

**Surface Mount Glass Passivated Junction Rectifiers**

Reverse Voltage 50V to 1000V Forward Current 3A

# S3A thru S3M

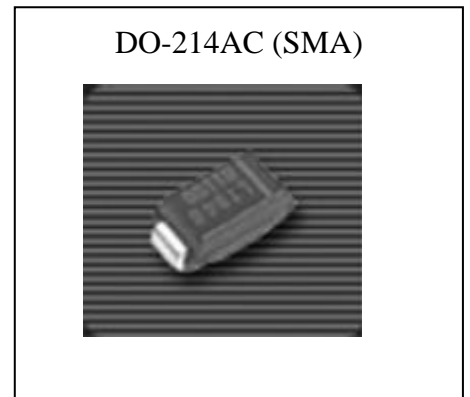
**Features**

- For surface mounted applications
- Glass passivated junction chip
- Low profile package
- Built-in stain relief, ideal for automatic placement
- High temperature soldering guaranteed : 260°C/10 seconds at terminals
- Plastic material used carries UL flammability classification 94V-0

**Mechanical Data**

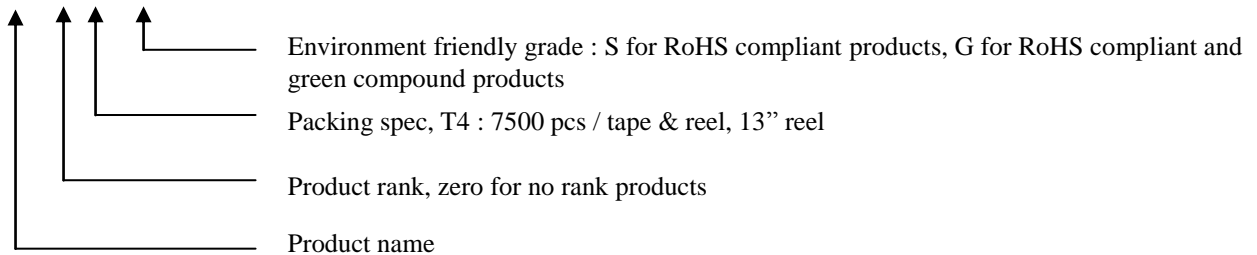
- Case: JEDEC DO-214AC(SMA) molded plastic
- Terminals: Pure tin plated, solderable per MIL-STD-750 method 2026
- Polarity: Color band denotes cathode end
- Mounting position : Any
- Weight: 0.064 gram, 0.002 ounce

**Outline**



**Ordering Information**

Device	Package	Shipping	Marking
S3A-0-T4-G	SMA (Pb-free lead plating and halogen-free package)	7500 pcs / Tape & Reel	S3A
S3B-0-T4-G			S3B
S3D-0-T4-G			S3D
S3G-0-T4-G			S3G
S3J-0-T4-G			S3J
S3K-0-T4-G			S3K
S3M-0-T4-G			S3M



**Maximum Ratings and Electrical Characteristics**

(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.)

Parameter	Symbol	Type							Units
		S3A	S3B	S3D	S3G	S3J	S3K	S3M	
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_R$	50	100	200	400	600	800	1000	V
Maximum instantaneous forward voltage, $I_F=1A$	$V_F$	1.2							V
Maximum average forward rectified current, see Fig. 1	$I_{F(AV)}$	3							A
Peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method) $T_L=90^\circ C$	$I_{FSM}$	100							A
Maximum DC reverse current at Rated DC blocking voltage	$I_R$	$T_A=25^\circ C$							$\mu A$
		$T_A=125^\circ C$							
Typical reverse recovery time (Note 1)	$t_{rr}$	2.5							$\mu s$
Typical junction capacitance @ f=1MHz and applied 4V reverse voltage	$C_J$	55							pF
Typical thermal resistance (Note 2)	$R_{\theta JA}$	50							$^\circ C/W$
	$R_{\theta JL}$	90							
Operating junction and Storage temperature range	$T_J; T_{STG}$	-55 ~ +150							$^\circ C$

Note: 1.Reverse recovery test conditions :  $I_F=0.5A$ ,  $I_R=1A$ ,  $I_{RR}=0.25A$

2.Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.2"x0.2"(5mmx5mm) copper pad areas.

