SD101AW - SD101CW

## Features

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Negligible Reverse Recovery Time
- Very Low Reverse Capacitance
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2 and 3)


## Mechanical Data

- Case: SOD-123
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Leads: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe)
- Polarity: Cathode Band
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.01 grams (approximate)


Top View

Maximum Ratings $@ T_{A}=25^{\circ} \mathrm{C}$ unless otherwise specified

| Characteristic | Symbol | SD101AW | SD101BW | SD101CW | Unit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | VRRM <br> $V_{\text {RWM }}$ $V_{R}$ | 60 | 50 | 40 | V |
| RMS Reverse Voltage | $\mathrm{V}_{\mathrm{R}(\mathrm{RMS})}$ | 42 | 35 | 28 | V |
| Forward Continuous Current (Note 1) | IFM | 15 |  |  | mA |
| Non-Repetitive Peak Forward Surge Current  <br>  @ t 51.0 s <br>  $@ \mathrm{t}=10 \mu \mathrm{~s}$ | $I_{\text {FSM }}$ | $\begin{aligned} & 50 \\ & 2.0 \end{aligned}$ |  |  | $\begin{gathered} \mathrm{mA} \\ \mathrm{~A} \end{gathered}$ |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
| :--- | :---: | :---: | :---: |
| Power Dissipation (Note 1) | $\mathrm{P}_{\mathrm{D}}$ | 400 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 1) | $\mathrm{R}_{\theta \mathrm{JA}}$ | 300 | ${ }^{\circ} \mathrm{C} / \mathrm{W}$ |
| Operating and Storage Temperature Range | $\mathrm{T}_{\mathrm{J},}, \mathrm{T}_{\text {STG }}$ | -65 to +125 | ${ }^{\circ} \mathrm{C}$ |

[^0]Electrical Characteristics $@ \mathrm{~T}_{\mathrm{A}}=25^{\circ} \mathrm{C}$ unless otherwise specified

| Characteristic |  | Symbol | Min | Max | Unit | Test Condition |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Reverse Breakdown Voltage (Note 4) | $\begin{aligned} & \text { SD101AW } \\ & \text { SD101BW } \\ & \text { SD101CW } \end{aligned}$ | $\mathrm{V}_{(\mathrm{BR}) \mathrm{R}}$ | $\begin{aligned} & \hline 60 \\ & 50 \\ & 40 \\ & \hline \end{aligned}$ | - | V | $\begin{aligned} & I_{R}=10 \mu \mathrm{~A} \\ & \mathrm{I}_{\mathrm{R}}=10 \mu \mathrm{~A} \\ & \mathrm{I}_{\mathrm{R}}=10 \mu \mathrm{~A} \end{aligned}$ |
| Forward Voltage Drop | SD101AW <br> SD101BW <br> SD101CW <br> SD101AW <br> SD101BW <br> SD101CW | $V_{\text {FM }}$ | - | $\begin{aligned} & 0.41 \\ & 0.40 \\ & 0.39 \\ & 1.00 \\ & 0.95 \\ & 0.90 \end{aligned}$ | V | $\begin{aligned} & \mathrm{I}_{\mathrm{F}}=1.0 \mathrm{~mA} \\ & \mathrm{I}_{\mathrm{F}}=1.0 \mathrm{~mA} \\ & \mathrm{I}_{\mathrm{F}}=1.0 \mathrm{~mA} \\ & \mathrm{I}_{\mathrm{F}}=15 \mathrm{~mA} \\ & \mathrm{I}_{\mathrm{F}}=15 \mathrm{~mA} \\ & \mathrm{I}_{\mathrm{F}}=15 \mathrm{~mA} \end{aligned}$ |
| Peak Reverse Current (Note 4) | $\begin{aligned} & \text { SD101AW } \\ & \text { SD101BW } \\ & \text { SD101CW } \end{aligned}$ | IRM | - | 200 | nA | $\begin{aligned} & V_{R}=50 \mathrm{~V} \\ & V_{R}=40 \mathrm{~V} \\ & V_{R}=30 \mathrm{~V} \\ & \hline \end{aligned}$ |
| Total Capacitance | $\begin{aligned} & \text { SD101AW } \\ & \text { SD101BW } \\ & \text { SD101CW } \end{aligned}$ | $\mathrm{C}_{\text {T }}$ | - | $\begin{array}{r} \hline 2.0 \\ 2.1 \\ 2.2 \\ \hline \end{array}$ | pF | $\mathrm{V}_{\mathrm{R}}=0 \mathrm{~V}, \mathrm{f}=1.0 \mathrm{MHz}$ |
| Reverse Recovery Time |  | $\mathrm{trr}_{\text {r }}$ | - | 1.0 | ns | $\begin{aligned} & I_{F}=I_{R}=5.0 \mathrm{~mA}, \\ & I_{\text {rf }}=0.1 \times I_{R}, R_{L}=100 \Omega \end{aligned}$ |

Notes: 4. Short duration pulse test used to minimize self-heating effect.


SD101AW - SD101CW

Ordering Information
(Note 5)

| Part Number | Case | Packaging |
| :---: | :---: | :---: |
| SD101xW-7-F | SOD-123 | $3000 /$ Tape and Reel |
| SD101xW-13-F | SOD-123 | $10,000 /$ Tape and Reel |

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

## Marking Information

| Date Code Key |  |  |  |  |  | $-\sqrt{1 x}$ |  |  | xx = Product Type Marking Code <br> S1 or SK = SD101AW <br> S2 or SK = SD101BW <br> S3 or SK = SD101CW <br> YM = Date Code Marking <br> Y = Year (ex: T = 2006) <br> M = Month (ex: 9 = September) |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Year | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 200 |  | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| Code | J | K | L | M | N | P | R | S | T | U |  | V | W | X | Y | Z | A | B | C |
| Month | Jan |  | Feb | Mar |  | Apr | May |  | Jun | Jul |  |  | Aug | Sep |  | Oct | Nov | Dec |  |
| Code | 1 |  | 2 | 3 |  | 4 | 5 |  | 6 | 7 |  |  | 8 | 9 |  | 0 | N |  | D |

## Package Outline Dimensions



| SOD-123 |  |  |
| :---: | :---: | :---: |
| Dim | Min | Max |
| A | 0.55 Typ |  |
| B | 1.40 | 1.70 |
| C | 3.55 | 3.85 |
| H | 2.55 | 2.85 |
| $\mathbf{J}$ | 0.00 | 0.10 |
| K | 1.00 | 1.35 |
| L | 0.25 | 0.40 |
| $\mathbf{M}$ | 0.10 | 0.15 |
| $\alpha$ | 0 | $8^{\circ}$ |
| All Dimensions in $\mathbf{~ m m}$ |  |  |

## Suggested Pad Layout



| Dimensions | Value (in $\mathbf{~ m m}$ ) |
| :---: | :---: |
| $\mathbf{Z}$ | 4.9 |
| $\mathbf{G}$ | 2.5 |
| $\mathbf{X}$ | 0.7 |
| $\mathbf{Y}$ | 1.2 |
| $\mathbf{C}$ | 3.7 |

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[^0]:    Notes: 1. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
    2. No purposefully added lead. Halogen and Antimony Free.
    3. Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or $\mathrm{Sb}_{2} \mathrm{O}_{3}$ Fire Retardants.

