**$V_{RM}$ = 200 V, $I_{F(AV)}$ = 30 A**
**Automotive Alternator Diodes**

# SG-10L Series

**Data Sheet**

## Description

The SG-10L series are rectification diodes designed for automotive alternator circuits.

Supplied in an SG-10 package with high heat dissipation, the products bring high reliability even under high temperature and humidity conditions. In addition, a bridge circuit can be configured easily in a small area by using two types in pairs, diodes with the suffix "S" and the suffix "R", which have opposite polarities.

## Features

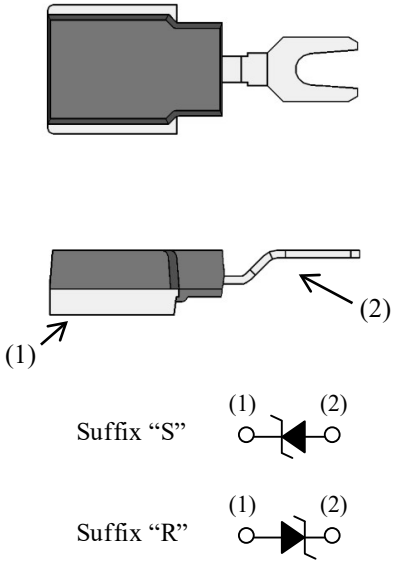
- $T_J$ = 160 °C Capability Suitable for High Reliability and Automotive Requirements
- Bare Lead Frame: Pb-free (RoHS Compliant)

## Applications

- Alternator Circuit for 12 V Automotive Battery

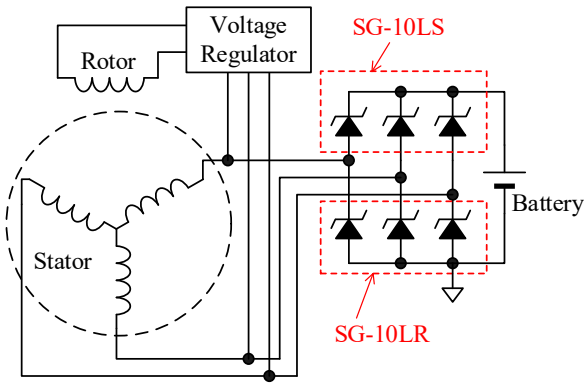
## Package

SG-10




Not to scale

## Typical Application




| Pin No. | Suffix "S" | Suffix "R" |
|---|---|---|
| (1) | Cathode | Anode |
| (2) | Anode | Cathode |

## Selection Guide

| Part Number | $I_{F(AV)}$ | $T_{J(Max.)}$ |
|---|---|---|
| SG-10LS | 30 A | 160 °C |
| SG-10LR | | |

## Absolute Maximum Ratings

Unless otherwise specified, $T_A$ = 25 °C

| Parameter | Symbol | Conditions | Rating | Unit |
|---|---|---|---|---|
| Repetitive Peak Reverse Voltage | $V_{RM}$ | | 200 | V |
| Average Forward Current | $I_{F(AV)}$ | $T_L \leq$ 120 °C, see Figure 1. | 30 | A |
| Surge Forward Current | $I_{FSM}$ | Half cycle sine-wave, positive side, 10ms, one shot. | 300 | A |
| Junction Temperature | $T_J$ | | −40 to 160 | °C |
| Storage Temperature | $T_{STG}$ | | −40 to 150 | °C |

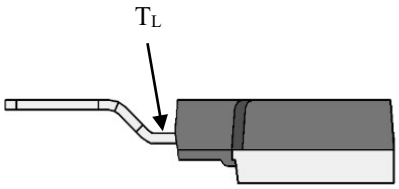



Figure 1. Lead Temperature Measurement Conditions

## Electrical Characteristics

Unless otherwise specified, $T_A$ = 25 °C

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Forward Voltage Drop | $V_F$ | $I_F$ = 100 A | — | — | 1.2 | V |
| Reverse Leakage Current | $I_R$ | $V_R = V_{RM}$ | — | — | 0.25 | mA |
| Reverse Leakage Current Under High Temperature | $H \cdot I_R$ | $V_R = V_{RM}$, $T_J$ = 150 °C | — | — | 2.5 | mA |
| Thermal Resistance | $R_{th(J-L)}$ | (1) | — | 1.0 | — | °C/W |

## Mechanical Characteristics

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Package Weight | | — | 2.7 | — | g |

(1) $R_{th(J-L)}$ is thermal resistance between junction and lead. Lead temperature is measured as shown in Figure 1.

