

# Ultra-Fast Recovery Rectifier

## US1J - US1M

### Features

- Low forward voltage drop
- High forward surge current capability
- Low-profile SMD ideal for automated manufacturing
- RoHS compliant with Halogen-free



### Mechanical Data

- Case: SMA molded plastic
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Solder plated; solderable per MIL- STD-202, Method 208
- Polarity: Color band denotes cathode end

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	US1J	US1K	US1M	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	600	800	1000	V
RMS Reverse Voltage	V <sub>RMS</sub>	420	560	700	V
DC Blocking Voltage	V <sub>DC</sub>	600	800	1000	V
Maximum Average Forward Output Current	I <sub>F_AV</sub>	1.0			A
Peak Forward Surge Current, 8.3ms Single Half Sine wave	I <sub>FSM</sub>	30			A

### Thermal Characteristics

Parameter	Symbol	US1J	US1K	US1M	Unit
Typical Thermal Resistance *1	R <sub>θJA</sub>	70			°C/W
	R <sub>θJC</sub>	25			
	R <sub>θJL</sub>	30			
Operating Junction Temperature Range	T <sub>J</sub>	-55 ~ +150			°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150			°C

Note \*1: Device mounted on p.c.b. with 10 mm x 20 mm x 0.1mm copper pad area

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### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

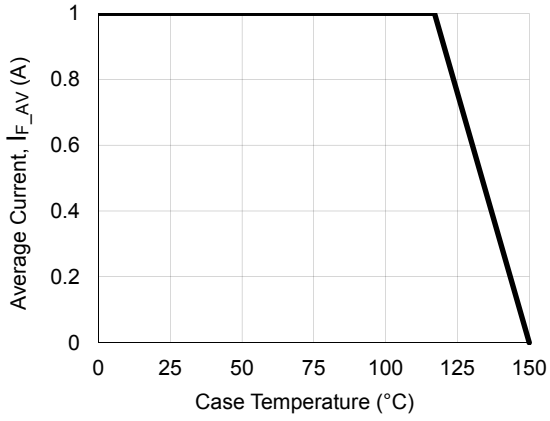
Parameter	Symbol	Test Condition	Typ.	Max.	Unit	
Maximum Instantaneous Forward Voltage	$V_F$	$I_F = 1.0\text{A}$	-	1.7	V	
Maximum Reverse Current	$I_R$	Rated	@ $T_A = 25^\circ\text{C}$	-	5.0	$\mu\text{A}$
		$V_R$	@ $T_A = 125^\circ\text{C}$	-	100.0	
Maximum Reverse Recovery Time	$t_{rr}$	$I_F = 0.5\text{A}$ , $I_{RM} = 1\text{A}$ , $I_{R(REC)} = 0.25\text{A}$	-	75	ns	

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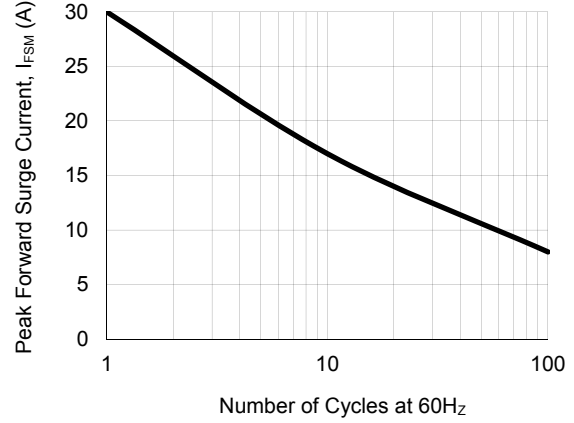
# US1J - US1M

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

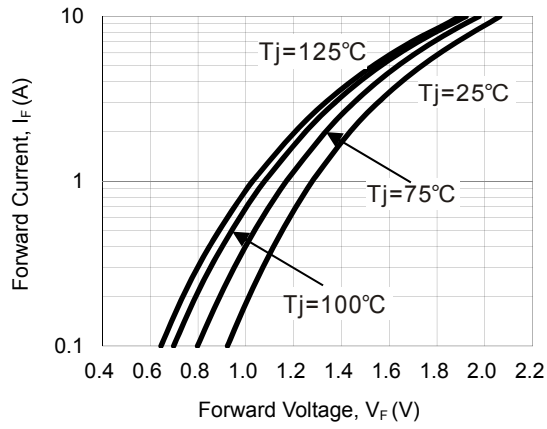
**Fig.1 Forward Current Derating Curve**



