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January 2016

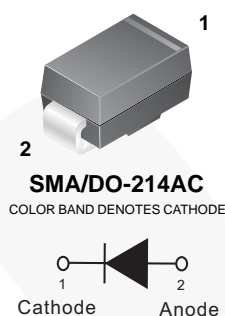
# US2AA - US2MA

## Super Fast Surface Mount Rectifiers

### Features

- Glass Passivated Chip Junction
- High Surge Capacity
- Low Forward Voltage Drop
- Fast Switching with Reverse Recovery Time: 50~75 ns Maximum
- UL Flammability 94V-0 Classification
- MSL 1 per J-STD-020
- RoHS Compliant / Green Molding Compound
- Industrial Device Qualified per AEC-Q101 Standards

\* See authorized use policy



### Ordering Information

Part Number	Top Mark	Package	Packing Method
US2AA	US2AA	DO-214AC (SMA)	Tape and Reel
US2BA	US2BA	DO-214AC (SMA)	Tape and Reel
US2DA	US2DA	DO-214AC (SMA)	Tape and Reel
US2FA	US2FA	DO-214AC (SMA)	Tape and Reel
US2GA	US2GA	DO-214AC (SMA)	Tape and Reel
US2JA	US2JA	DO-214AC (SMA)	Tape and Reel
US2KA	US2KA	DO-214AC (SMA)	Tape and Reel
US2MA	US2MA	DO-214AC (SMA)	Tape and Reel

US2AA - US2MA — Super Fast Surface Mount Rectifiers

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value								Unit
		US2 AA	US2 BA	US2 DA	US2 FA	US2 GA	US2 JA	US2 KA	US2 MA	
$V_{RRM}$	Repetitive Peak Reverse Voltage	50	100	200	300	400	600	800	1000	V
$V_{RMS}$	RMS Reverse Voltage	35	70	140	210	280	420	560	700	V
$V_{DC}$	DC Blocking Voltage	50	100	200	300	400	600	800	1000	V
$I_{F(AV)}$	Average Forward Rectified Current	1.5								A
$I_{FSM}$	Peak Forward Surge Current, 8.3 ms Single Half-Sine Wave, Superimposed on Rated Load	50								A
$T_J$	Operating Junction Temperature Range	-55 to +150								$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150								$^\circ\text{C}$

## Thermal Characteristics<sup>(1)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient	189	$^\circ\text{C/W}$
$\Psi_{JL}$	Typical Thermal Characteristics, Junction-to-Lead (with Reference to Cathode Pin)	31	$^\circ\text{C/W}$

### Note:

1. Device mounted at minimum pad.

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter		Value								Unit
			US2 AA	US2 BA	US2 DA	US2 FA	US2 GA	US2 JA	US2 KA	US2 MA	
V <sub>F</sub>	Maximum Instantaneous Forward Voltage <sup>(2)</sup> at I <sub>F</sub> = 1.5 A		1.0				1.3	1.7			V
I <sub>R</sub>	Maximum Reverse Current at Rated V <sub>R</sub>	T <sub>J</sub> = 25°C	5								μA
		T <sub>J</sub> = 125°C	100								
T <sub>rr</sub>	Maximum Reverse Recovery Time <sup>(3)</sup>		50				75			ns	
C <sub>J</sub>	Typical Junction Capacitance <sup>(4)</sup>		50				30			pF	

### Notes:

2. Pulse test with  $PW = 300\text{ }\mu\text{s}$ , 1% duty cycle
3. Reverse recovery test conditions:  $I_F = 0.5\text{ A}$ ,  $I_R = 1.0\text{ A}$ ,  $I_{RR} = 0.25\text{ A}$
4. Measured at 1 MHz and applied reverse voltage of 4.0 V D.C.

