V_Z = 23 V (typ.)
Automotive Alternator Diodes

SG-10LXZ23 Series

Data Sheet

Description

The SG-10LXZ23 series are rectification diodes designed for automotive alternator circuits. The products have Zener characteristics with high surge capability.

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.

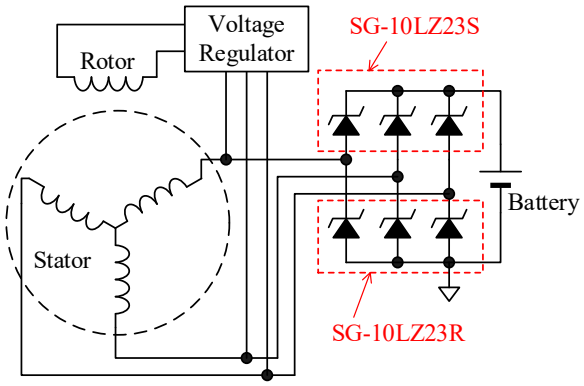
Features

- T_J = 160 °C Capability Suitable for High Reliability and Automotive Requirements
- High Surge Capability (JASO A-1 Standard Compliant)
- Bare Lead Frame: Pb-free (RoHS Compliant)

Applications

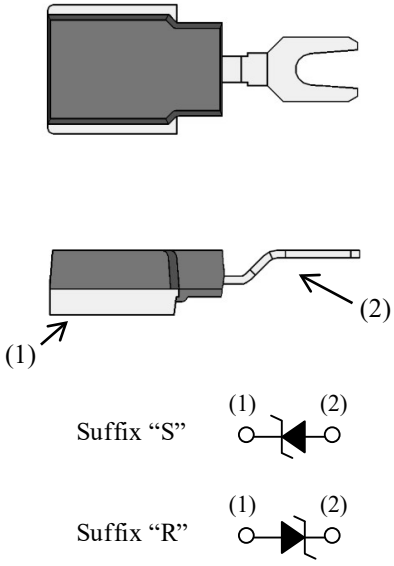
- Alternator Circuit for 12 V Automotive Battery

Typical Application



Package

SG-10



Not to scale

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

Selection Guide

Part Number	$I_{F(AV)}$	T_J (Max.)	V_Z	
			Min.	Max.
SG-10LXZ23S	35 A	160 °C	20 V	28 V
SG-10LXZ23R				

Absolute Maximum Ratings

Unless otherwise specified, T_A = 25 °C

Parameter	Symbol	Conditions	Rating	Unit
Repetitive Peak Reverse Voltage	V_{RM}		17	V
Average Forward Current	$I_{F(AV)}$	$T_L \leq$ 120 °C, see Figure 1.	35	A
Surge Forward Current	I_{FSM}	Half cycle sine-wave, positive side, 10ms, one shot.	350	A
Nonrepetitive Peak Reverse Voltage	V_{RSM}	One shot, See Figure 2.	55	V
Junction Temperature	T_J		−40 to 160	°C
Storage Temperature	T_{STG}		−40 to 150	°C

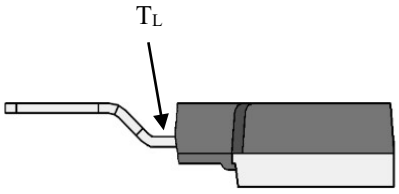


Figure 1. Lead Temperature Measurement Conditions

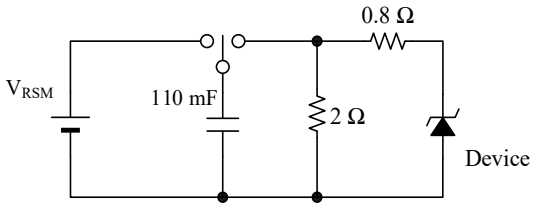


Figure 2. Nonrepetitive Peak Reverse Voltage Measurement Circuit (JASO A-1)

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	—	—	1.05	V
Reverse Leakage Current	I_R	$V_R = V_{RM}$	—	—	50	μA
Reverse Leakage Current Under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$, T_J = 150 °C	—	—	2.5	mA
Breakdown Voltage	V_Z	I_Z = 10 mA	20	23	28	V
Breakdown Voltage Temperature Coefficient	r_Z	I_Z = 10 mA	—	—	25	mV/°C
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

