

## FEATURES

- | Fast Switching Speed
- | High Conductance
- | For General Purpose Switching Applications



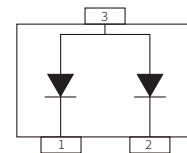
SOT-23

## MECHANICAL DATA

- | Encapsulation: SOT-23 Small Outline Plastic Package
- | Polarity: Color band denotes cathode end
- | Mounting Position: Any



Marking



Schematic Symbol

## APPROVALS

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | Compliance with IEC61249-2-21:2003 |

## MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ )

| Parameter                                                    | Symbol          | Value      | Unit                 |
|--------------------------------------------------------------|-----------------|------------|----------------------|
| Peak Repetitive Reverse Voltage                              | $V_{RRM}$       | 250        | V                    |
| Working Peak Reverse Voltage                                 | $V_{RWM}$       | 250        | V                    |
| RMS Reverse Voltage                                          | $V_{R(RMS)}$    | 175        | V                    |
| Average Rectified Output Current                             | $I_O$           | 225        | mA                   |
| Non-Repetitive Peak Forward Surge Current @ $t=8.3\text{ms}$ | $I_{FSM}$       | 1.7        | A                    |
| Repetitive Peak Forward Surge Current                        | $I_{FRM}$       | 625        | mA                   |
| Power Dissipation                                            | $P_D$           | 350        | mW                   |
| Thermal Resistance from Junction to Ambient                  | $R_{\theta JA}$ | 357        | $^{\circ}\text{C/W}$ |
| Junction Temperature                                         | $T_J$           | -55 to 150 | $^{\circ}\text{C}$   |
| Storage Temperature Range                                    | $T_{STG}$       | -55 to 150 | $^{\circ}\text{C}$   |

## ELECTRICAL CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ )

| Parameter               | Test Condition                                                      | Symbol    | Min. | Max. | Unit          |
|-------------------------|---------------------------------------------------------------------|-----------|------|------|---------------|
| Breakdown Voltage       | $I_R = 100\mu\text{A}$                                              | $V_{BR}$  | 250  |      | V             |
| Breakdown Voltage       | $V_R = 250\text{V}$                                                 | $I_R$     |      | 0.1  | $\mu\text{A}$ |
| Reverse Leakage Current | $I_F = 100\text{mA}$                                                | $V_F$     |      | 1    | V             |
|                         | $I_F = 200\text{mA}$                                                |           |      | 1.25 | V             |
| Breakdown Voltage       | $V_R = 0\text{V}, f=1\text{MHz}$                                    | $C_{tot}$ |      | 5    | pF            |
| Forward Voltage         | $I_F = I_R = 30\text{mA}, I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ | $t_{rr}$  |      | 50   | nS            |

