



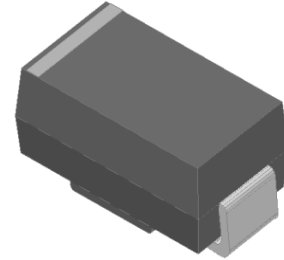
# US1A THRU US1M

## 1.0 AMP Surface Mount High Efficient Rectifier

### 1. Features

- Glass passivated chip junction
- For surface mounted application.
- Low forward voltage drop.
- High current capability.
- Fast switching for high efficiency
- High reliability.
- Meets MSL level 1, per J-STD-020.

SMA(DO-214AC)



Cathode —|◀— Anode

### 2. Mechanical Data

- Case:Molded Plastic,SMA(DO-214AC) .
- Epoxy:UL 94V-0 rate flame retardant.
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking:marked on body.

### 3. Maximum Ratings and Electrical Characteristics

Electrical Characteristics Rating at 25°C ambient temperature unless otherwise specified.

PARAMETER	SYMBOL	US1A	US1B	US1D	US1G	US1J	US1K	US1M	UNIT
Maximum Recurrent Peak Reverse Voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V
Average Rectified Output Current @T <sub>L</sub> =100°C	I <sub>F(AV)</sub>	1.0							A
Peak Forward Surge Current 8.3ms @T <sub>j</sub> =25°C	I <sub>FSM</sub>	30							A
Single half sine-wave superimposed @T <sub>j</sub> =125°C on rated load (JEDEC Method)		24							
I <sup>2</sup> t Rating for Fusing (t < 8.3ms)	I <sup>2</sup> t	3.74							A <sup>2</sup> S
Maximum Instantaneous Forward Voltage @IF=1A	V <sub>FM</sub>	1.0			1.3	1.7			V
Maximum DC reverse current @T <sub>j</sub> =25°C at rated DC blocking voltage @T <sub>j</sub> =125°C	I <sub>R</sub>	5.0							uA
		100							
Maximum Reverse Recovery Time (Note 1)	T <sub>RR</sub>	50				75			ns
Typical Junction Capacitance (Note 2)	C <sub>j</sub>	17			12	7			pF
Typical Thermal Resistance (Note 3)	R <sub>θJA</sub>	72							°C/W
	R <sub>θJL</sub>	20							
	R <sub>θJC</sub>	18							
Operating Temperature Range	T <sub>j</sub>	-55 to+150							°C
Storage Temperature Range	T <sub>STG</sub>	-55 to+150							°C

Note:

1. Reverse Recovery Test Conditions: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A.
2. Measured at 1.0 MHz and Applied reverse Voltage of 4.0V D.C
3. Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas.