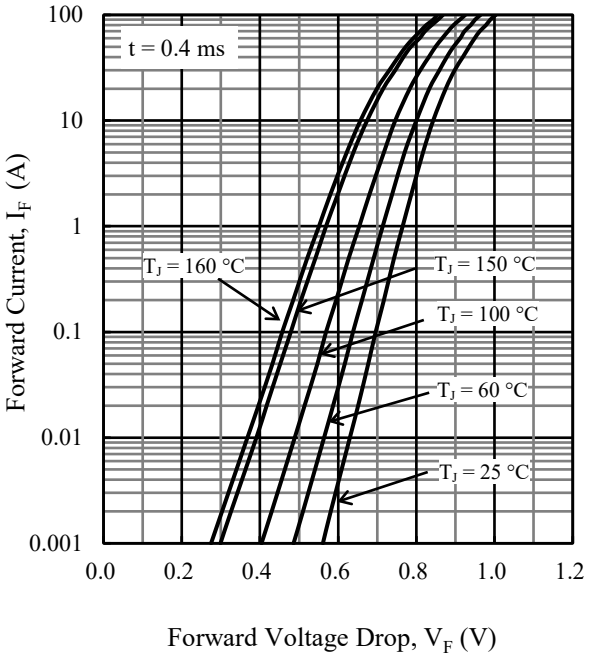


Figure 3. I_F vs. V_F Typical Characteristics

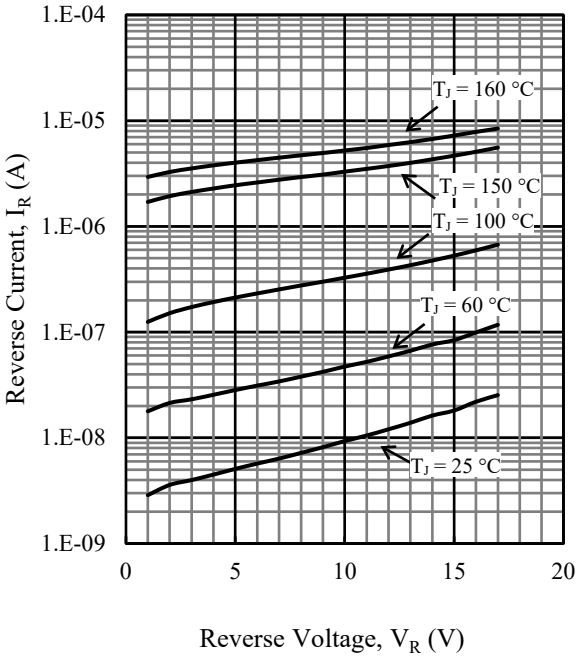


Figure 4. I_R vs. V_R Typical Characteristics

