

## Surface Mount Fast Recovery Rectifiers

### FEATURES

- Ideal for automated placement
- Compact package size
- High surge current capability
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



### MECHANICAL DATA

**Case:** SOD-123HE

Molding compound, UL flammability classification rating 94V-0

Base P/N with suffix "G" on packing code - green compound (halogen-free)

Base P/N with prefix "H" on packing code - AEC-Q101 qualified

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 1A whisker test

with prefix "H" on packing code meet JESD 201 class 2 whisker test

**Polarity:** Indicated by cathode band

**Weight:** 0.022g (approximately)

**SOD-123HE**

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted) |                                      |              |        |        |      |
|----------------------------------------------------------------------------------------------|--------------------------------------|--------------|--------|--------|------|
| PARAMETER                                                                                    | SYMBOL                               | RS1JLS       | RS1KLS | RS1MLS | UNIT |
| Marking code                                                                                 |                                      | RJLS         | RKLS   | RMLS   |      |
| Maximum repetitive peak reverse voltage                                                      | V <sub>RRM</sub>                     | 600          | 800    | 1000   | V    |
| Maximum RMS voltage                                                                          | V <sub>RMS</sub>                     | 420          | 560    | 700    | V    |
| Maximum DC blocking voltage                                                                  | V <sub>DC</sub>                      | 600          | 800    | 1000   | V    |
| Maximum average forward rectified current                                                    | I <sub>F(AV)</sub>                   | 1.2          |        |        | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load          | I <sub>FSM</sub>                     | 50           |        |        | A    |
| Maximum instantaneous forward voltage (Note 1)<br>@ 1.2 A                                    | V <sub>F</sub>                       | 1.3          |        |        | V    |
| Maximum reverse current @ rated VR T <sub>J</sub> =25 °C<br>T <sub>J</sub> =125 °C           | I <sub>R</sub>                       | 5<br>150     |        |        | μA   |
| Maximum reverse recovery time (Note 2)                                                       | trr                                  | 300          |        |        | ns   |
| Typical thermal resistance                                                                   | R <sub>θJC</sub><br>R <sub>θJA</sub> | 26<br>80     |        |        | °C/W |
| Operating junction temperature range                                                         | T <sub>J</sub>                       | - 55 to +150 |        |        | °C   |
| Storage temperature range                                                                    | T <sub>STG</sub>                     | - 55 to +150 |        |        | °C   |

Note 1: Pulse test with PW=300μs, 1% duty cycle

Note 2: Reverse recovery test condition: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A

| ORDERING INFORMATION  |                    |              |                     |           |                   |
|-----------------------|--------------------|--------------|---------------------|-----------|-------------------|
| PART NO.              | AEC-Q101 QUALIFIED | PACKING CODE | GREEN COMPOUND CODE | PACKAGE   | PACKING           |
| RS1xLS<br>(Note 1, 2) | Prefix "H"         | RV           | Suffix "G"          | SOD-123HE | 3,000 / 7" Reel   |
|                       |                    | RQ           |                     | SOD-123HE | 10,000 / 13" Reel |

Note 1: "x" defines voltage from 600V (RS1JLS) to 1000V (RS1MLS)

Note 2: Whole series with green compound (halogen-free)

| EXAMPLE       |          |                    |              |                     |                                      |
|---------------|----------|--------------------|--------------|---------------------|--------------------------------------|
| PREFERRED P/N | PART NO. | AEC-Q101 QUALIFIED | PACKING CODE | GREEN COMPOUND CODE | DESCRIPTION                          |
| RS1MLSHRVG    | RS1MLS   | H                  | RV           | G                   | AEC-Q101 qualified<br>Green compound |

RATINGS AND CHARACTERISTICS CURVES

(TA=25°C unless otherwise noted)