## CHARACTERISTIC CURVES

Fig 1. Forward Characteristics

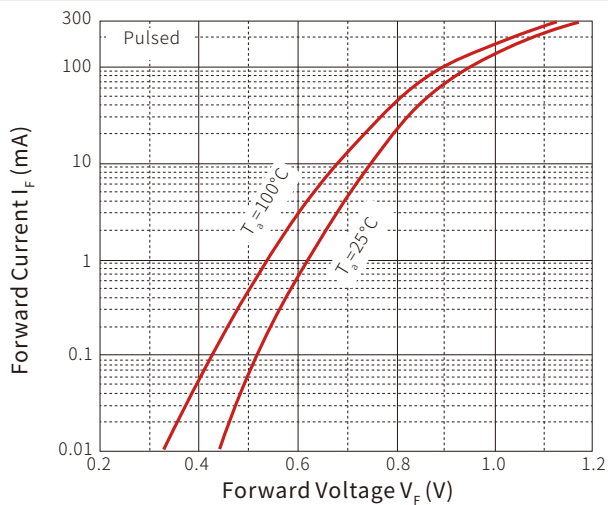
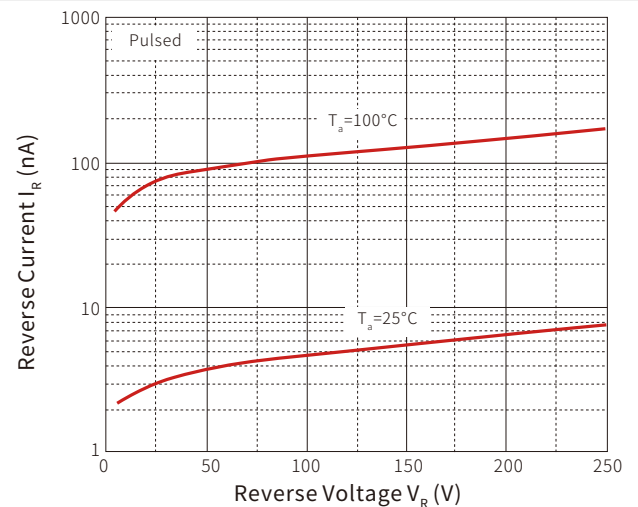
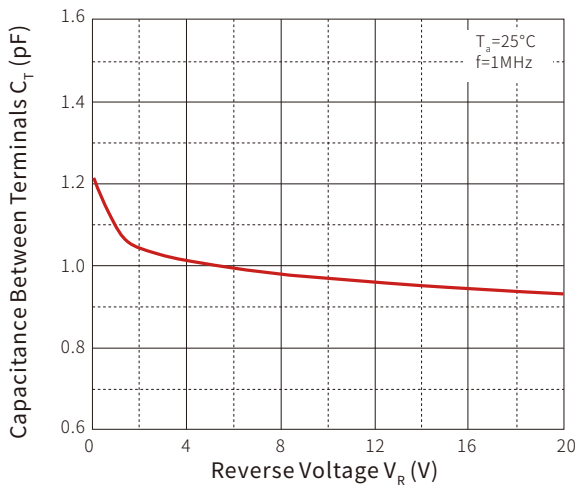
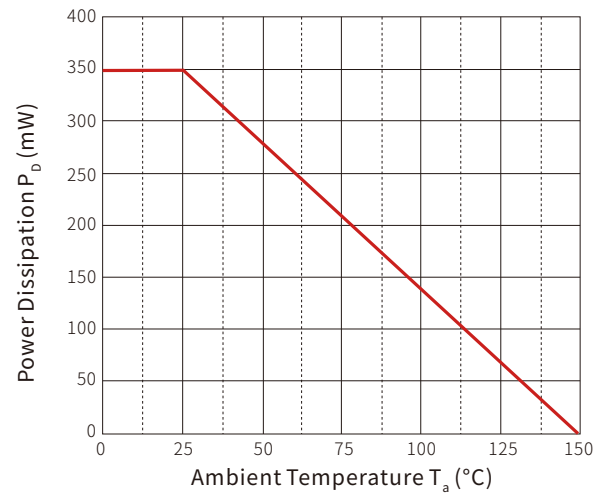


