

## **Excellent Integrated System Limited**

Stocking Distributor

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[Vishay Semiconductor/Diodes Division](#)  
[S3A-M3/9AT](#)

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## S3A-M3, S3B-M3, S3D-M3, S3G-M3, S3J-M3, S3K-M3, S3M-M3

[www.vishay.com](http://www.vishay.com)

Vishay General Semiconductor

### Surface Mount Glass Passivated Rectifier



DO-214AB (SMC)

#### FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated pellet chip junction
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	100 A
$I_R$	10 $\mu$ A
$V_F$	1.15 V
$T_J$ max.	150 °C
Package	DO-214AB (SMC)
Diode variations	Single die

#### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

#### MECHANICAL DATA

##### Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating  
 Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)									
PARAMETER	SYMBOL	S3A	S3B	S3D	S3G	S3J	S3K	S3M	UNIT
Device marking code		SA	SB	SD	SG	SJ	SK	SM	
Max. recurrent peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Max. RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Max. DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Max. average forward rectified current at $T_L = 103$ °C	$I_{F(AV)}$	3.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100							A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150							°C



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ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	S3A	S3B	S3D	S3G	S3J	S3K	S3M	UNIT
Max. instantaneous forward voltage	2.5 A		$V_F$	1.15						V	
Max. DC reverse current at rated DC blocking voltage		$T_A = 25^\circ\text{C}$	$I_R$	10						$\mu\text{A}$	
		$T_A = 125^\circ\text{C}$		250							
Typical reverse recovery time	$I_F = 0.5 \text{ A}$ , $I_R = 1.0 \text{ A}$ , $I_{rr} = 0.25 \text{ A}$		$t_{rr}$	2.5						$\mu\text{s}$	
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	60						$\text{pF}$	

THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	S3A	S3B	S3D	S3G	S3J	S3K	S3M	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{0JA}$	47						$^\circ\text{C/W}$	
	$R_{0JL}$	13						$^\circ\text{C/W}$	

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad area

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
S3J-M3/57T	0.211	57T	850	7" diameter plastic tape and reel	
S3J-M3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel	

### RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

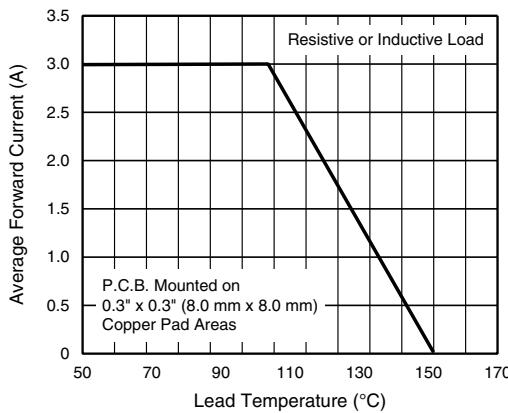


Fig. 1 - Forward Current Derating Curve

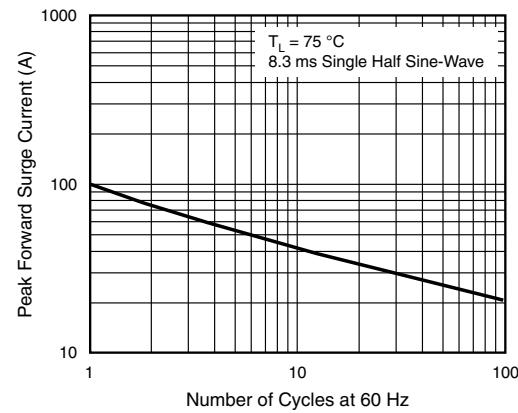


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current



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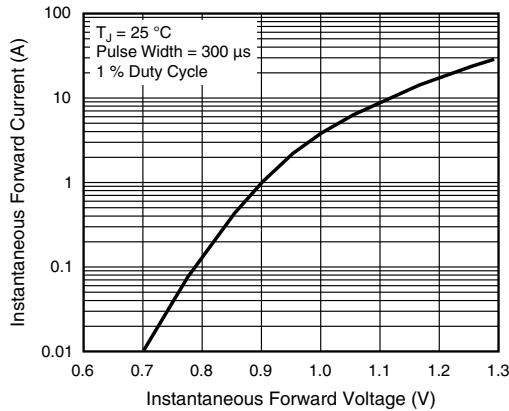