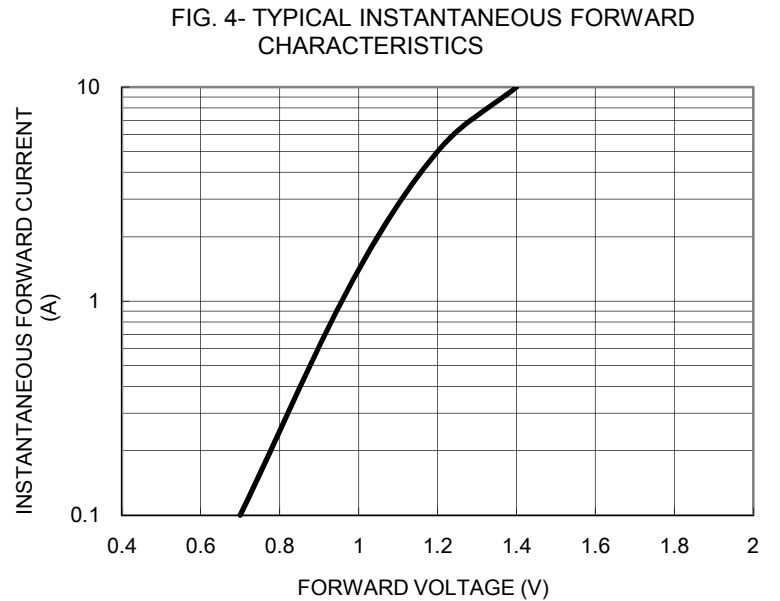
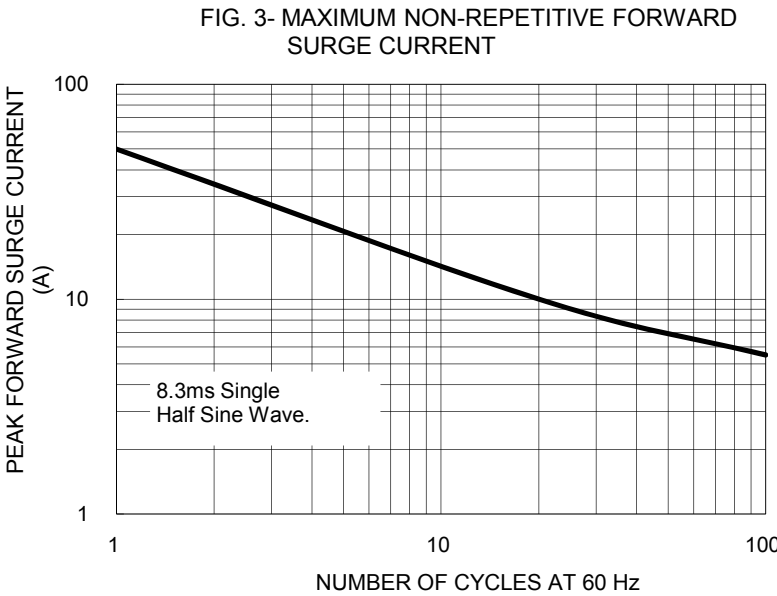
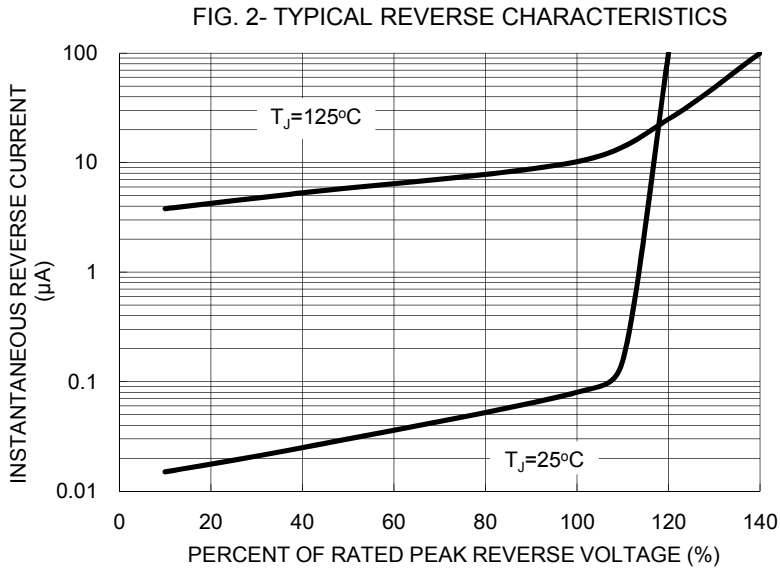
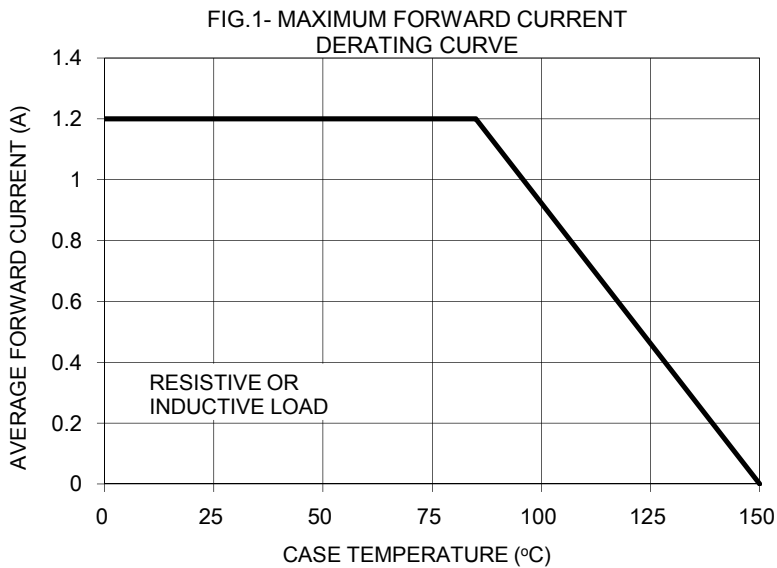


