

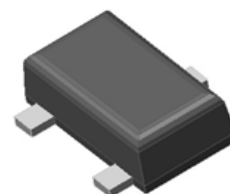
## High Voltage Switching Diode

### General Description

Dual general-purpose switching diodes, fabricated in planar technology, and packaged in small SOT-23F surface mounted device (SMD) packages.

### Features and Benefits

- Silicon epitaxial planar diode
- High switching speed
- Low forward drop voltage and low leakage current
- “Green” device and RoHS compliant device
- Available in full lead (Pb)-free device



SOT-23F



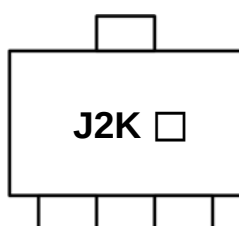
### Applications

- Ultra high speed switching application

### Ordering Information

| Part Number | Marking Code | Package | Packaging   |
|-------------|--------------|---------|-------------|
| SDS21WKF    | J2K □        | SOT-23F | Tape & Reel |

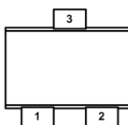
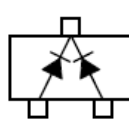
### Marking Information



J2K = Specific Device Code

□ = Year & Week Code Marking

### Pinning Information

| Pin | Description     | Simplified Outline                                                                   | Graphic Symbol                                                                        |
|-----|-----------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1   | Anode (Diode 1) |  |  |
| 2   | Anode (Diode 2) |                                                                                      |                                                                                       |
| 3   | Common Cathode  |                                                                                      |                                                                                       |

## Absolute Maximum Ratings ( $T_{amb}=25^{\circ}\text{C}$ , Unless otherwise specified)

| Characteristic                                               | Symbol    | Ratings | Unit |
|--------------------------------------------------------------|-----------|---------|------|
| Maximum repetitive peak reverse voltage                      | $V_{RM}$  | 250     | V    |
| Continuous reverse voltage                                   | $V_R$     | 200     | V    |
| Maximum average forward rectified current                    | $I_O$     | 200     | mA   |
| Maximum repetitive peak forward current                      | $I_{FM}$  | 400     | mA   |
| Non-repetitive peak forward surge current( $t=10\text{ms}$ ) | $I_{FSM}$ | 1.7     | A    |
| Power dissipation <sup>1)</sup>                              | $P_D$     | 250     | mW   |

<sup>1)</sup> Device mounted on FR-4 board with recommended pad layout.

## Thermal Characteristics ( $T_{amb}=25^{\circ}\text{C}$ , Unless otherwise specified)

| Characteristic                                        | Symbol        | Ratings   | Unit                 |
|-------------------------------------------------------|---------------|-----------|----------------------|
| Thermal resistance, junction to ambient <sup>1)</sup> | $R_{th(j-a)}$ | 500       | $^{\circ}\text{C/W}$ |
| Operating junction temperature                        | $T_j$         | 150       | $^{\circ}\text{C}$   |
| Storage temperature range                             | $T_{stg}$     | -55 ~ 150 | $^{\circ}\text{C}$   |

<sup>1)</sup> Device mounted on FR-4 board with recommended pad layout.

## Electrical Characteristics ( $T_{amb}=25^{\circ}\text{C}$ , Unless otherwise specified)

| Characteristic                        | Symbol   | Test Condition                                                   | Min. | Typ. | Max. | Unit          |
|---------------------------------------|----------|------------------------------------------------------------------|------|------|------|---------------|
| Reverse breakdown voltage             | $V_{BR}$ | $I_F=100\mu\text{A}$                                             | 250  | -    | -    | V             |
| Forward drop voltage <sup>2)</sup>    | $V_F$    | $I_F=100\text{mA}$                                               | -    | -    | 1.0  | V             |
|                                       |          | $I_F=200\text{mA}$                                               | -    | -    | 1.25 | V             |
| Reverse leakage current <sup>3)</sup> | $I_R$    | $V_R=200\text{V}$                                                | -    | -    | 100  | nA            |
|                                       |          | $V_R=200\text{V}$ , $T_a=150^{\circ}\text{C}$                    | -    | -    | 100  | $\mu\text{A}$ |
| Total capacitance                     | $C_T$    | $V_R=0\text{V}$ , $f=1\text{MHz}$                                | -    | -    | 5    | pF            |
| Reverse recovery time                 | $t_{rr}$ | $I_F=I_R=30\text{mA}$ ,<br>$I_{rr}=3\text{mA}$ , $R_L=100\Omega$ | -    | -    | 50   | ns            |