## Typical Performance Characteristics

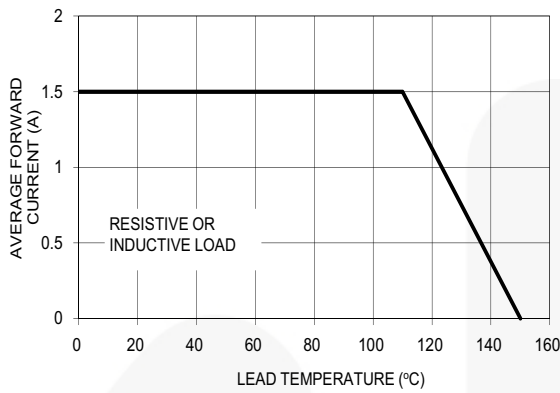


Figure 1. Forward Current Derating Curve

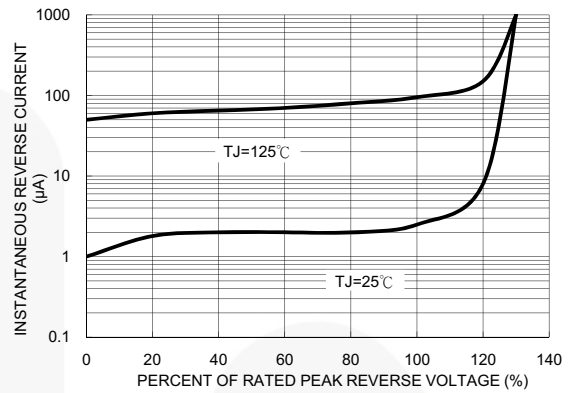


Figure 2. Typical Reverse Characteristics

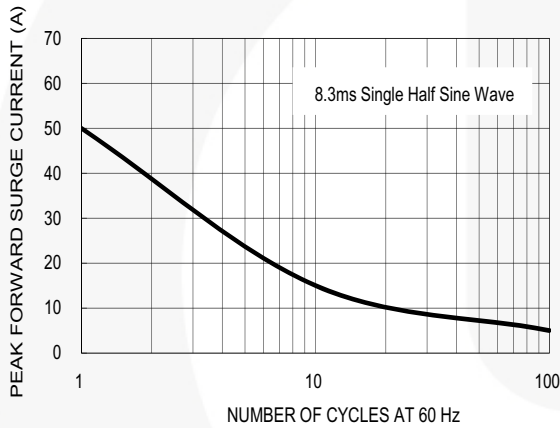


Figure 3. Maximum Non-Repetitive Forward Surge Current

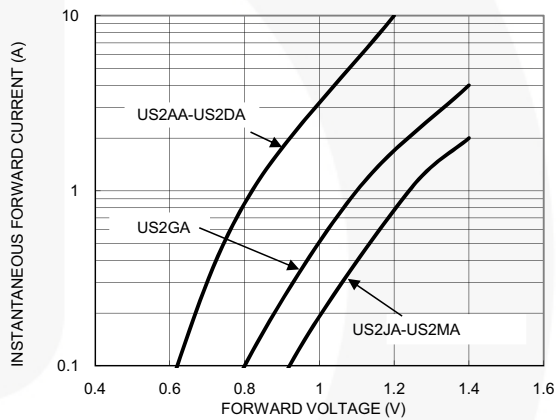


Figure 4. Typical Forward Characteristics

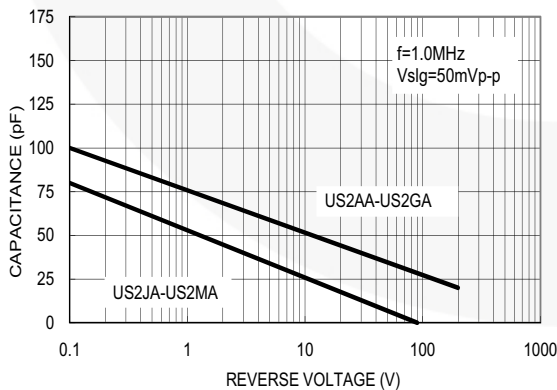


Figure 5. Typical Junction Capacitance

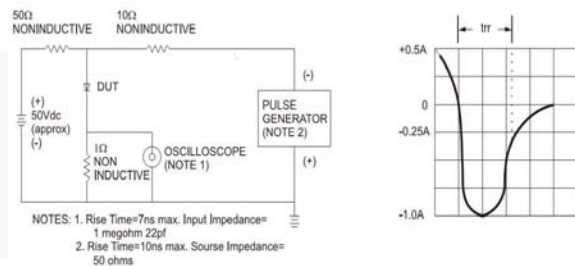
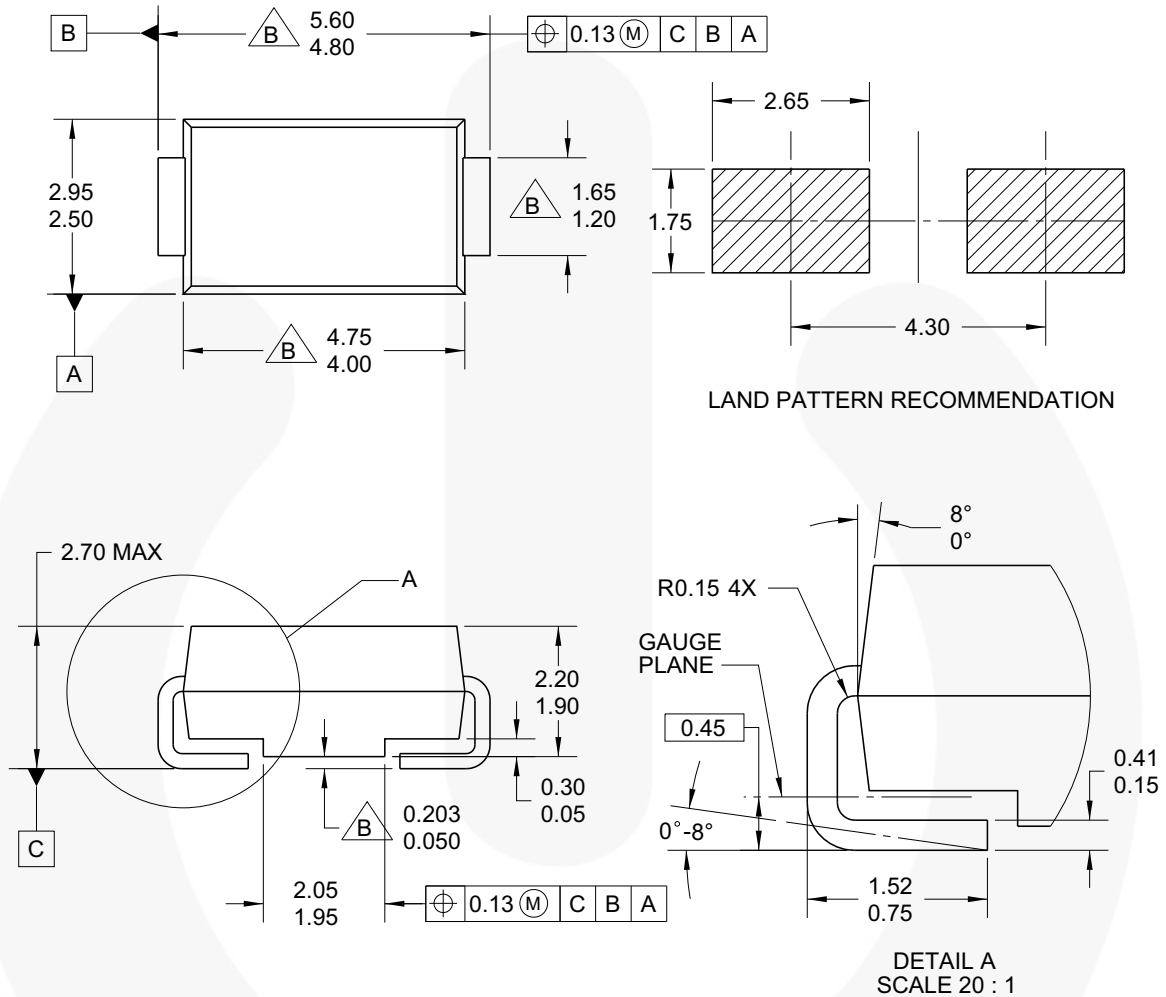


Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram

# Physical Dimensions



## NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO JEDEC DO214 VARIATION AC.
- B. DOES NOT COMPLY JEDEC STD. VALUE.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.
- D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
- E. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.
- F. LAND PATTERN STD. DIOM5025X231M.
- G. DRAWING FILE NAME: DO214ACREV1

Figure 7. 2-Lead, SMA, JEDEC DO-214, VARIATION AC



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