**Ratings and Characteristic Curves**

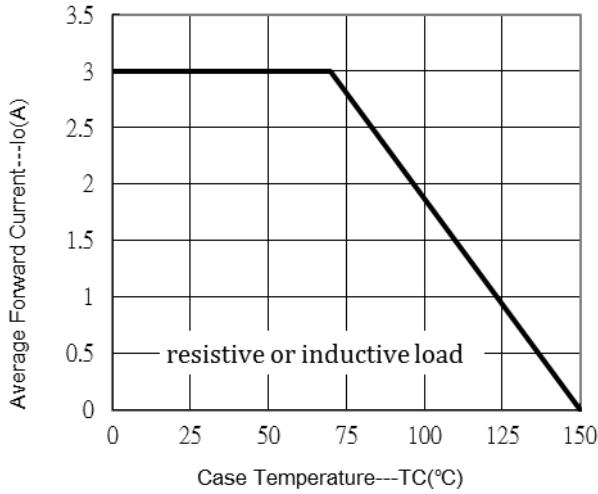


Fig1-Forward Current Derating Curve

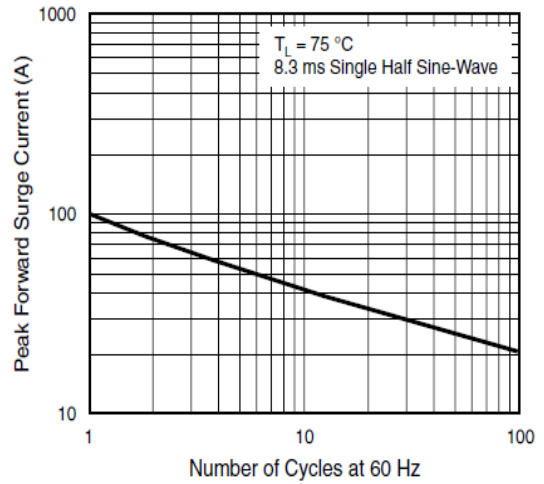


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

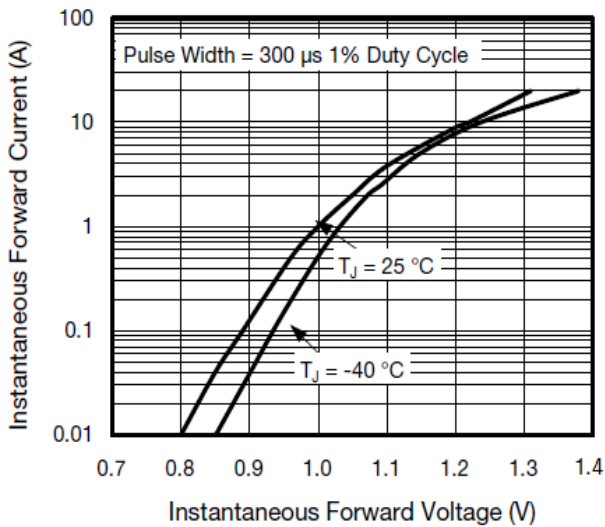


Fig. 3 - Typical Instantaneous Forward Characteristics

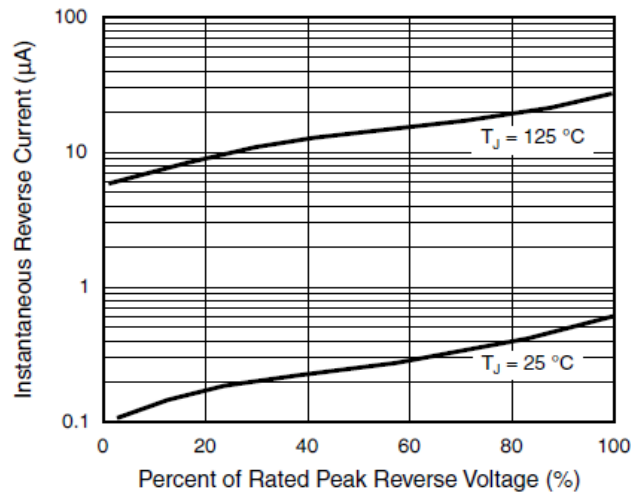


Fig. 4 - Typical Reverse Characteristics

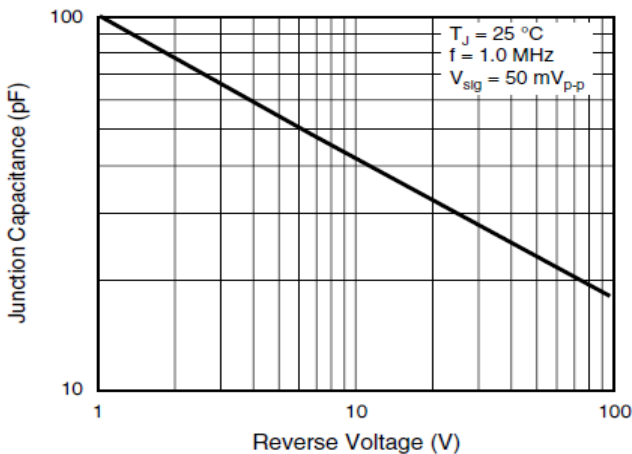
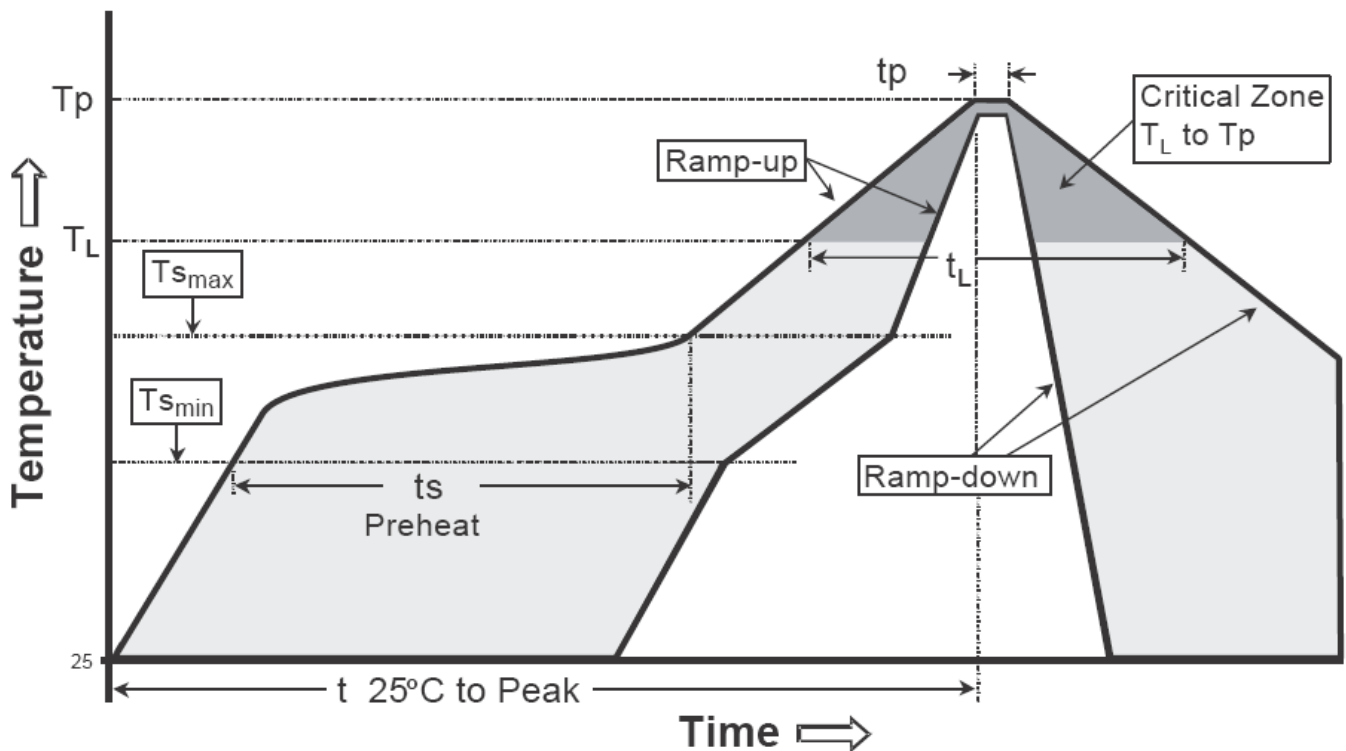


Fig. 5 - Typical Junction Capacitance

**Recommended wave soldering condition**

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

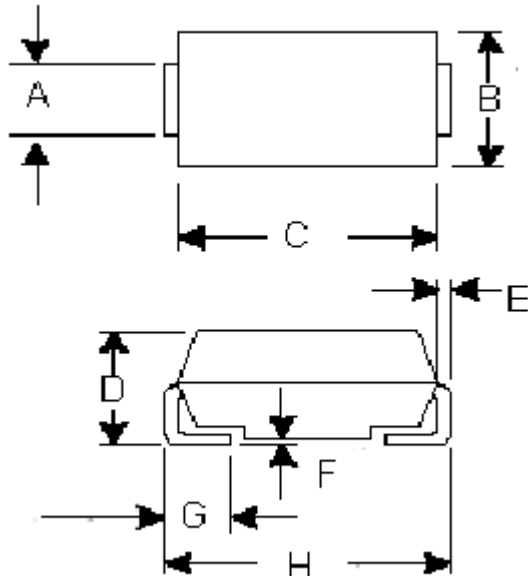
**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (TL)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature(Tp)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

**DO-214AC/SMA Dimension**



DO-214AC/SMA Plastic  
 Surface Mounted Package  
 CYStek Package Code : SA

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.049	0.065	1.25	1.65	E	0.006	0.012	0.15	0.31
B	0.100	0.110	2.54	2.79	F	0.004	0.008	0.10	0.20
C	0.157	0.177	3.99	4.50	G	0.030	0.060	0.76	1.50
D	0.078	0.090	1.98	2.29	H	0.194	0.208	4.91	5.28

Notes : 1.Controlling dimension : millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material :**

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

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