<sup>2)</sup> Pulse test:  $t_p \leq 380\mu\text{s}$ , Duty cycle  $\leq 2\%$

<sup>3)</sup> Pulse test:  $t_p \leq 5\text{ms}$ , Duty cycle  $\leq 2\%$

## Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics

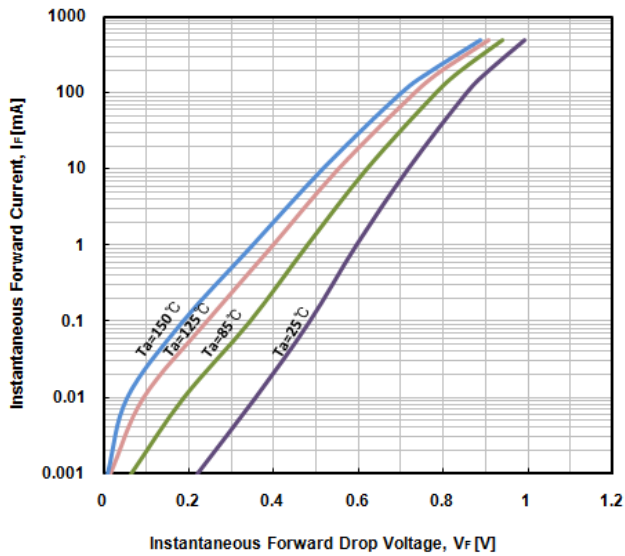


Fig. 2) Typical Reverse Characteristics

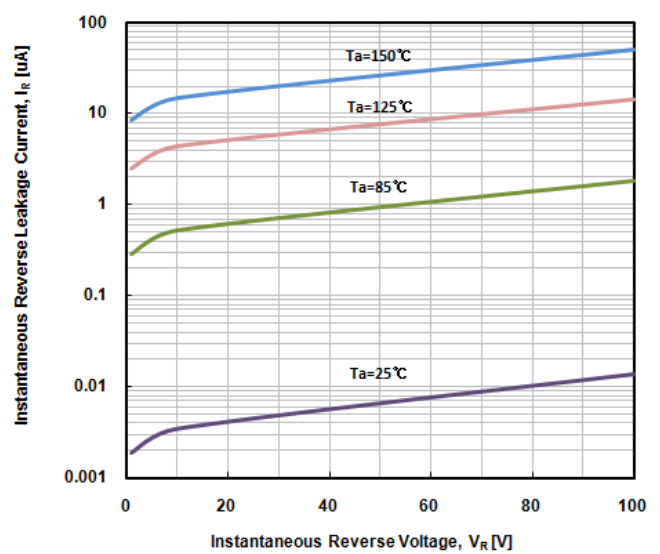


Fig. 3) Typical Total Capacitance Characteristics

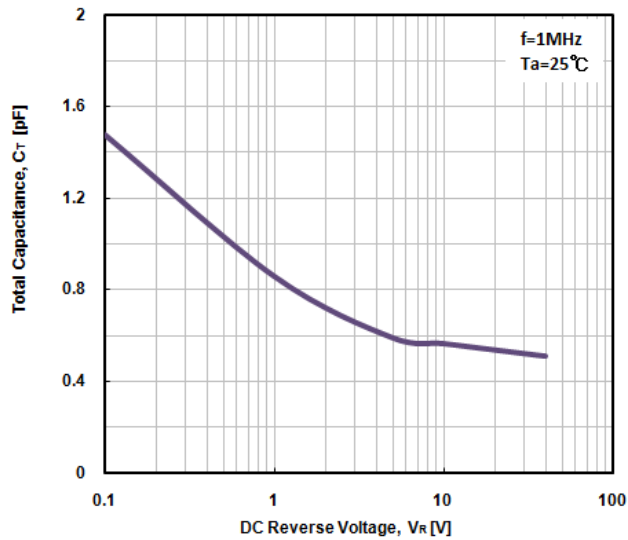


Fig. 4) Power Dissipation vs. Ambient Temperature

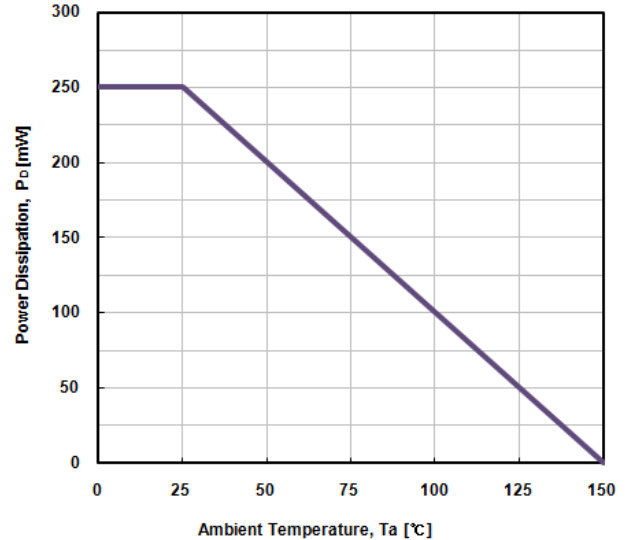
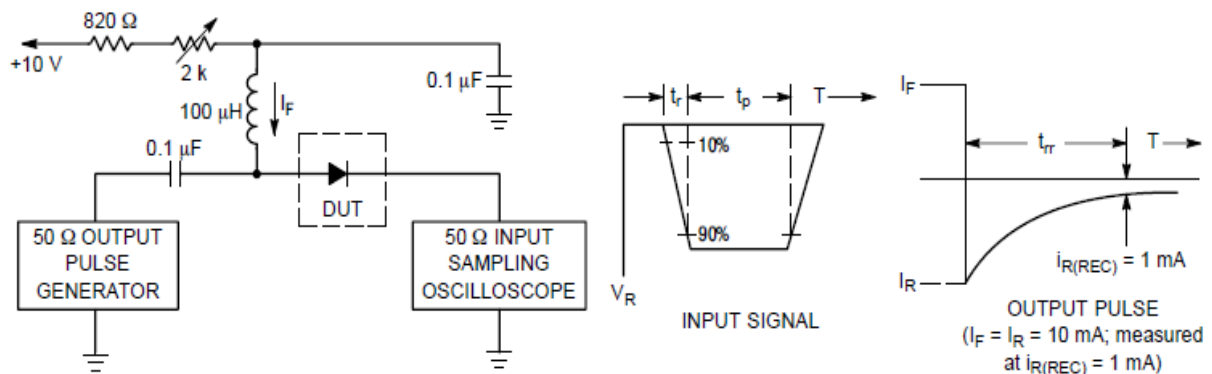
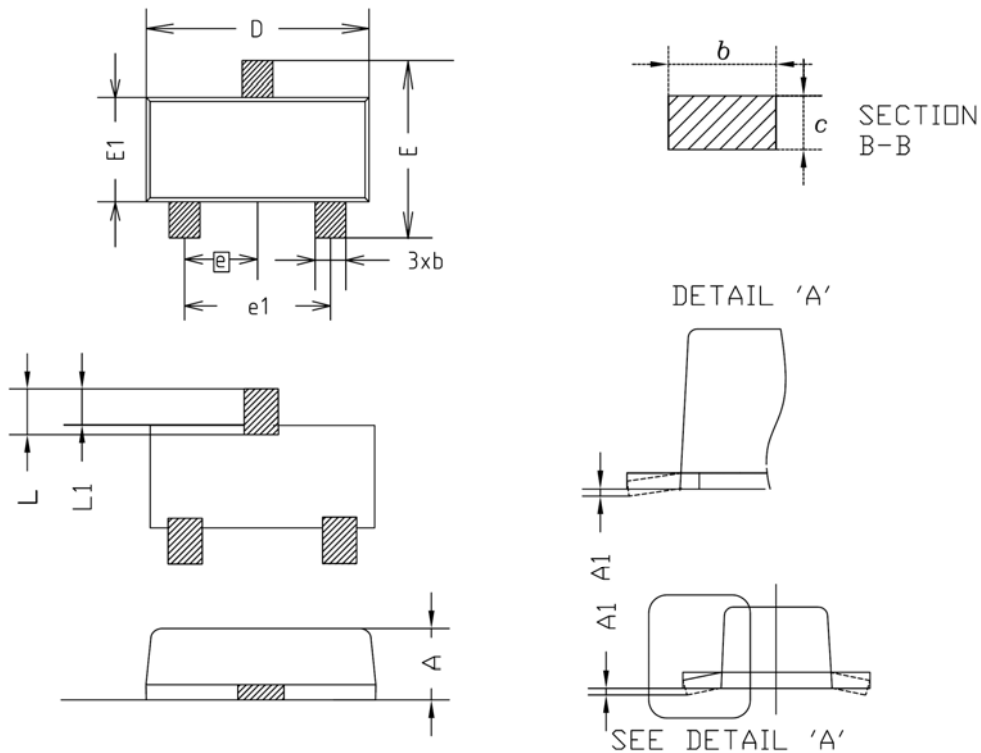


Fig. 5) Reverse recovery time equivalent test circuit

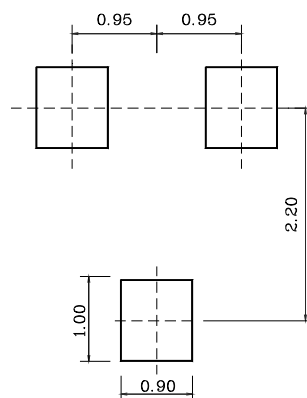


## Package Outline Dimensions



| SYMBOL | MILLIMETER(mm) |         |         | NOTE |
|--------|----------------|---------|---------|------|
|        | MINIMUM        | NOMINAL | MAXIMUM |      |
| A      | 0.80           | 0.90    | 1.00    |      |
| A1     | 0.00           | -       | 0.10    |      |
| b      | 0.35           | 0.40    | 0.45    |      |
| c      | 0.10           | 0.15    | 0.20    |      |
| D      | 2.80           | 2.90    | 3.00    |      |
| E      | 2.30           | 2.40    | 2.50    |      |
| E1     | 1.50           | 1.60    | 1.70    |      |
| e      | 0.95BSC        |         |         |      |
| e1     | 1.80           | 1.90    | 2.00    |      |
| L      | 0.48           | 0.58    | 0.68    |      |
| L1     | 0.30           | -       | 0.50    |      |

※ Recommend PCB solder land (Unit : mm)



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