



# BAT42WS / BAT43WS

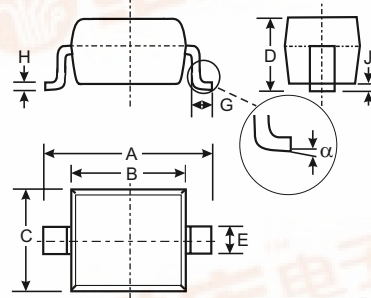
## SURFACE MOUNT SCHOTTKY BARRIER DIODE

### Features

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package

### Mechanical Data

- Case: SOD-323, Plastic
- Case material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Leads: Solderable per MIL-STD-202, Method 208
- BAT42WS Marking: S7
- BAT43WS Marking: S8
- Polarity: Cathode Band
- Weight: 0.004 grams (approx.)



| SOD-323              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 2.30         | 2.70 |
| B                    | 1.60         | 1.80 |
| C                    | 1.20         | 1.40 |
| D                    | 1.05 Typical |      |
| E                    | 0.25         | 0.35 |
| G                    | 0.20         | 0.40 |
| H                    | 0.10         | 0.15 |
| J                    | 0.05 Typical |      |
| $\alpha$             | 0°           | 8°   |
| All Dimensions in mm |              |      |

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic                                                                         | Symbol                          | BAT42WS / BAT43WS | Unit               |
|----------------------------------------------------------------------------------------|---------------------------------|-------------------|--------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 30                | V                  |
| RMS Reverse Voltage                                                                    | $V_{R(RMS)}$                    | 21                | V                  |
| Forward Continuous Current                                                             | $I_{FM}$                        | 200               | mA                 |
| Average Rectified Output Current                                                       | $I_O$                           | 100               | mA                 |
| Repetitive Peak Forward Current @ $t < 1.0\text{s}$                                    | $I_{FRM}$                       | 500               | mA                 |
| Non-Repetitive Peak Forward Surge Current @ $t < 10\text{ms}$                          | $I_{FSM}$                       | 4.0               | A                  |
| Power Dissipation (Note 1)                                                             | $P_d$                           | 200               | mW                 |
| Thermal Resistance Junction to Ambient Air (Note 1)                                    | $R_{\theta JA}$                 | 625               | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range                                                | $T_j, T_{STG}$                  | -55 to +125       | $^\circ\text{C}$   |

### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic                     | Symbol      | Min | Max                                 | Unit                | Test Condition                                                                                                    |
|------------------------------------|-------------|-----|-------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 2) | $V_{(BR)R}$ | 30  | —                                   | V                   | $I_R = 100\mu\text{A}$                                                                                            |
| Forward Voltage Drop (Note 2)      | $V_{FM}$    | —   | 1.0<br>0.40<br>0.65<br>0.33<br>0.45 | V                   | $I_F = 200\text{mA}$<br>$I_F = 10\text{mA}$<br>$I_F = 50\text{mA}$<br>$I_F = 2.0\text{mA}$<br>$I_F = 15\text{mA}$ |
| Peak Reverse Current (Note 2)      | $I_{RM}$    | —   | 500<br>100                          | nA<br>$\mu\text{A}$ | $V_R = 25\text{V}$<br>$V_R = 25\text{V}, T_j = 100^\circ\text{C}$                                                 |
| Total Capacitance                  | $C_T$       | —   | 10                                  | pF                  | $V_R = 1.0, f = 1.0\text{MHz}$                                                                                    |
| Reverse Recovery Time              | $t_{rr}$    | —   | 5.0                                 | ns                  | $I_F = I_R = 10\text{mA}$<br>$I_{rr} = 0.1 \times I_R, R_L = 100\Omega$                                           |

- Notes:
1. Part mounted on FR4 PC Board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. Short duration test pulse used to minimize self-heating effect.



