

Surface Mount Glass Passivated Junction Rectifiers

Reverse Voltage 50V to 1000V Forward Current 3A

S3A thru S3M

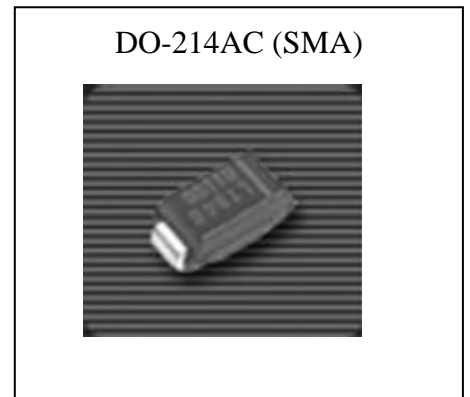
Features

- 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

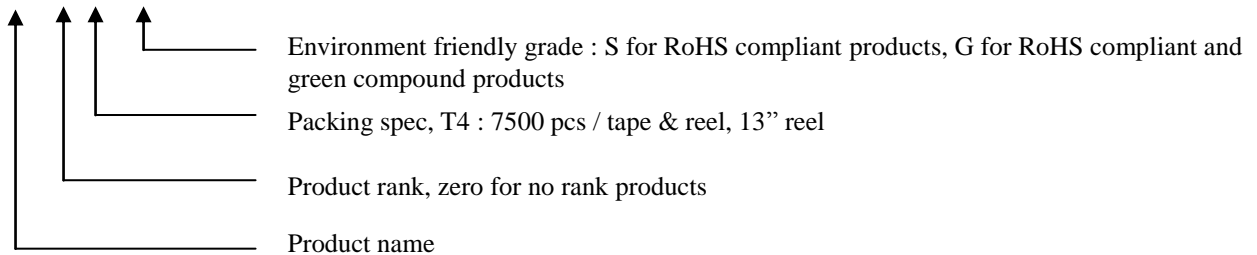
- Case: JEDEC DO-214AC(SMA) molded plastic
- Terminals: Pure tin plated, solderable per MIL-STD-750 method 2026
- Polarity: Color band denotes cathode end
- Mounting position : Any
- Weight: 0.064 gram, 0.002 ounce

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 | $T_A=25^\circ C$ | | | | | | | μA |
| | | $T_A=125^\circ C$ | | | | | | | |
| Typical reverse recovery time (Note 1) | t_{rr} | 2.5 | | | | | | | μs |
| 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

