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January 2016

S3AB - S3MB — 3 A, 50 V - 1000 V Surface Mount Rectifiers

## S3AB - S3MB

### 3 A, 50 V - 1000 V Surface Mount Rectifiers

#### Features

- Glass Passivated Chip Junction
- High Surge Current Capacity
- Low Forward Voltage: 1.15 V 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
S3AB	S3AB	DO-214AA (SMB)	Tape and Reel
S3BB	S3BB	DO-214AA (SMB)	Tape and Reel
S3DB	S3DB	DO-214AA (SMB)	Tape and Reel
S3GB	S3GB	DO-214AA (SMB)	Tape and Reel
S3JB	S3JB	DO-214AA (SMB)	Tape and Reel
S3KB	S3KB	DO-214AA (SMB)	Tape and Reel
S3MB	S3MB	DO-214AA (SMB)	Tape and Reel

## 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
		S3AB	S3BB	S3DB	S3GB	S3JB	S3KB	S3MB	
$V_{RRM}$	Repetitive Peak Reverse Voltage	50	100	200	400	600	800	1000	V
$V_{RMS}$	RMS Reverse Voltage	35	70	140	280	420	560	700	V
$V_R$	DC Blocking Voltage	50	100	200	400	600	800	1000	V
$I_{F(AV)}$	Average Forward Rectified Current	3							A
$I_{FSM}$	Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	80							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	148	$^\circ\text{C/W}$
$\Psi_{JL}$	Typical Thermal Characteristics, Junction-to-Lead	14	$^\circ\text{C/W}$

### Note:

1. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm per JESD51-3.

## Electrical Characteristics

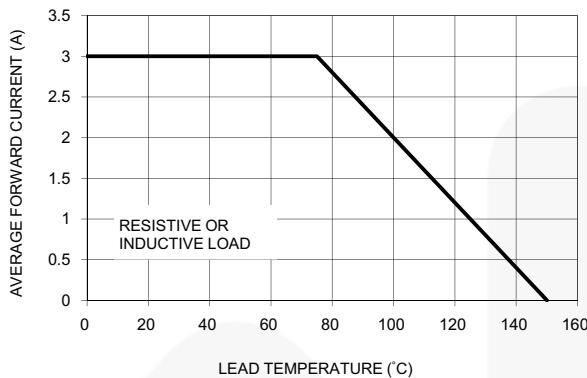
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_F$	Instantaneous Forward Voltage <sup>(2)</sup>	$I_F = 3 \text{ A}$			1.15	V
$I_R$	Reverse Current at Rated $V_R$	$T_J = 25^\circ\text{C}$			10	$\mu\text{A}$
		$T_J = 125^\circ\text{C}$			250	
$T_{rr}$	Reverse Recovery Time	$I_F = 0.5 \text{ A}$ , $I_R = 1 \text{ A}$ , $I_{rr} = 0.25 \text{ A}$		1.5		$\mu\text{s}$
$C_J$	Junction Capacitance	$V_R = 4 \text{ V}$ , $f = 1 \text{ MHz}$		40		pF

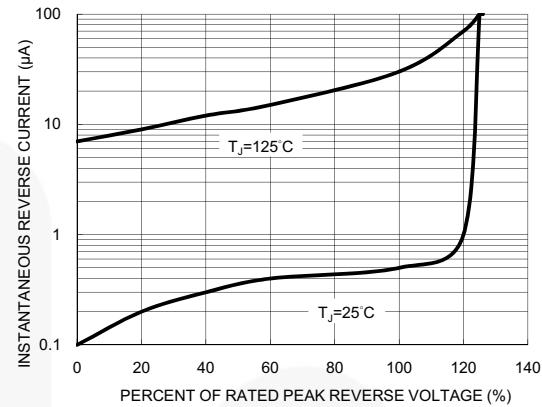
### Note:

2. Pulse test with PW = 300  $\mu\text{s}$ , 1% duty cycle

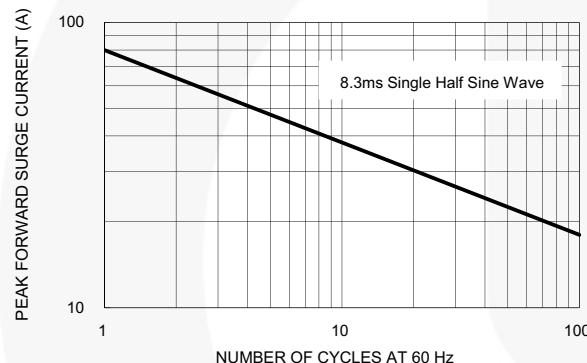
## Typical Performance Characteristics



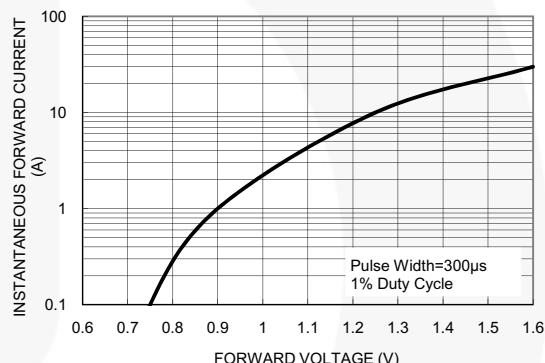
**Figure 1. Forward Current Derating Curve**



