



# US1A-US1M

## Surface Mount Ultra Fast Rectifiers

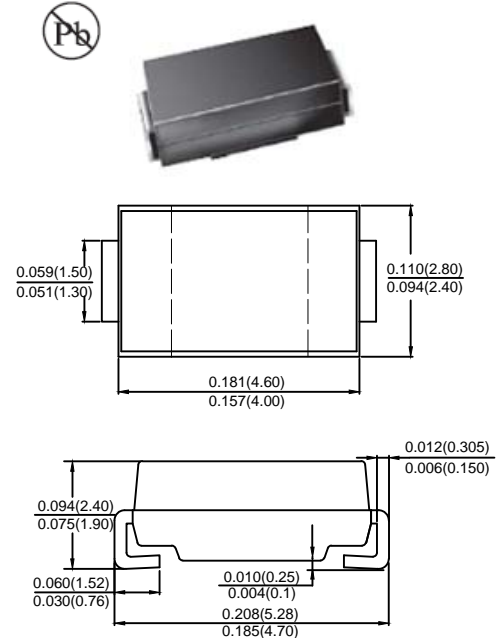
### Features

- Low profile space
- Ideal for automated placement
- Glass passivated chip junctions
- Low forward voltage drop
- Low leakage current
- 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 Date

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

### SMADO-214AC



Dimensions in inches and (millimeters)

### Maximum Ratings & Thermal Characteristics

Rating at 25°C ambient temperature unless otherwise specified  
Single phase, half wave, 60Hz, resistive or inductive load  
For capacitive load derate current by 20%

Type Number	SYMBOL	US1A	US1B	US1D	US1G	US1J	US1K	US1M	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 @ $T_A = 100^\circ\text{C}$	$I_{F(AV)}$	1.0							A
Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	30							A
Rating for fusing ( $t < 8.3\text{ms}$ )	$I^2 t$	3.74							$\text{A}^2\text{s}$
Forward Voltage @ $I_F = 1.0\text{A}$	$V_{FM}$	1.0		1.25		1.65			V
Peak Reverse Current @ $T_A = 25^\circ\text{C}$	$I_R$	5.0							uA
At Rated DC Blocking Voltage @ $T_A = 125^\circ\text{C}$		200							
Maximum Reverse Recovery Time (Note 1)	$T_{rr}$	50				75			ns
Typical Junction Capacitance (Note 2)	$C_J$	17							pF
Typical Thermal Resistance Junction to Ambient (Note 3)	$R_{\theta JA}$	75							$^\circ\text{C}/\text{W}$
Operating Temperature Range	$T_J$	-55 to +150							$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150							$^\circ\text{C}$

- Note:
1. Reverse Recovery Test Conditions:  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$ ,  $I_{RR} = 0.25\text{A}$ .
  2. Measured at 1.0 MHz and Applied reverse voltage of 4.0V D.C
  3. 8.0MM<sup>2</sup> (.013mm Thick) Land Areas.



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

Fig.1 Forward Current Derating Curve

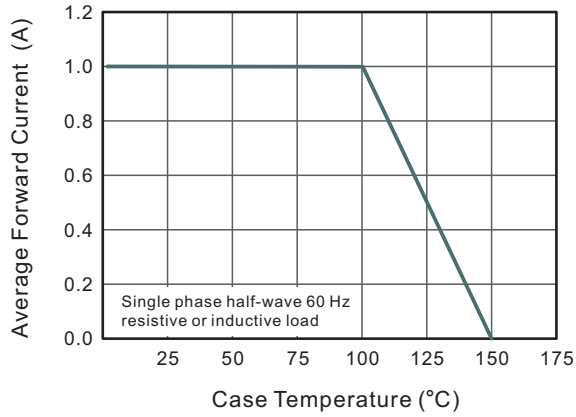


Fig.2 Typical Reverse Characteristics

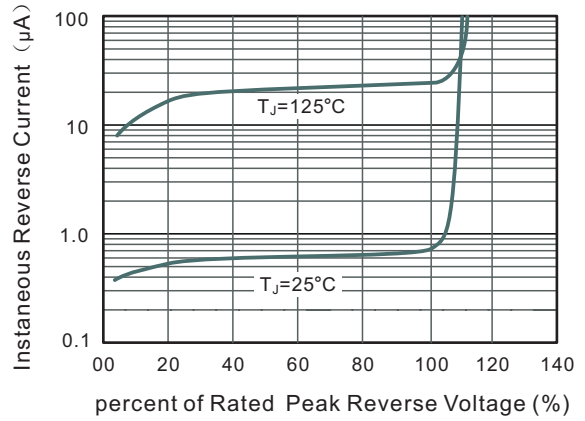


Fig.3 Typical Forward Characteristics

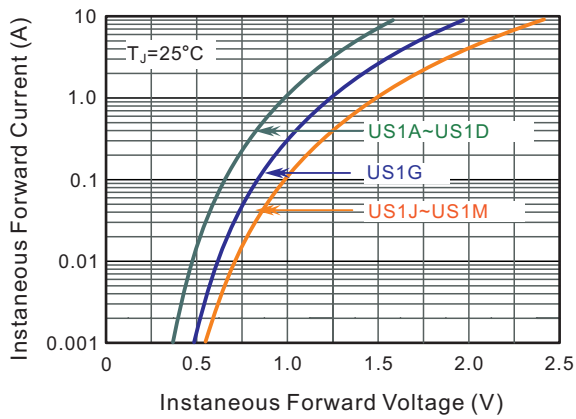
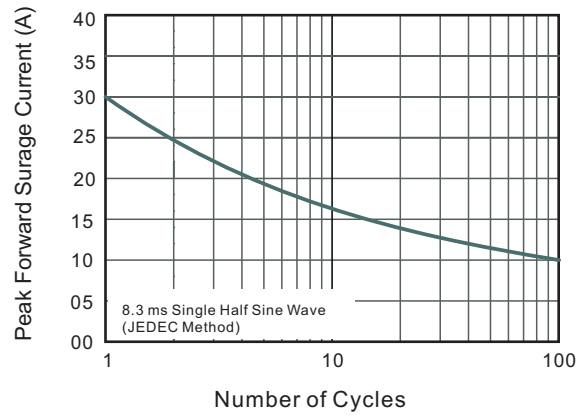
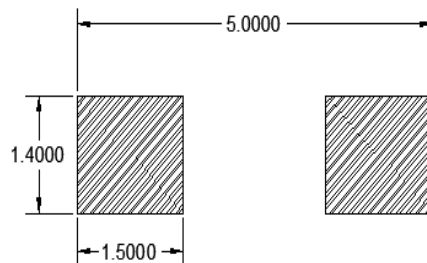


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



### SMA PAD LAYOUT



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