## Rating and Characteristic Curves

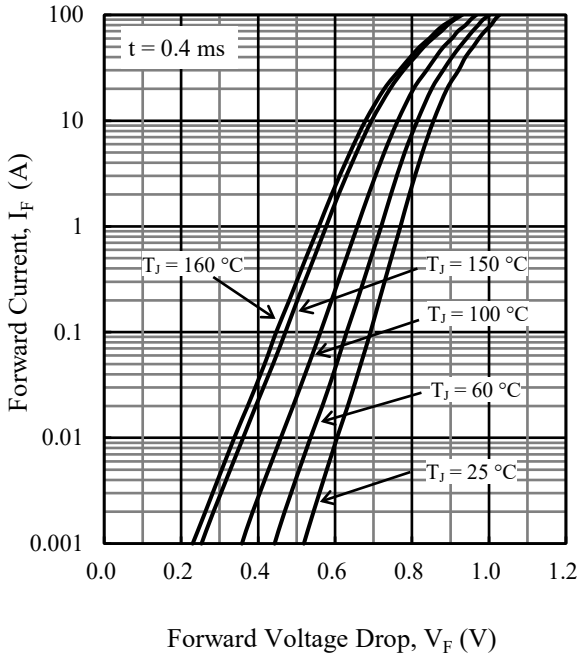



Figure 2. $I_F$ vs. $V_F$ Typical Characteristics

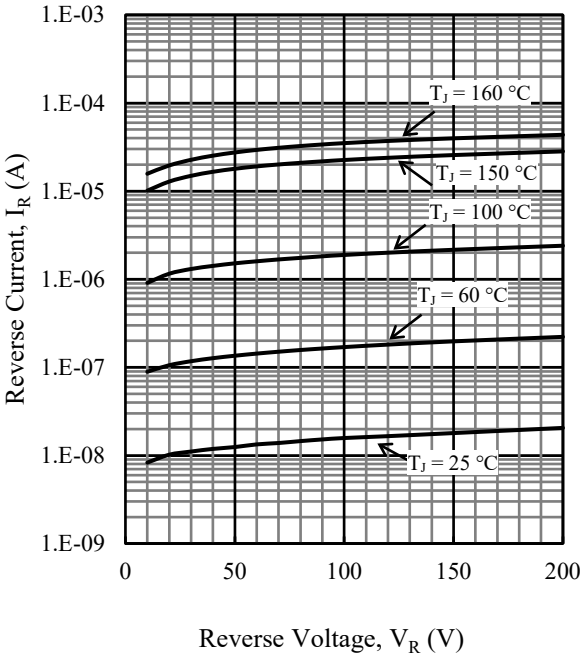