Fig. 3 - Typical Instantaneous Forward Characteristics

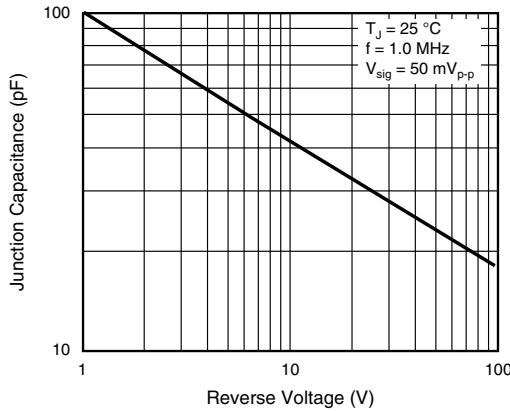


Fig. 5 - Typical Junction Capacitance

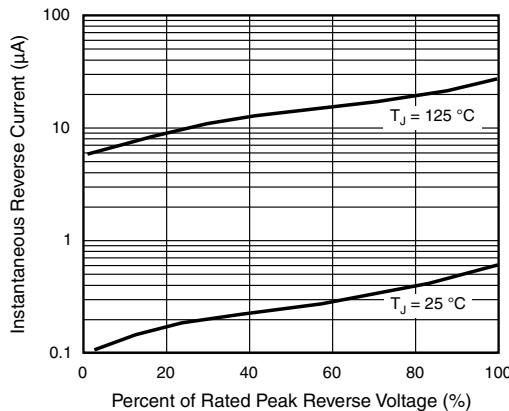


Fig. 4 - Typical Reverse Characteristics

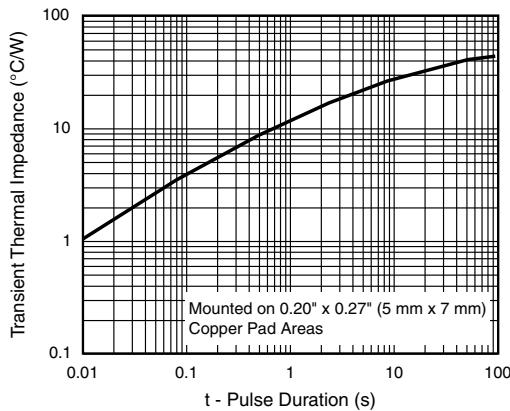
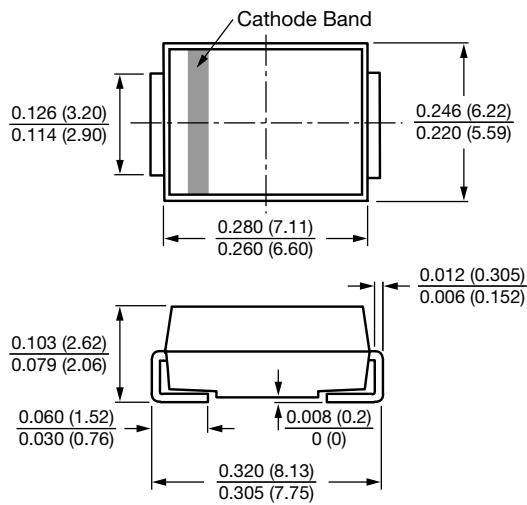


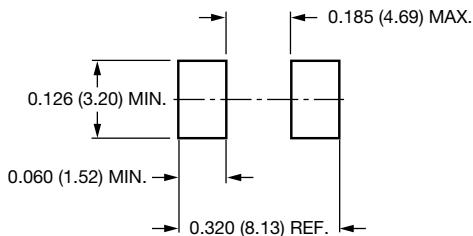
Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

DO-214AB (SMC)



Mounting Pad Layout





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