



US3A THRU US3M

Surface Mount Ultra Fast Rectifiers

Features

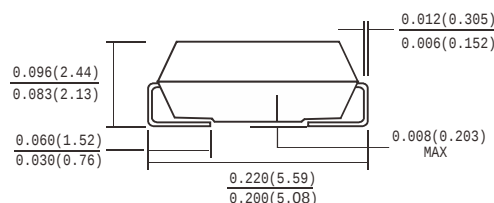
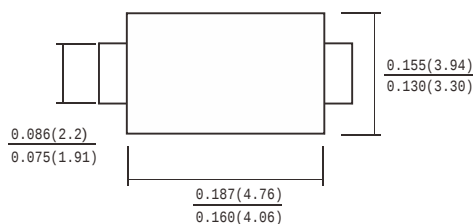
- Low profile package
- Ideal for automated placement
- Glass passivated chip junctions
- Fast switching for high efficiency
- High forward surge capability
- High temperature soldering:
260°C/10 seconds at terminals
- Component in accordance to
RoHS 2002/95/1 and WEEE 2002/96/EC

Mechanical Data

- **Case:** JEDEC DO-214AA molded plastic body over glass passivated chip
- **Terminals:** Solder plated, solderable per J-STD-002B and JESD22-B102D
- **Polarity:** Laser band denotes cathode end



SMB(DO-214AA)



Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics Rating at 25 °C

ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%

Type Number	SYMBOL	US3A	US3B	US3D	US3G	US3J	US3K	US3M	Unit
Maximum Recurrent Peak Reverse Voltage	V _{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V _{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V _{DC}	50	100	200	400	600	800	1000	V
Average Rectified Output Current @T _L =90 °C	I _{F(AV)}	3.0							A
Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	I _{FSM}	100							A
Forward Voltage @IF=3.0A	V _{FM}	1.0			1.3	1.7			V
Peak Reverse Current @T _A =25 °C	I _R	3.0							uA
At Rated DC Blocking Voltage @T _A =125 °C		100							
i ² t Rating for Fusing (t < 8.3ms)	I ² t	26.56							A ² s
Maximum Reverse Recovery Time (Note 1)	T _{rr}	50				75			ns
Typical Junction Capacitance (Note 2)	C _J	28							pF
Typical Thermal Resistance Junction to Ambient(Note 3)	R _{θ JA}	20							°C/W
Operating Temperature Range	T _J	-55 to+150							°C
Storage Temperature Range	T _{STG}	-55 to +150							°C

Note: 1.Reverse Recovery Test Conditions: $I_F=0.5A, I_R=1.0A, I_{RR}=0.25A$.
2. Measured at 1.0 MHz and Applied reverse Voltage of 4.0V D.C
3. 8.0MM² (.013mm Thick) Land Areas.



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Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