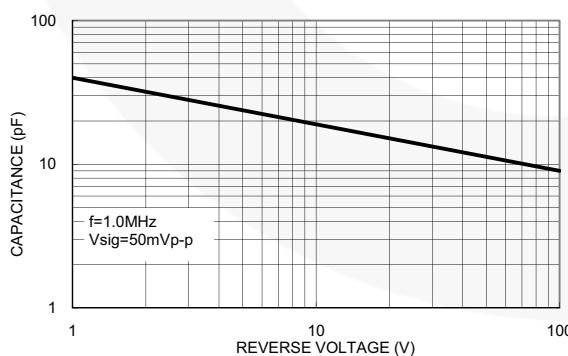
**Figure 2. Typical Reverse Characteristics**



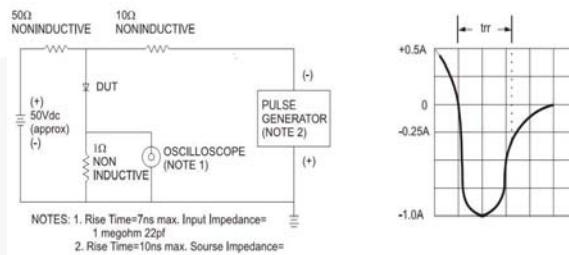
**Figure 3. Maximum Non-Repetitive Forward Surge Current**



**Figure 4. Typical Forward Characteristics**



**Figure 5. Typical Junction Capacitance**



**Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram**

## Physical Dimensions

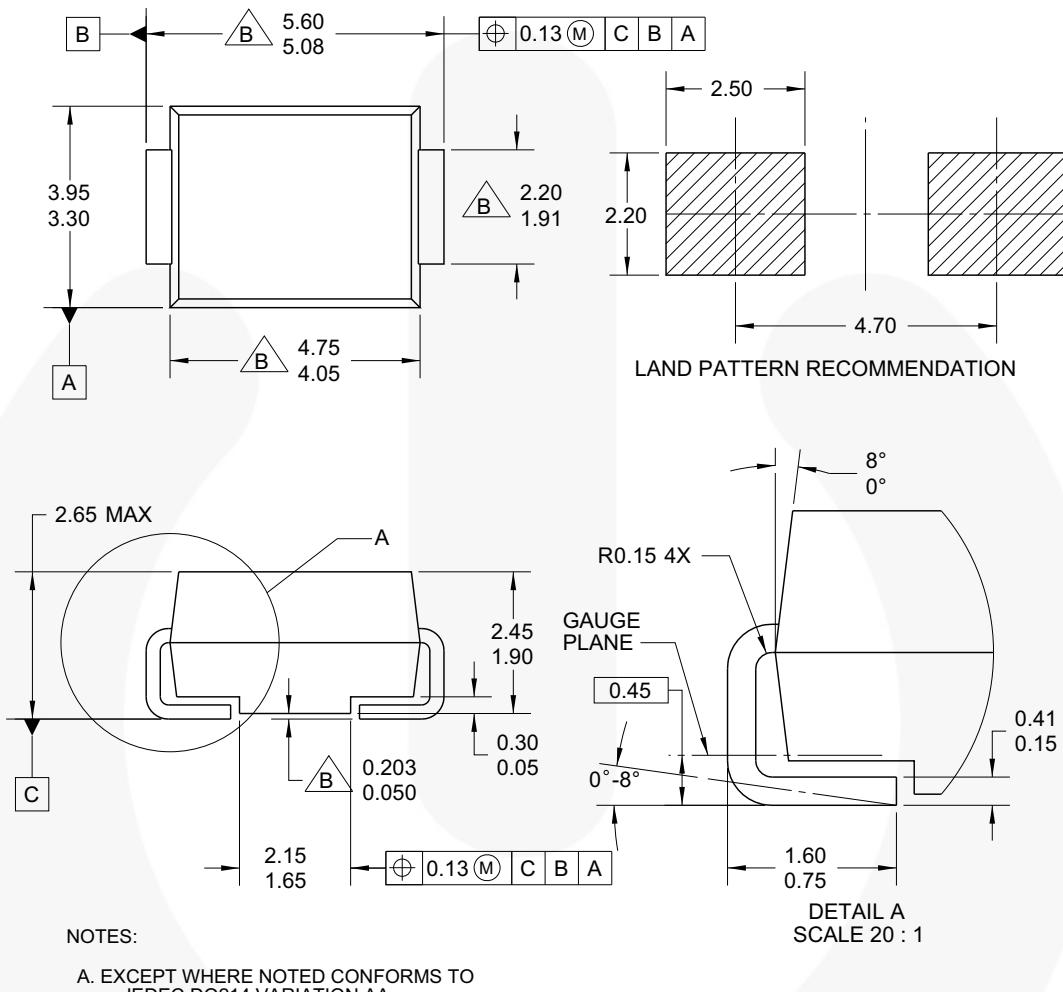


Figure 7. 2-LEAD, SMB, JEDEC DO-214, VARIATION AA



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105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

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