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January 2016

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

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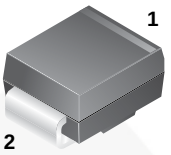

SMB/DO-214AA

COLOR BAND DENOTES CATHODE

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

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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°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							°C
T_{STG}	Storage Temperature Range	-55 to +150							°C

Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient	148	°C/W
ψ_{JL}	Typical Thermal Characteristics, Junction-to-Lead	14	°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°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Instantaneous Forward Voltage[2]	I_F = 3 A			1.15	V
I_R	Reverse Current at Rated V_R	T_J = 25°C			10	µA
		T_J = 125°C			250	
T_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A		1.5		µs
C_J	Junction Capacitance	V_R = 4 V, f = 1 MHz		40		pF

Note:

2. Pulse test with PW = 300 µs, 1% duty cycle

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Typical Performance Characteristics

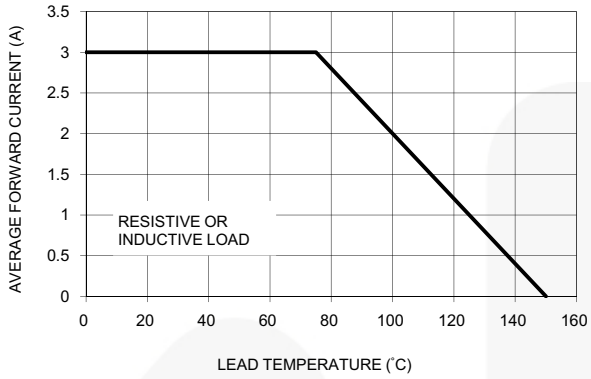

Figure 1. Forward Current Derating Curve

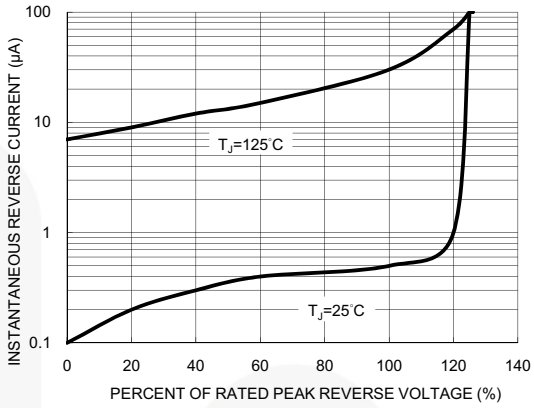

Figure 2. Typical Reverse Characteristics

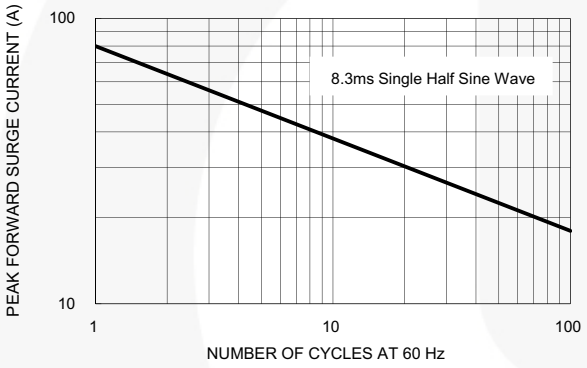

Figure 3. Maximum Non-Repetitive Forward Surge Current

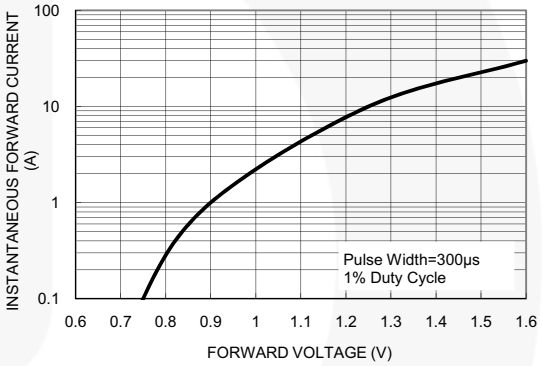

Figure 4. Typical Forward Characteristics

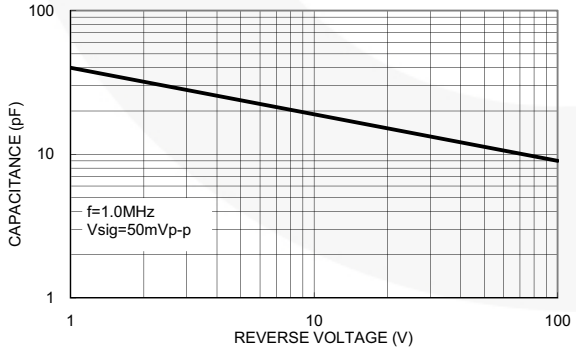

Figure 5. Typical Junction Capacitance

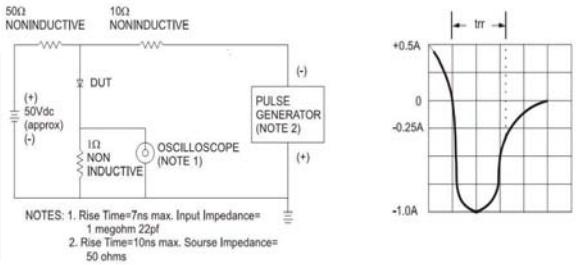

Figure 6. Reverse Recovery Time Characteristic and Test Circuit Diagram

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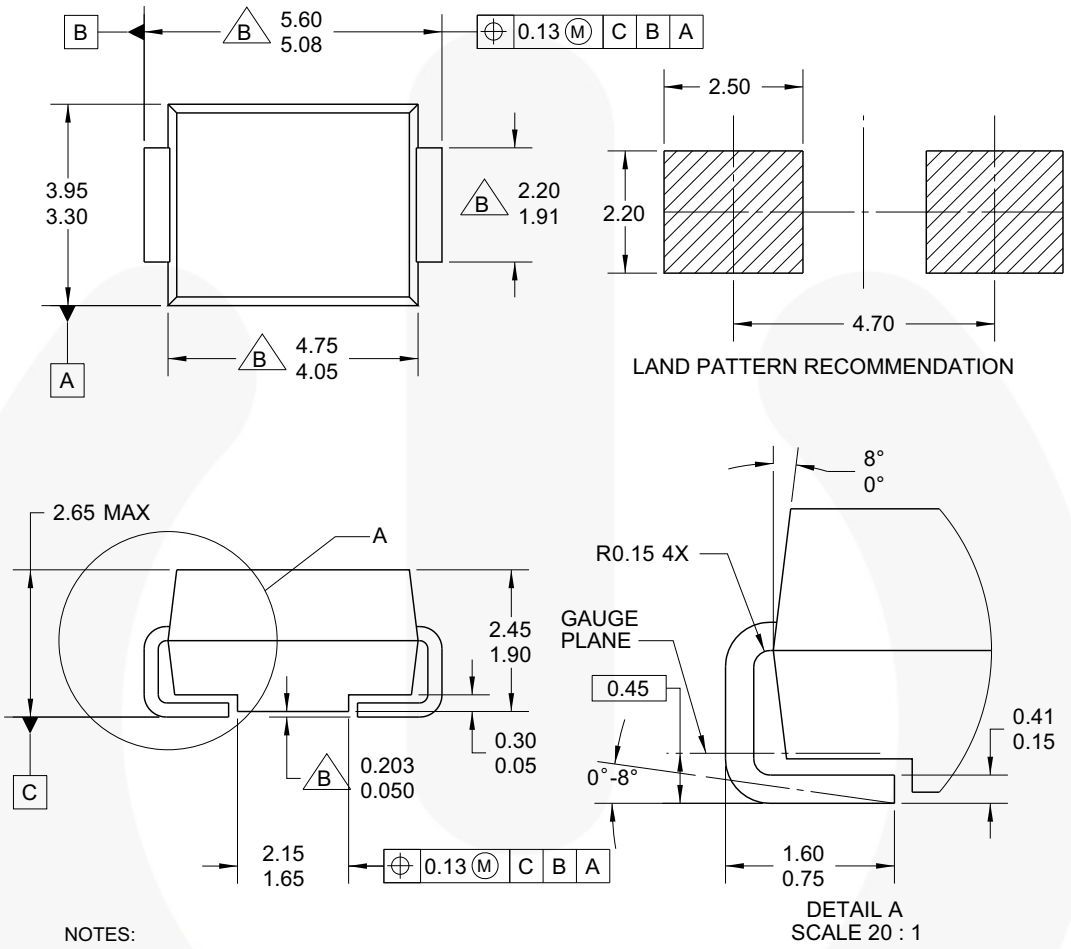
Physical Dimensions



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F. LAND PATTERN STD. DIOM5336X240M.
G. DRAWING FILE NAME: DO214AAREV1

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

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Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А