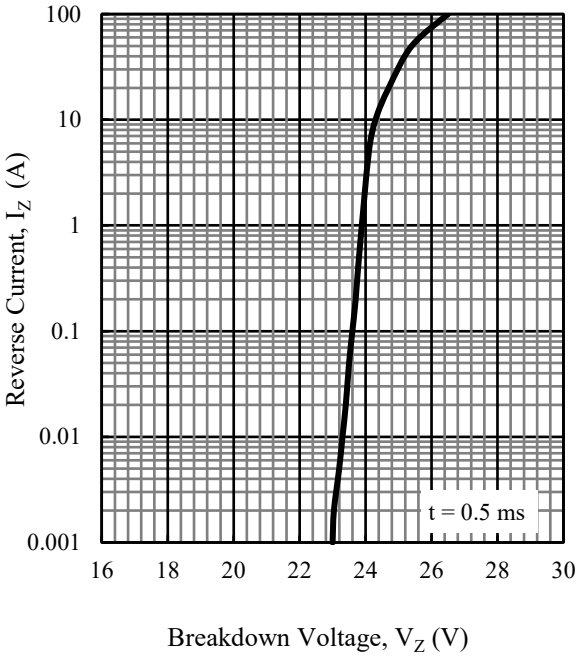


Figure 5. I_Z vs. V_Z Typical Characteristics

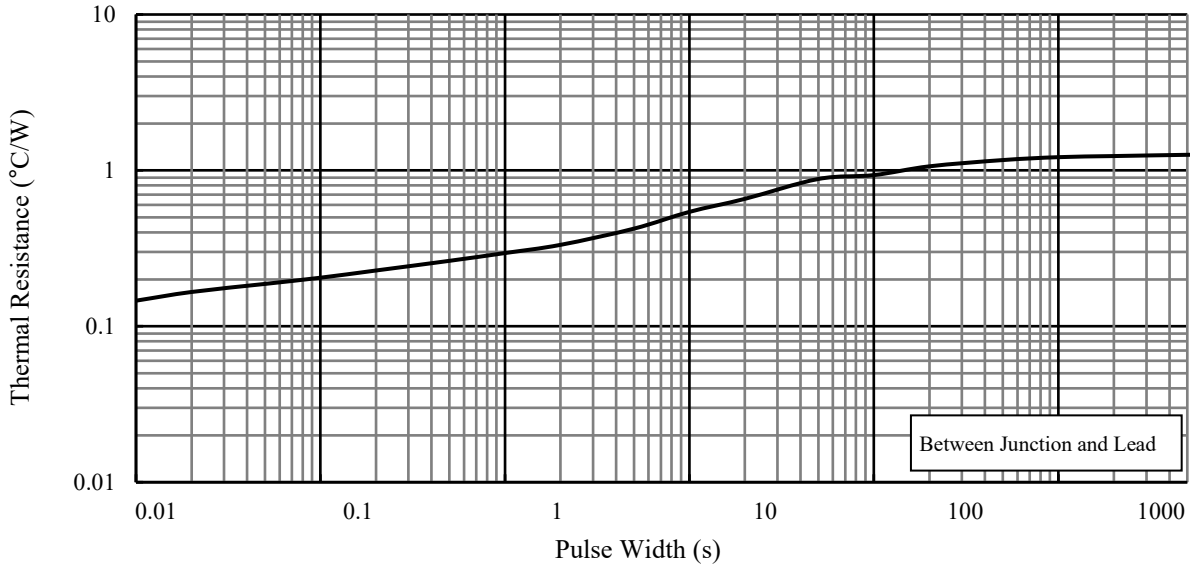
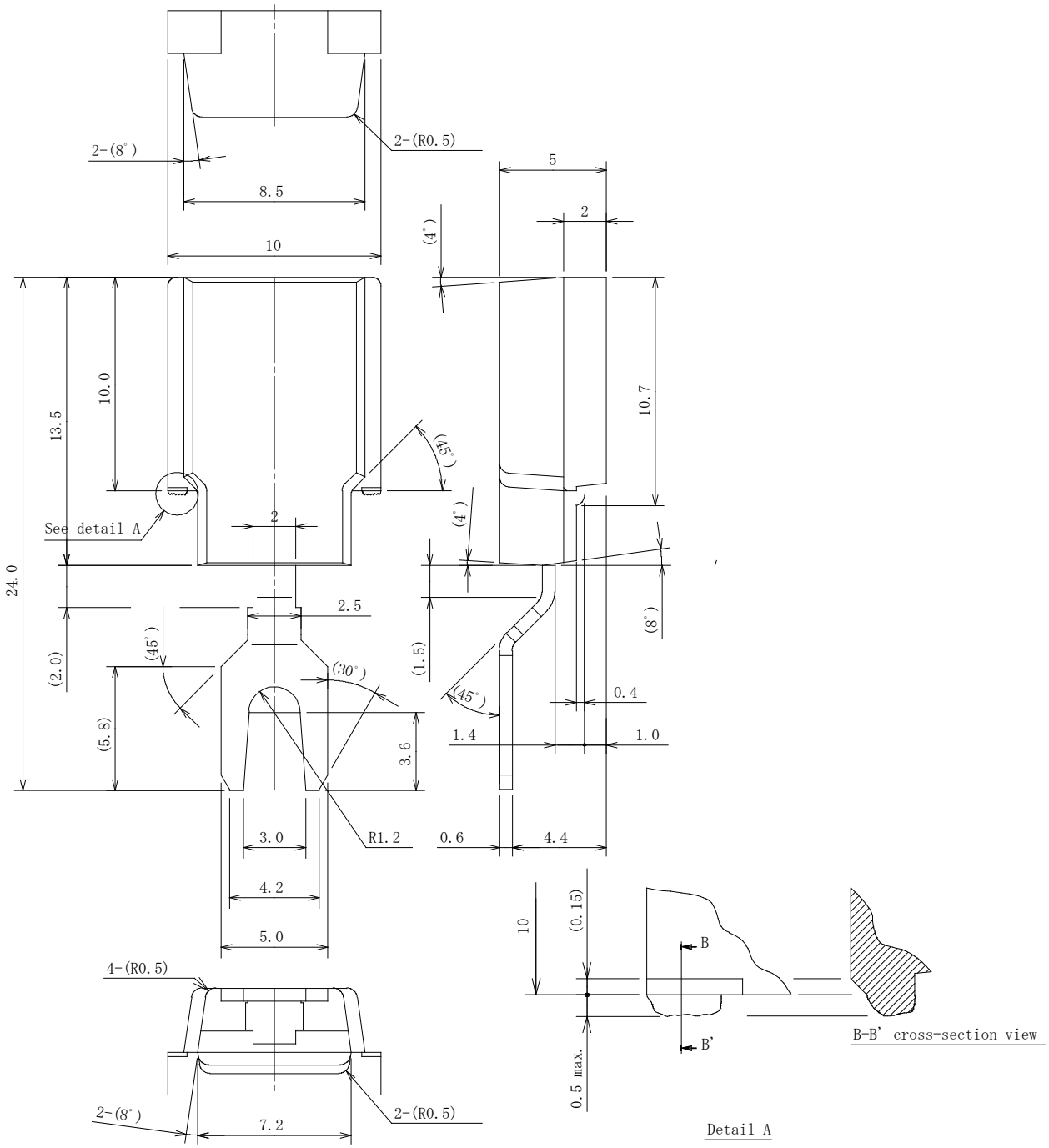