### 4. Rating And Characteristic Curves

Fig. 1 Forward Current Derating Curve

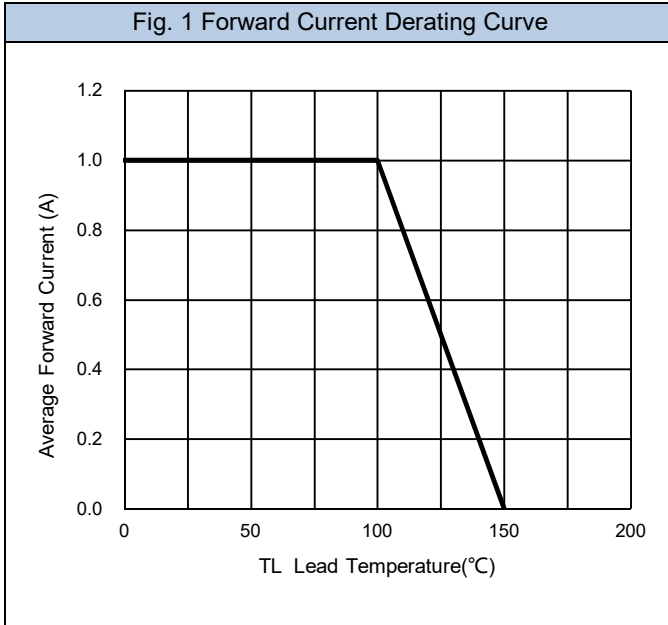


Fig. 2 Typical Forward Characteristics

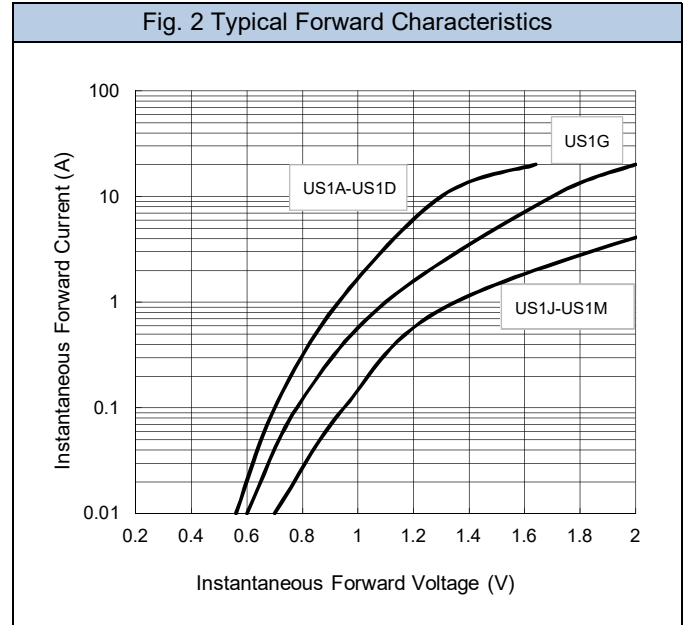


Fig. 3 Forward Surge Current Capability

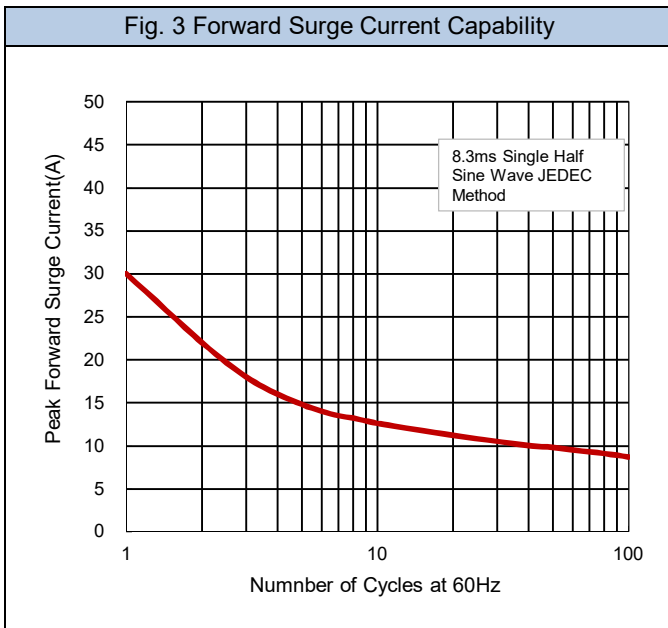
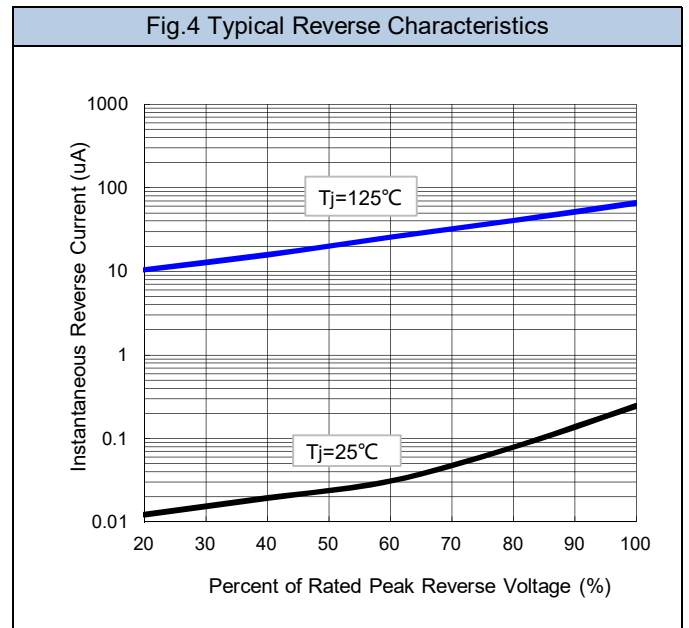