FIG.1 MAXIMUM AVERAGE FORWARD CURRENT DERATING

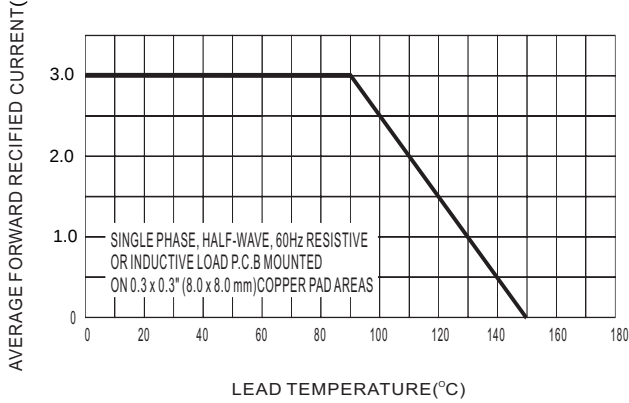


FIG.2 TYPICAL FORWARD CHARACTERISTICS

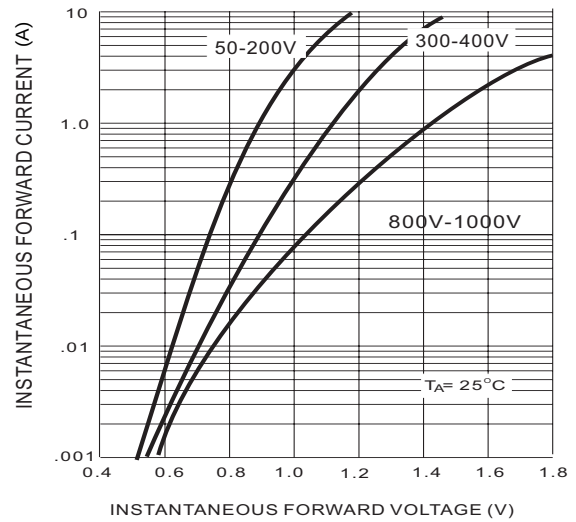


FIG.3 MAXIMUM NON-REPEITIVE SURGE CURRENT

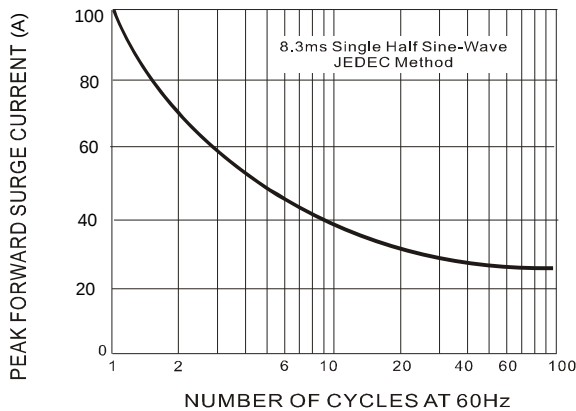


FIG.4 TYPICAL JUNCTION CAPACITANCE

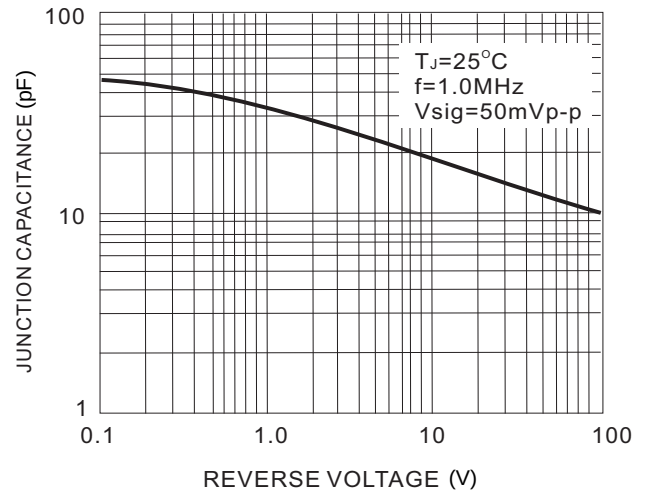


FIG.5 TYPICAL REVERSE CHARACTERISTICS

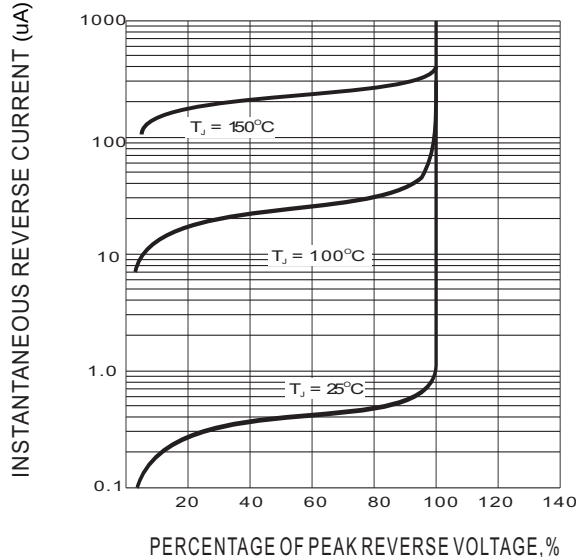


FIG.6 MOUNTING PAD LAYOUT