Figure 6. Typical Transient Thermal Resistance Characteristics [2]

[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

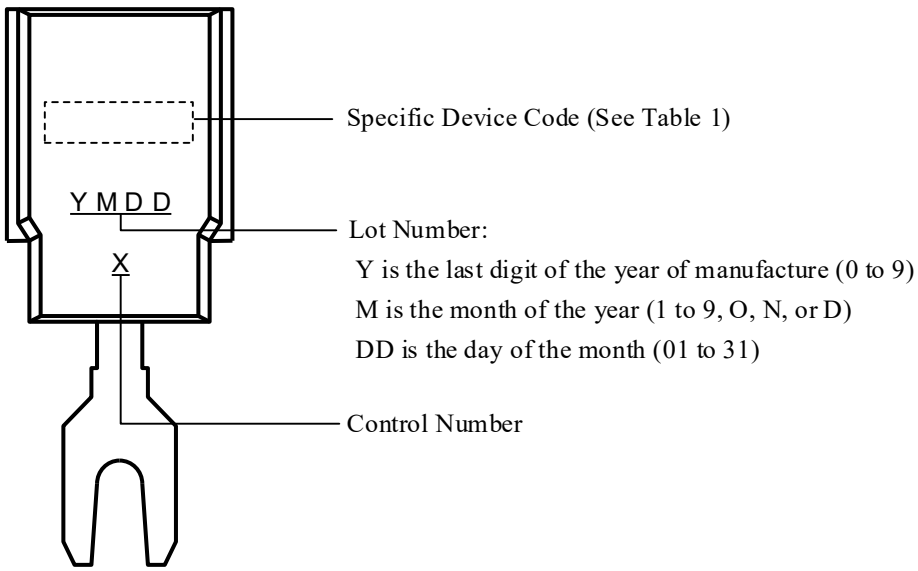


Table 1. Specific Device Code

Specific Device Code	Part Number
C23S	SG-10LXZ23S
C23R	SG-10LXZ23R

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