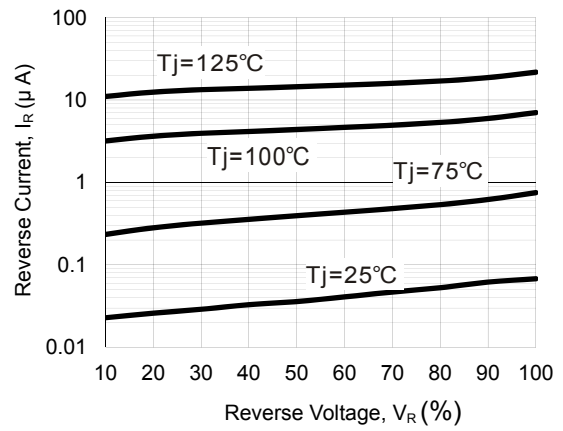
**Fig.2 Surge Current Derating Curve**



**Fig.3 Typical Forward Voltage Characteristic**



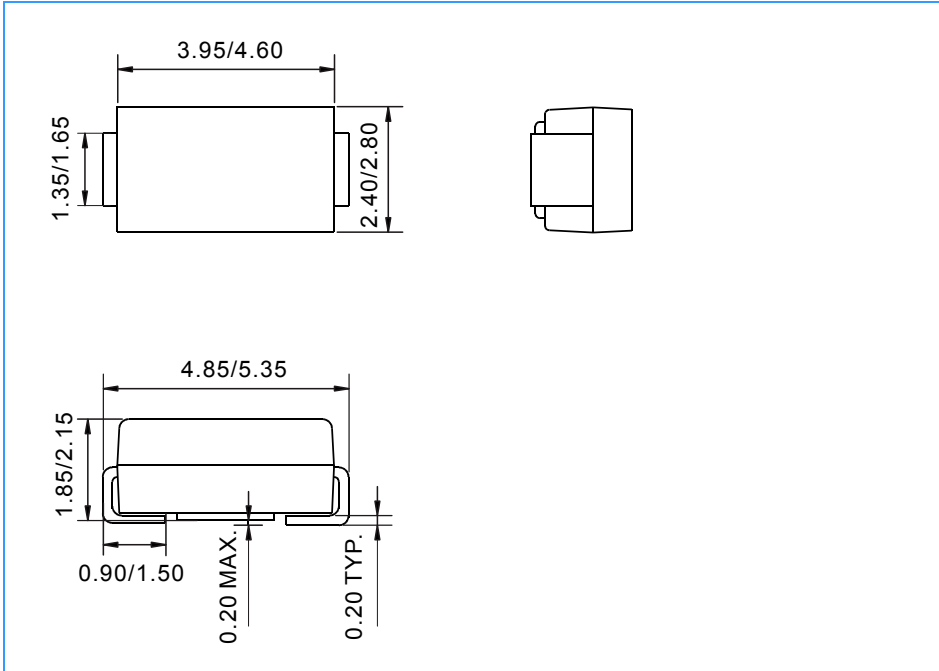
**Fig.4 Typical Reverse Characteristic**



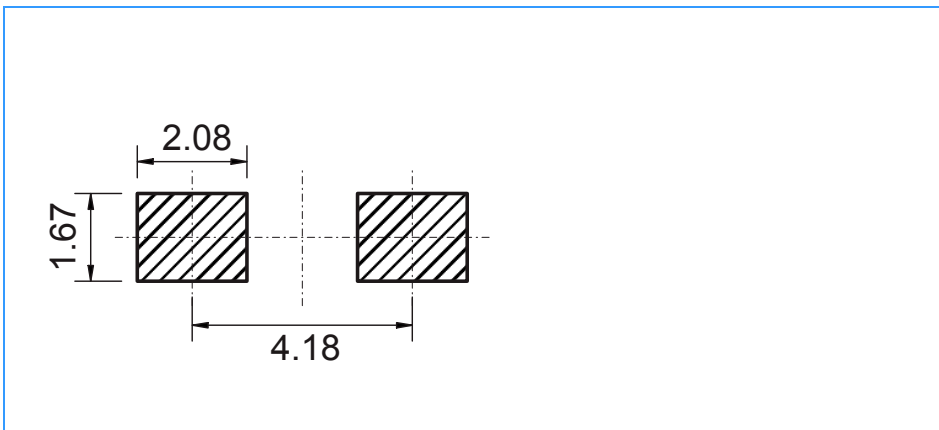
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## Package Outline Dimensions (Unit: mm)



## Mounting Pad Layout (Unit: mm)



## Ordering Information

Part Number	Marking	Package	Shipping Quantity
US1J	US1J	SMA	5000 / Tape & Reel
US1K	US1K	SMA	5000 / Tape & Reel
US1M	US1M	SMA	5000 / Tape & Reel

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## IMPORTANT NOTICE

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**Change Record**

Revision	Date	Modification
1.0	2020-06-02	All contents revised and published in new format.