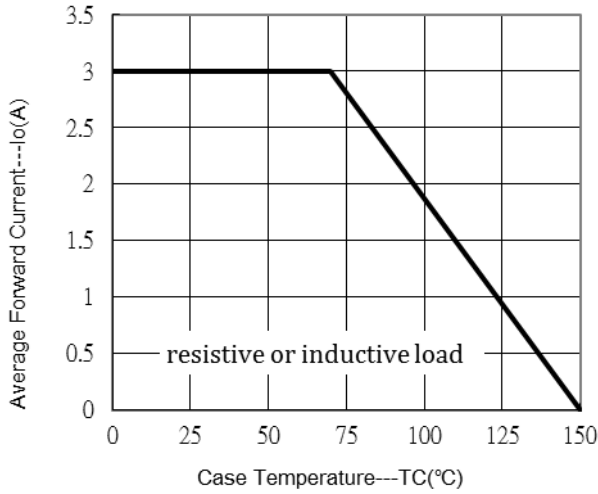


Fig1-Forward Current Derating Curve

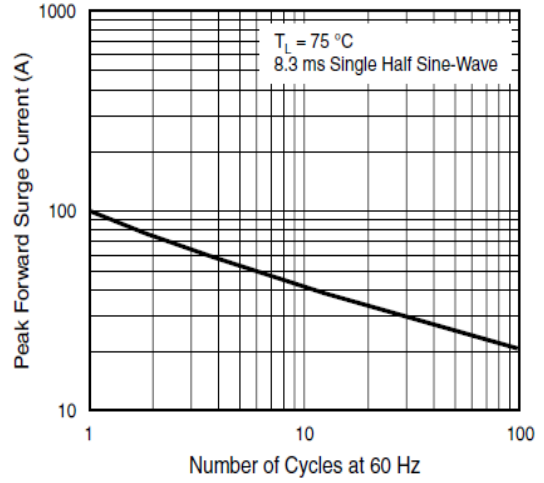


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

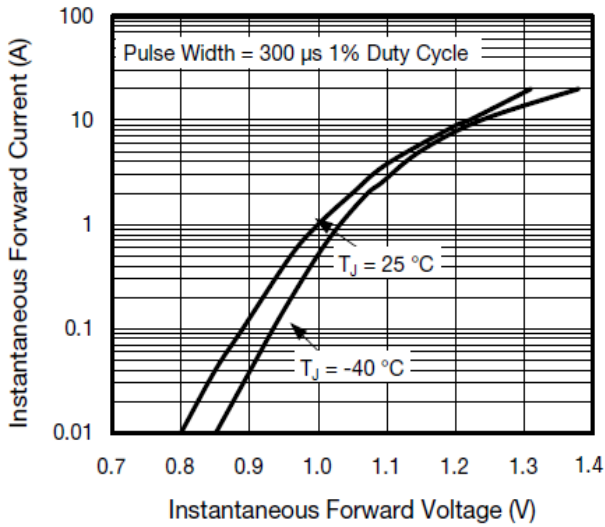


Fig. 3 - Typical Instantaneous Forward Characteristics

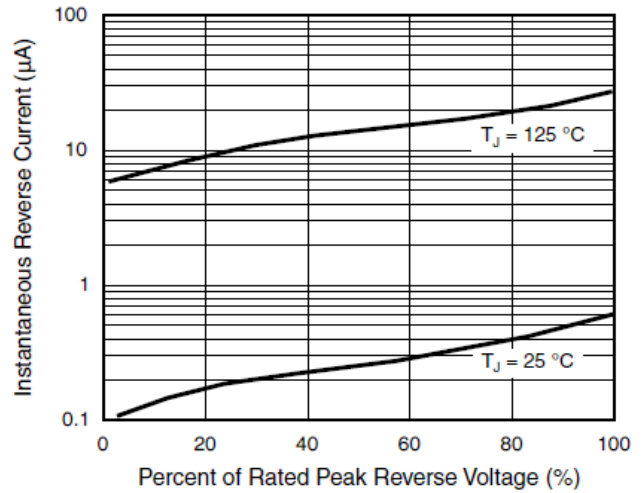


Fig. 4 - Typical Reverse Characteristics

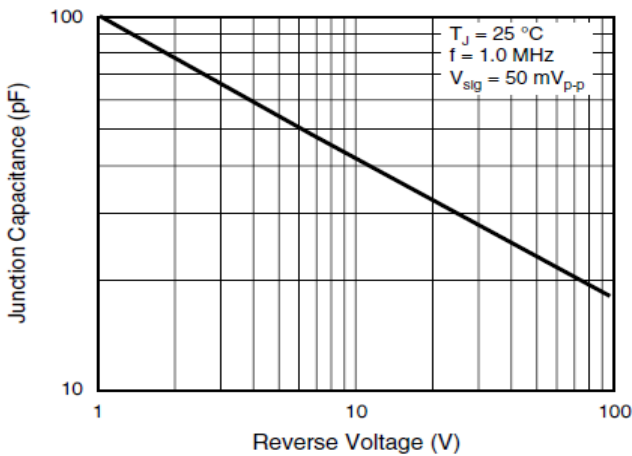