FIG. 5- TYPICAL JUNCTION CAPACITANCE

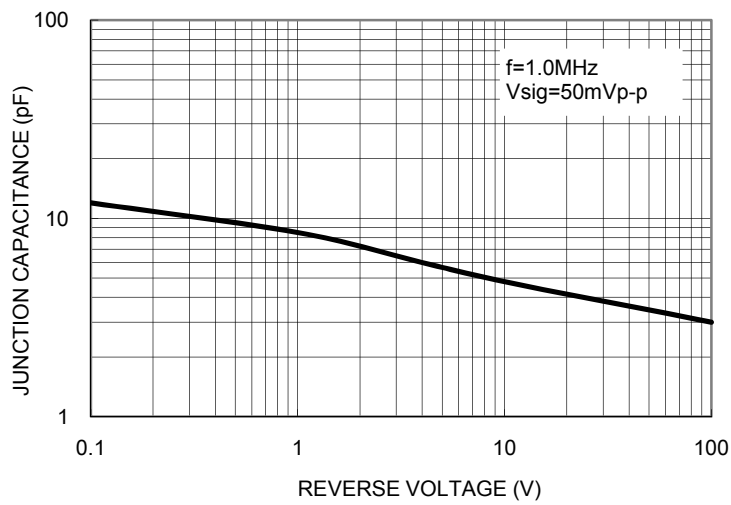
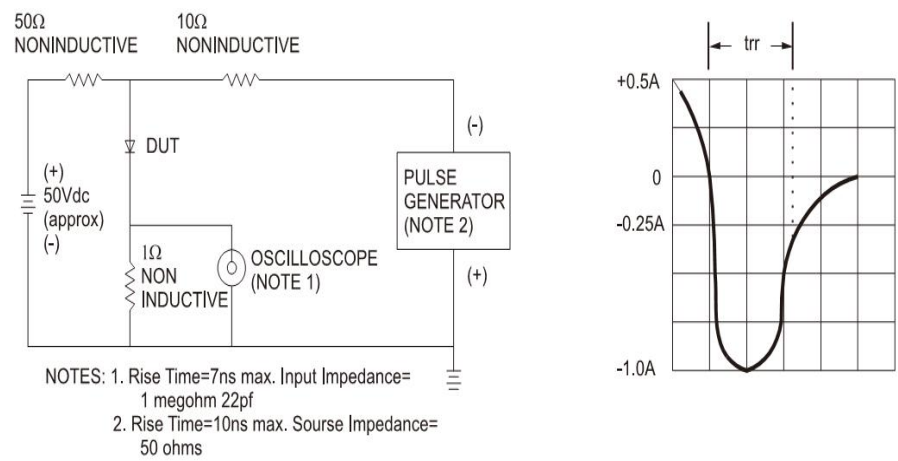
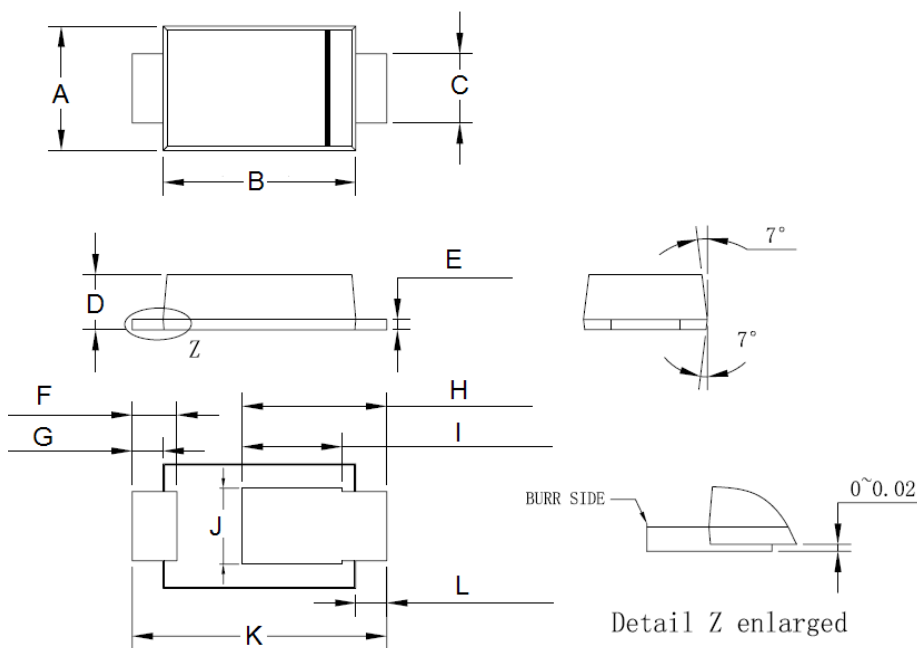