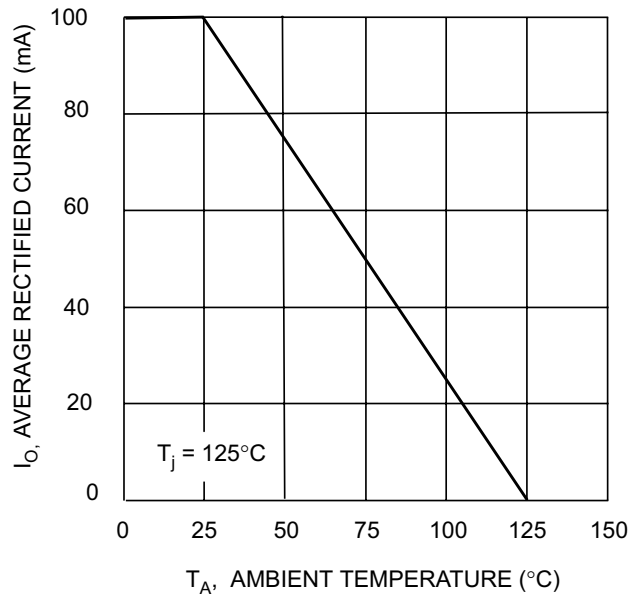


Fig. 1 Forward Current Derating Curve

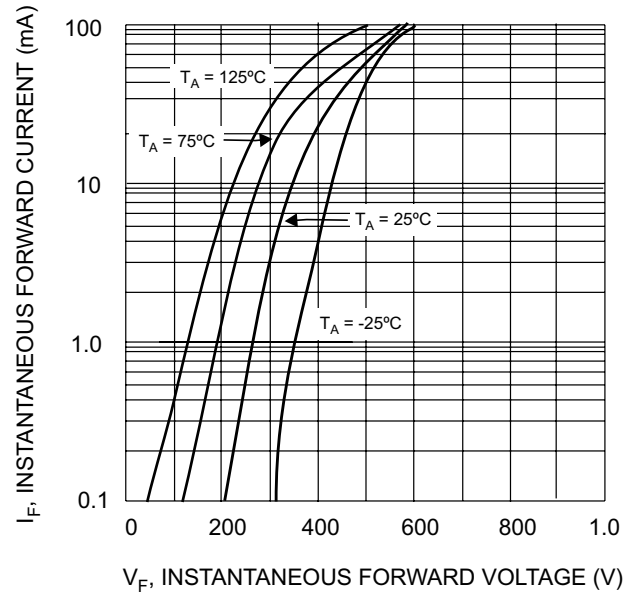


Fig. 2 Typical Forward Characteristics

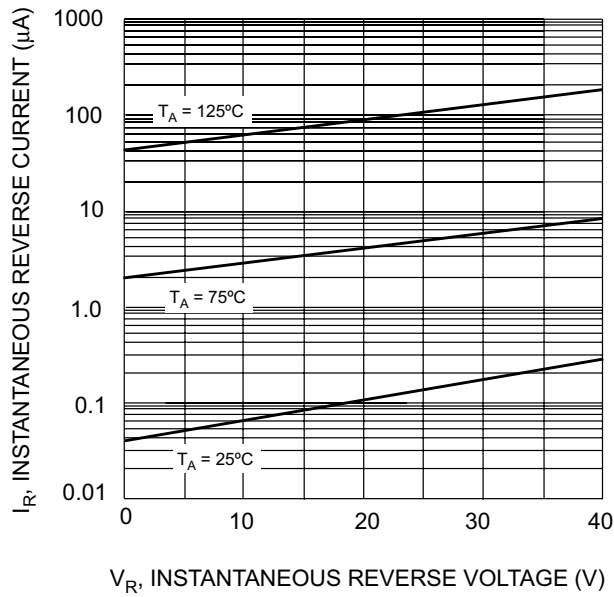


Fig. 3 Typical Reverse Characteristics

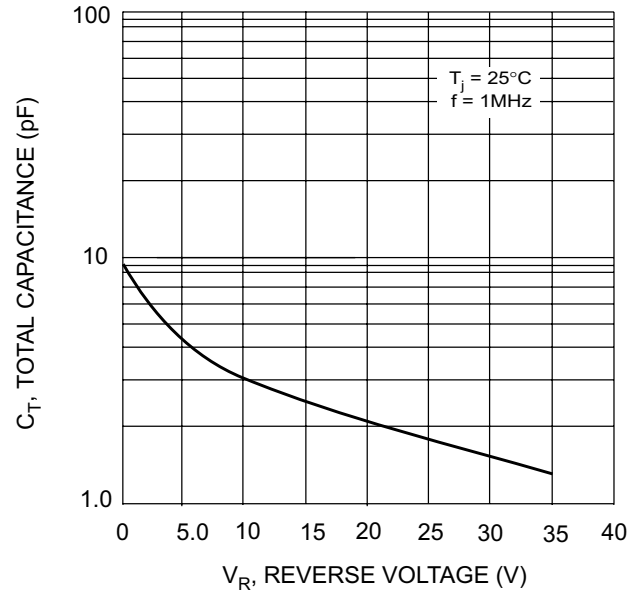


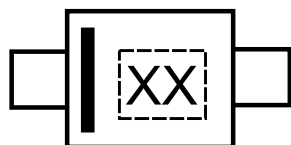
Fig. 4 Total Capacitance vs. Reverse Voltage

## Ordering Information (Note 2)

| Device              | Packaging | Shipping         |
|---------------------|-----------|------------------|
| BAT42WS-7/BAT43WS-7 | SOD-323   | 3000/Tape & Reel |

Notes: 2. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



XX = Product Type Marking Code  
See Sheet 1