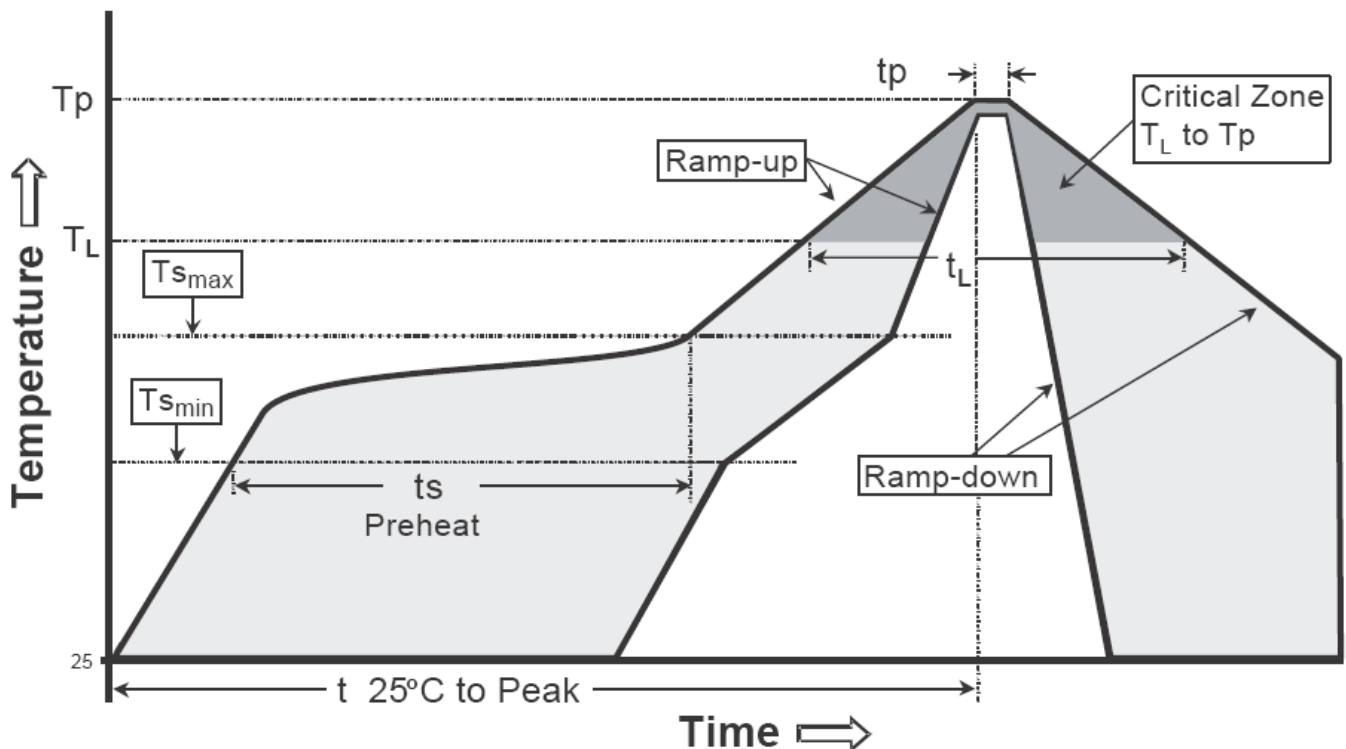


Fig. 5 - Typical Junction Capacitance

Recommended wave soldering condition

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

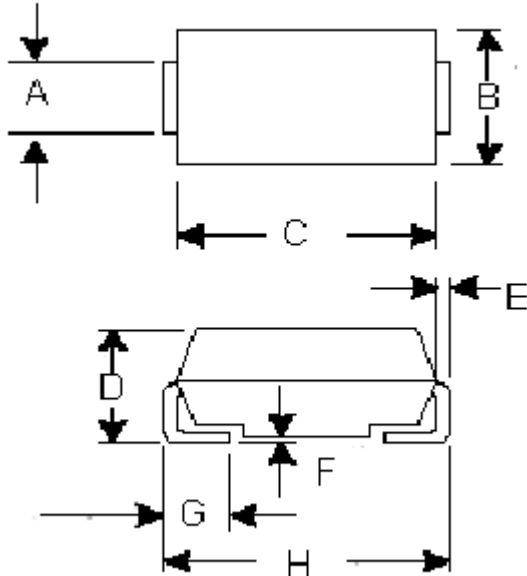
Recommended temperature profile for IR reflow



| 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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