



# THE DATASHEET OF SA2K-E3/5AT



## Surface Mount Glass Passivated Rectifier


**SMA (DO-214AC)**
**DESIGN SUPPORT TOOLS**
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PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
$V_{RRM}$	100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	55 A
$I_R$	3.0 $\mu$ A
$V_F$ at $I_F = 2.0$ A	0.854 V
$T_J$ max.	150 °C
Package	SMA (DO-214AC)
Circuit configuration	Single

**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)


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**  
 Available

**TYPICAL APPLICATIONS**

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

**MECHANICAL DATA**

**Case:** SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

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

E3 and M3 suffix meets JESD 201 class 2 whisker test

**Polarity:** color band denotes the cathode end

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)								
PARAMETER	SYMBOL	SA2B	SA2D	SA2G	SA2J	SA2K	SA2M	UNIT
Device marking code		2B	2D	2G	2J	2K	2M	
Max. repetitive peak reverse voltage	$V_{RRM}$	100	200	400	600	800	1000	V
Average forward current	$I_{F(AV)}$	2.0						A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	55						A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150						°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 1.0$ A	$T_J = 25$ °C	$V_F$ <sup>(1)</sup>	0.911	-	V
	$I_F = 2.0$ A			0.954	1.1	
	$I_F = 1.0$ A	$T_J = 125$ °C		0.805	-	
	$I_F = 2.0$ A			0.854	0.95	
Reverse current	Rated $V_R$	$T_J = 25$ °C	$I_R$ <sup>(2)</sup>	0.19	3	$\mu$ A
				$T_J = 125$ °C	28	
Typical reverse recovery time	$I_F = 0.5$ A, $I_R = 1.0$ A, $I_{rr} = 0.25$ A	$t_{rr}$	1.5	-	$\mu$ s	
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	11	-	pF	

**Notes**

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq$  40 ms



THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	SA2B	SA2D	SA2G	SA2J	SA2K	SA2M	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	80						$^\circ\text{C/W}$
	$R_{\theta JL}$ (1)	12						

**Note**

(1) Thermal resistance from junction-to-ambient and from junction-to-lead, PCB mounted on 0.79" x 0.79" (20 mm x 20 mm) copper pad areas

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SA2J-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SA2J-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel
SA2J-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel
SA2J-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel

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

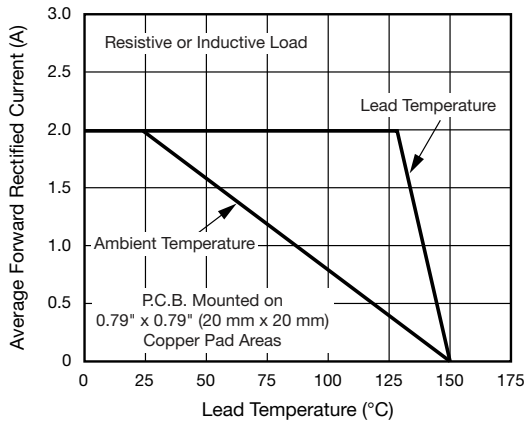


Fig. 1 - Max. Forward Current Derating Curve

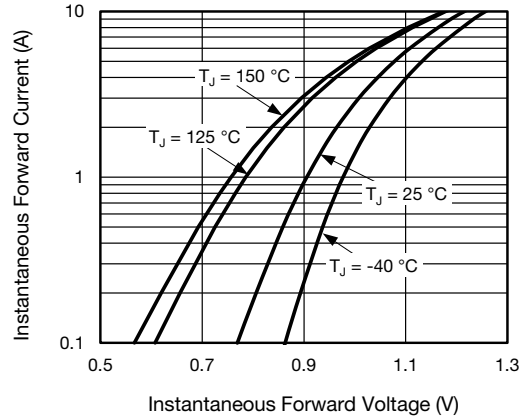


Fig. 3 - Max. Non-Repetitive Peak Forward Surge Current

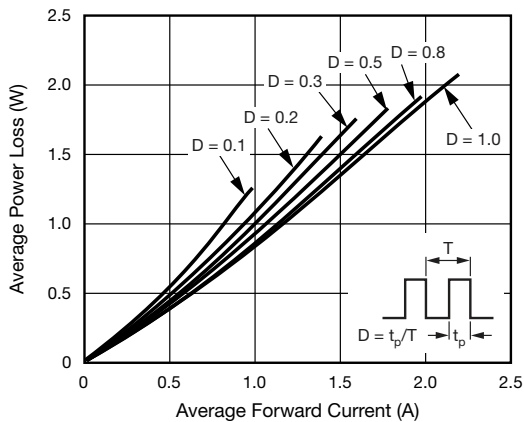


Fig. 2 - Forward Power Loss Characteristics

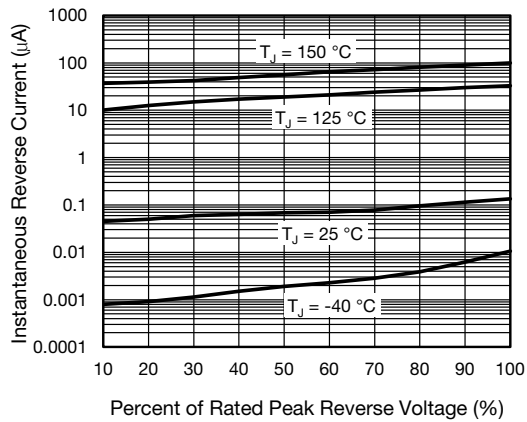


Fig. 4 - Typical Instantaneous Forward Characteristics

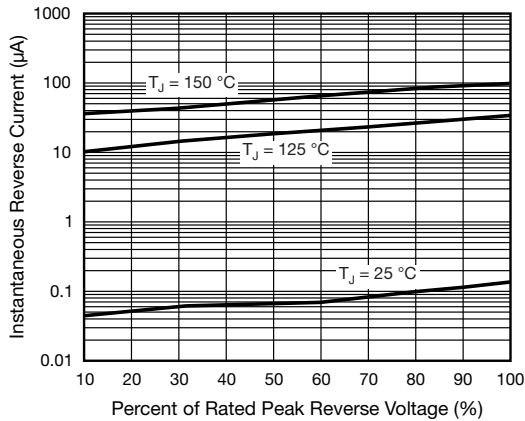


Fig. 5 - Typical Reverse Leakage Characteristics

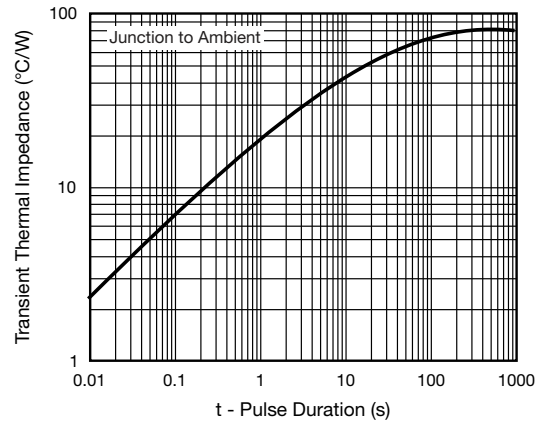


Fig. 7 - Typical Transient Thermal Impedance

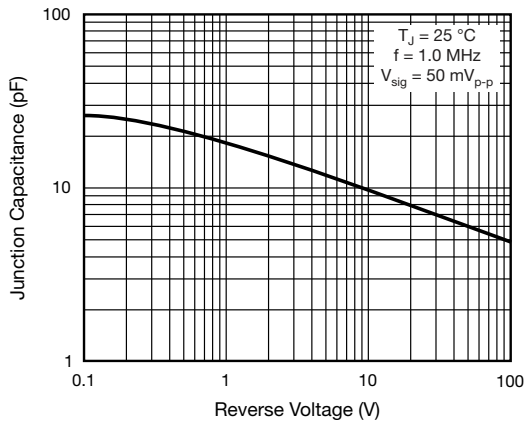
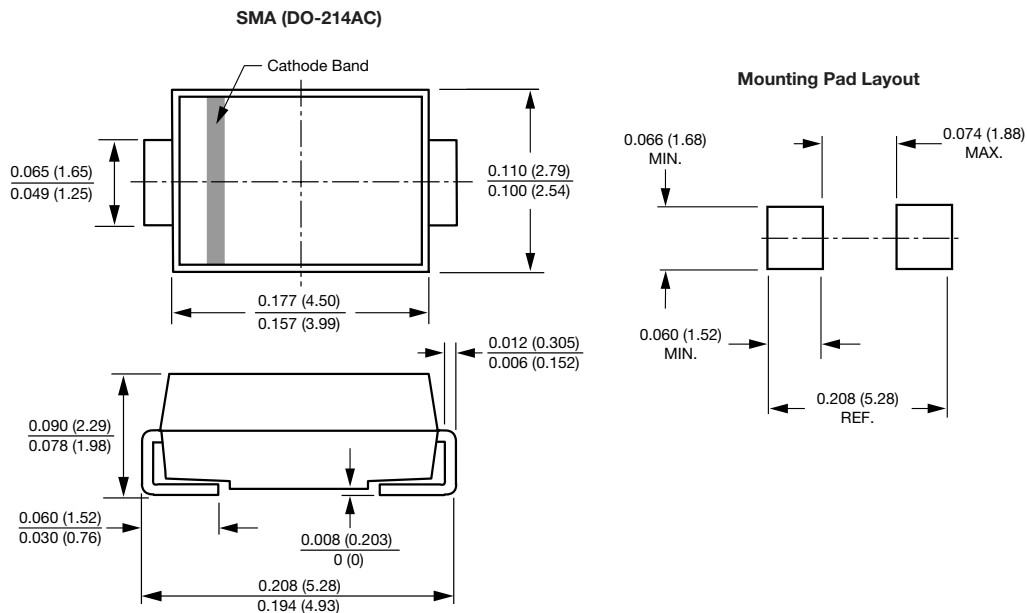


Fig. 6 - Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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