Figure 3. $I_R$ vs. $V_R$ Typical Characteristics

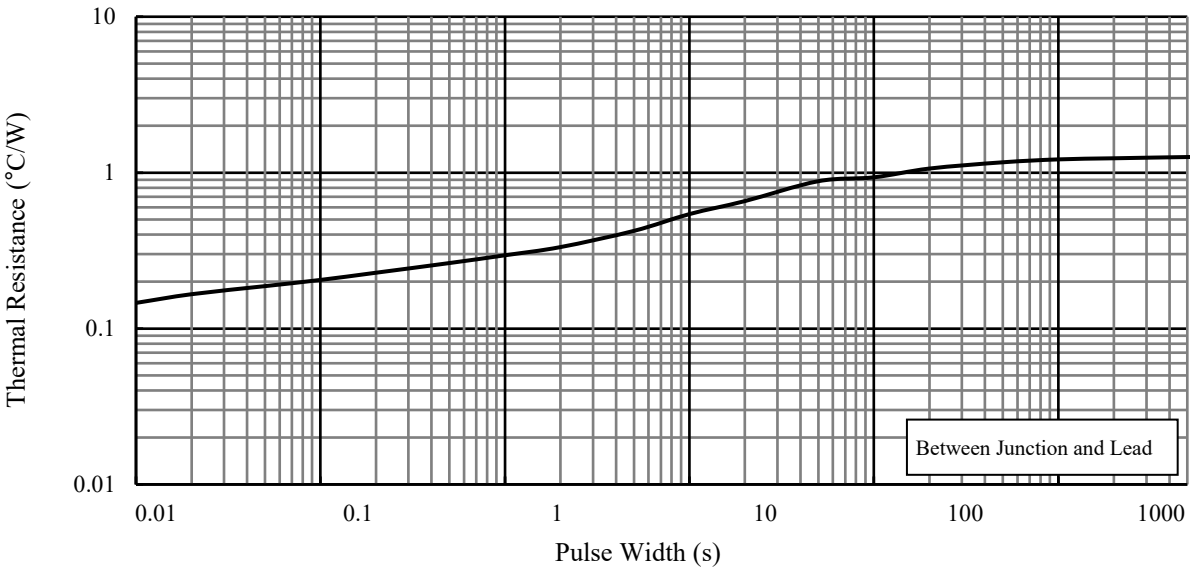
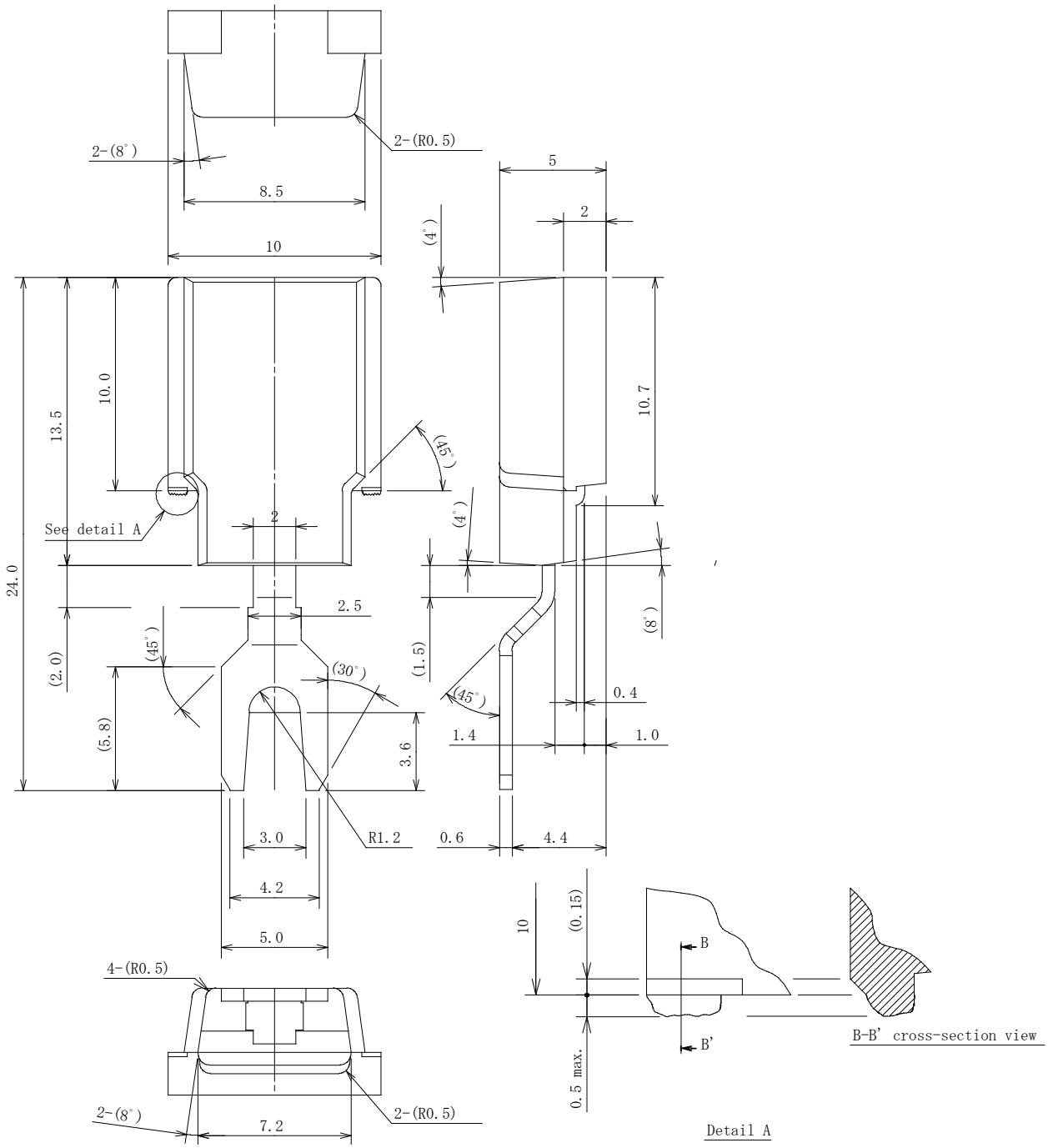



