<br>at rated DC blocking voltage $T_A=125^\circ\text{C}$ | $I_R$           | 5.0<br>200.0 |      |      |      |      |      |      | $\mu\text{A}$      |
| Maximum reverse recovery time (NOTE 1)  | $t_{rr}$        | 50           |      |      |      | 100  |      | ns   |                    |
| Typical junction capacitance (NOTE 2)   | $C_J$           | 75           |      |      |      | 63   |      | pF   |                    |
| Typical thermal resistance (NOTE 3)   | $R_{\theta JA}$ | 47.0         |      |      |      |      |      |      | $^\circ\text{C/W}$ |
| Operating junction and storage temperature range  | $T_J, T_{STG}$  | -65 to +150  |      |      |      |      |      |      | $^\circ\text{C}$   |

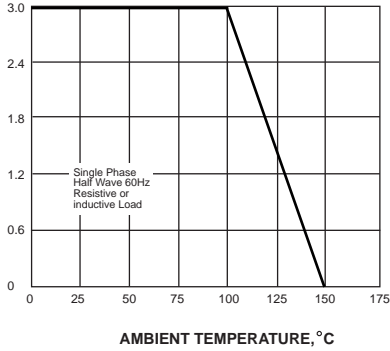
**Note:** 1.Reverse recovery condition  $I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$   
 2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.  
 3.P.C.B. mounted with 0.2x0.2" (5.0x5.0mm) copper pad areas



# RATINGS AND CHARACTERISTIC CURVES US3A THRU US3M

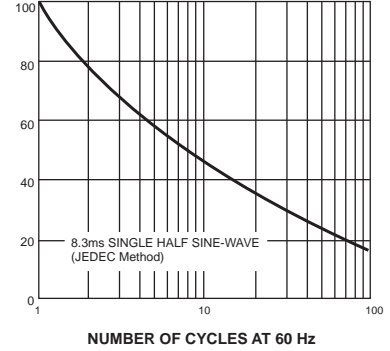
AVERAGE FORWARD RECTIFIED CURRENT, AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



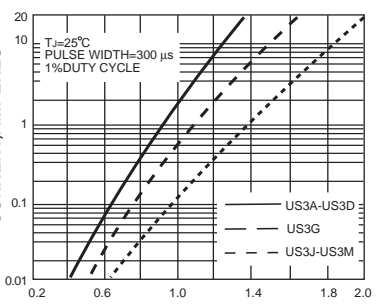
PEAK FORWARD SURGE CURRENT, AMPERES

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



INSTANTANEOUS FORWARD CURRENT, AMPERES

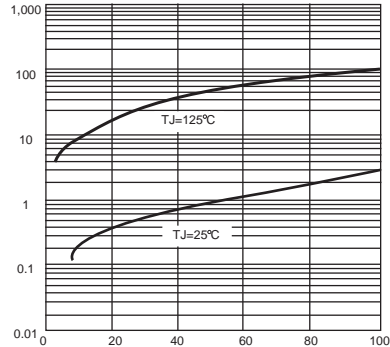
FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS FORWARD VOLTAGE, VOLTS

INSTANTANEOUS REVERSE CURRENT, MICROAMPERES

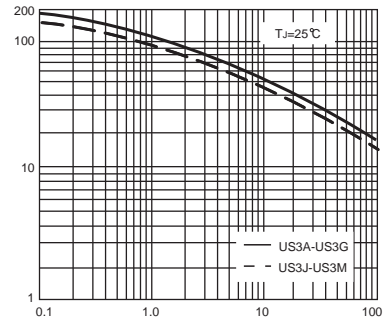
FIG. 4-TYPICAL REVERSE CHARACTERISTICS



PERCENT OF PEAK REVERSE VOLTAGE, %

JUNCTION CAPACITANCE, pF

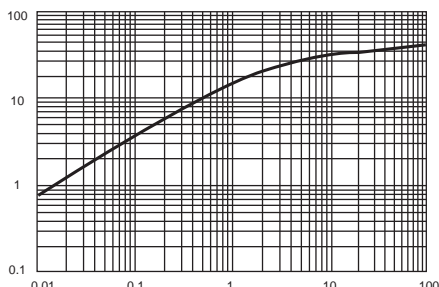
FIG. 5-TYPICAL JUNCTION CAPACITANCE



REVERSE VOLTAGE, VOLTS

TRANSIENT THERMAL IMPEDANCE, °C/W

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



t, PULSE DURATION, sec.