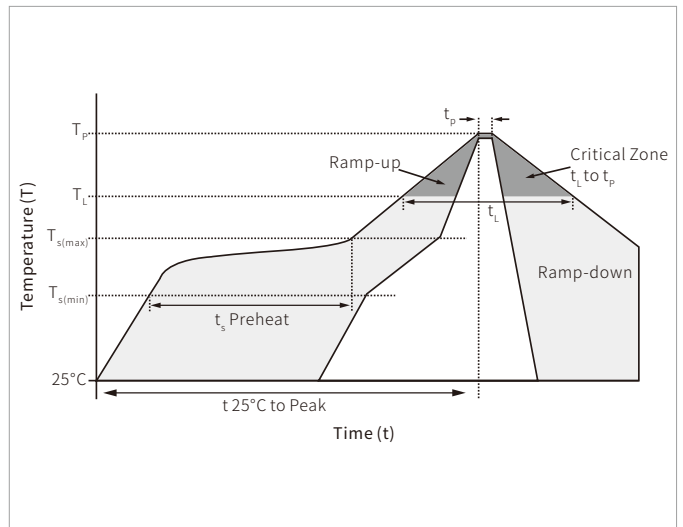
Fig 2. Reverse Characteristics



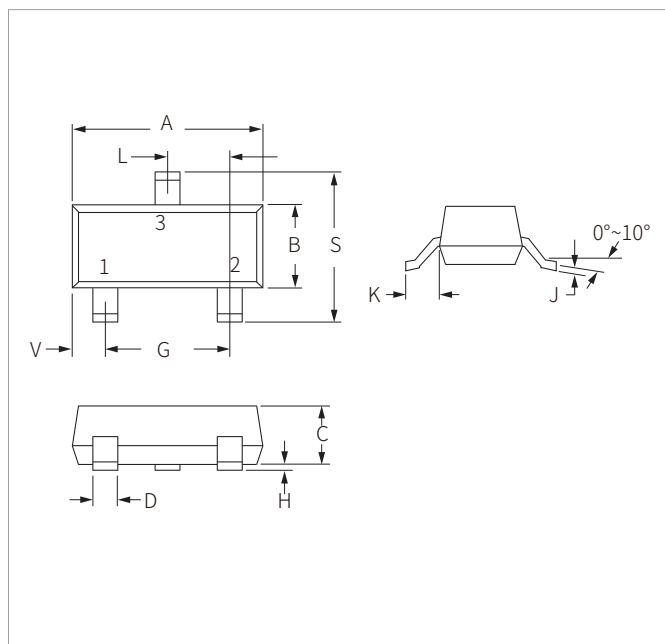
**Fig 3. Capacitance Characteristics**

**Fig 4. Power Derating Curve**


## SOLDERING PARAMETERS

| Reflow Condition                                       |                                   | Lead-free assembly |
|--------------------------------------------------------|-----------------------------------|--------------------|
| Pre Heat                                               | Temperature Max ( $T_{s(\min)}$ ) | 150°C              |
|                                                        | Temperature Max ( $T_{s(\max)}$ ) | 200°C              |
|                                                        | Time (min to max) ( $t_s$ )       | 60 – 180 secs      |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) |                                   | 3°C/second max     |
| $T_{s(\max)}$ to $T_L$ - Ramp-up Rate                  |                                   | 3°C/second max     |
| Reflow                                                 | Temperature ( $T_L$ ) (Liquidus)  | 217°C              |
|                                                        | Time (min to max) ( $t_L$ )       | 60 – 150 seconds   |
| Peak Temperature ( $T_p$ )                             |                                   | 260°C              |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                   | 20 – 40 seconds    |
| Ramp-down Rate                                         |                                   | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_p$ )                |                                   | 8 minutes max.     |
| Do not exceed                                          |                                   | 260°C              |

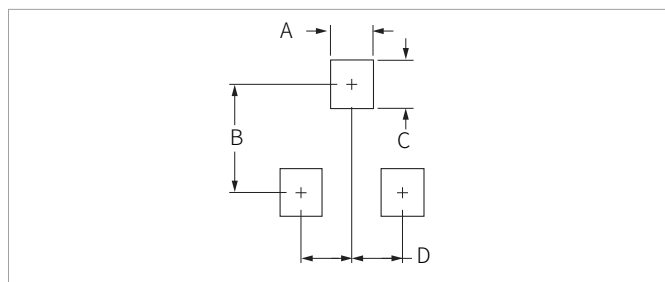


## SOT-23 PACKAGE INFORMATION



| Ref. | Millimeters |       | Inches |       |
|------|-------------|-------|--------|-------|
|      | Min.        | Max.  | Min.   | Max.  |
| A    | 2.80        | 3.05  | 0.110  | 0.120 |
| B    | 1.20        | 1.40  | 0.047  | 0.055 |
| C    | 0.90        | 1.15  | 0.035  | 0.045 |
| D    | 0.37        | 0.50  | 0.015  | 0.020 |
| G    | 1.75        | 2.05  | 0.069  | 0.081 |
| H    | 0.01        | 0.100 | 0.001  | 0.004 |
| J    | 0.085       | 0.180 | 0.003  | 0.007 |
| K    | 0.35        | 0.69  | 0.014  | 0.029 |
| L    | 0.89        | 1.02  | 0.035  | 0.040 |
| S    | 2.10        | 2.65  | 0.083  | 0.104 |
| V    | 0.45        | 0.60  | 0.018  | 0.024 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 0.71        | 0.97 | 0.028  | 0.038 |
| B    | 1.88        | 2.13 | 0.074  | 0.084 |
| C    | 0.71        | 0.97 | 0.028  | 0.038 |
| D    | 0.81        | 1.07 | 0.032  | 0.042 |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| BAV23A      | SOT-23            | 3000PCS  | 7"        |

**Headquarters**

No.3387 Shendu Road  
Pujiang I&E Park  
Minhang Shanghai China  
201000

**Hotline**

400-021-5756

**Web**

<https://www.semiware.com>

**Sales Center**

Tel: 86-21-3463-7458  
Email: [sales18@semiware.com](mailto:sales18@semiware.com)

**Customer Service**

Tel: 86-21-5484-1001  
Email: [sales17@semiware.com](mailto:sales17@semiware.com)

**Technical Support**

Tel: 86-21-3463-7654  
Email: [fae01@semiware.com](mailto:fae01@semiware.com)

**Complaint & Suggestions**

Tel: 86-21-3463-7172  
Ext: 8868  
Email: [cs03@semiware.com](mailto:cs03@semiware.com)

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