Fig. 4 Typical Reverse Characteristics

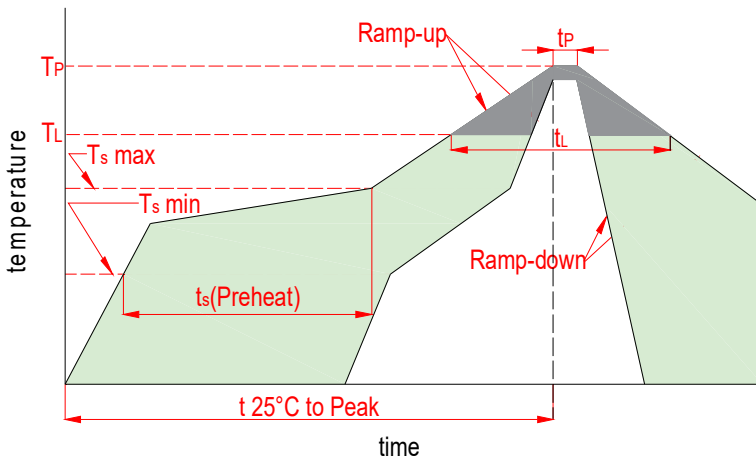




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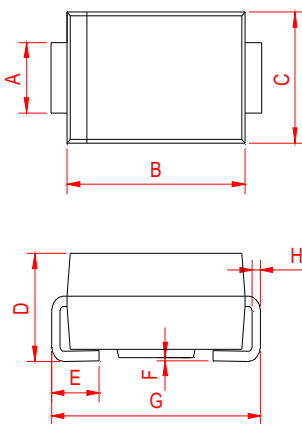
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### 5. Soldering Parameters



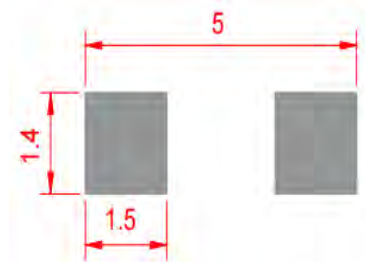
Reflow Condition		Lead-free
Pre Heat	Temp. min( $T_s$ (min))	150°C
	Temp. max( $T_s$ (min))	200°C
	Time(min to max)( $t_s$ )	60~120s
Aver. ramp up rate(Liquidus Temp.)( $T_L$ )to peak		3°C/s max
$T_s$ (max) to $T_L$ -Ramp-up Rate		3°C/s max
Reflow	Temp.( $T_L$ )(Liquidus)	217°C
	Temp.( $t_L$ )(Liquidus)	60~150s
Peak Temp.( $T_p$ )		260 <sup>+0/-5</sup> °C
Time within actual peak Temp.( $t_p$ )		30s max
Ramp-down Rate		6°C/s max
Time 25°C to peak Tempe.( $T_p$ )		8 minutes max
Do not exceed		260°C

### 6. Dimensions

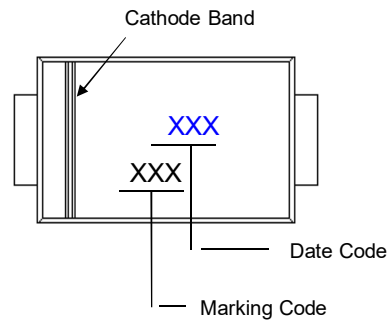
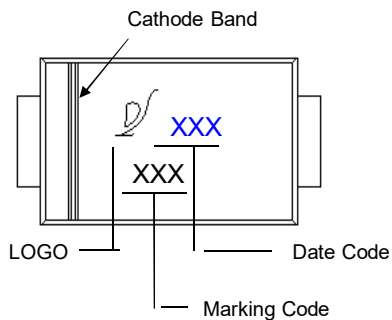


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.051	0.059	1.30	1.50
B	0.157	0.181	4.00	4.60
C	0.094	0.110	2.40	2.80
D	0.079	0.103	2.00	2.62
E	0.030	0.060	0.76	1.52
F	0.002	0.008	0.05	0.20
G	0.189	0.208	4.80	5.28
H	0.006	0.012	0.15	0.31

Mounting PAD Layout



### 7. Part Marking System



### 8. Package Information

Package	Tape Width (mm)	Reel Size		Quantity(pcs)
		mm	inch	
SMA(DO-214AC)	12	330	13	5000
SMA(DO-214AC)	12	330	13	7500



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