Figure 4. Typical Transient Thermal Resistance Characteristics [2]

[2] See Figure 1 for measurement conditions of lead temperature.

## Physical Dimensions

● **SG-10**




**NOTES:**

- Dimensions in millimeters
- Unless otherwise specified, tolerance is ±0.3 mm
- Bare Lead Frame: Pb-free (RoHS Compliant)

## Marking Diagram

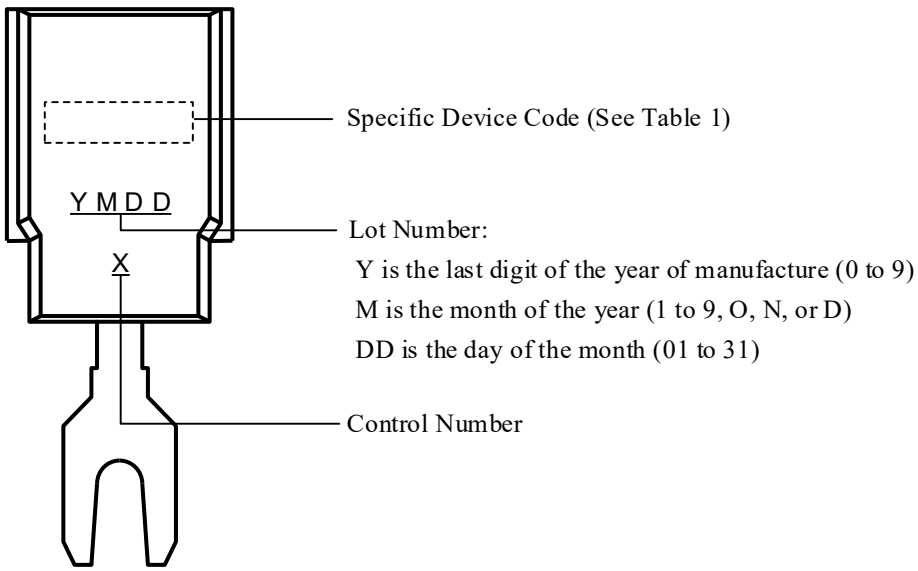



Table 1. Specific Device Code

| Specific Device Code | Part Number |
|---|---|
| LS | SG-10LS |
| LR | SG-10LR |

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DSGN-AEZ-16003