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



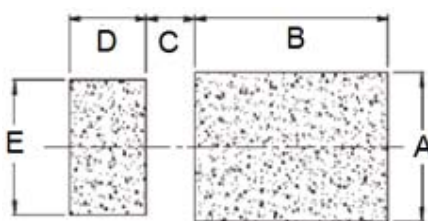
## PACKAGE OUTLINE DIMENSIONS

### SOD-123HE



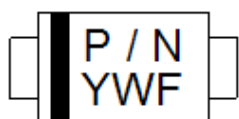
| DIM. | Unit (mm) |      | Unit (inch) |       |
|------|-----------|------|-------------|-------|
|      | Min       | Max  | Min         | Max   |
| A    | 1.65      | 1.95 | 0.065       | 0.077 |
| B    | 2.60      | 3.00 | 0.102       | 0.118 |
| C    | 0.85      | 1.15 | 0.033       | 0.045 |
| D    | 0.75      | 0.85 | 0.030       | 0.033 |
| E    | 0.10      | 0.20 | 0.004       | 0.008 |
| F    | 0.55      | 0.75 | 0.022       | 0.030 |
| G    | 0.35      | 0.55 | 0.014       | 0.022 |
| H    | 1.90      | 2.30 | 0.075       | 0.091 |
| I    | 1.35      | 1.55 | 0.053       | 0.061 |
| J    | 0.95      | 1.25 | 0.037       | 0.049 |
| K    | 3.50      | 3.90 | 0.138       | 0.154 |
| L    | 0.35      | 0.55 | 0.014       | 0.022 |

## SUGGESTED PAD LAYOUT



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 1.40      | 0.055       |
| B      | 2.40      | 0.094       |
| C      | 0.70      | 0.028       |
| D      | 0.90      | 0.035       |
| E      | 1.40      | 0.055       |

## MARKING DIAGRAM



P/N = Marking Code  
YW = Date Code  
F = Factory Code

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