V_Z = 40 V (typ.)
Automotive Alternator Diode

SG-10LZ40 Series

Data Sheet

Description

The SG-10LZ40 series are the rectification diodes designed for alternator circuit of automotives, and have zener characteristics with high surge capability.

The package is a soldering type, and has high heat release capability and high reliability for high temperature and humidity environment. In addition, the bridge circuit can be configured easily in small area by using suffix "S" type and suffix "R" type of reverse polarity type.

Features

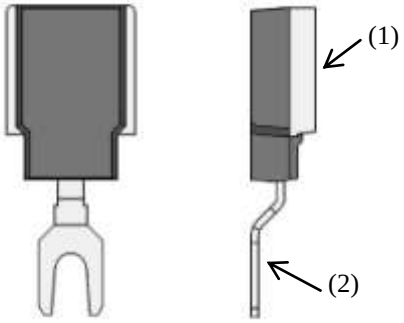
- T_J = 160 °C Capability Suitable for High Reliability and Automotive Requirement
- High Surge Capability
- Bare Lead Frame: Pb-free (RoHS Compliant)

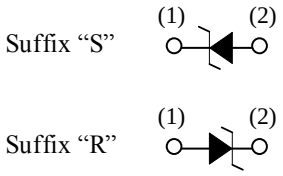
Applications

- Alternator Circuit for the 24 V Battery Automotive

Package

SG-10

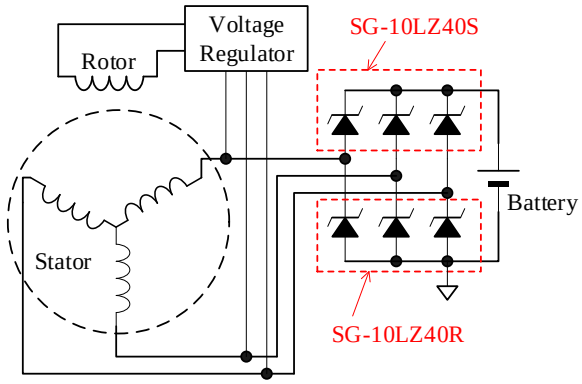




Not to scale

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

Typical Application



Selection Guide

Part Number	$I_{F(AV)}$	T_J (Max.)	V_Z	
			Min.	Max.
SG-10LZ40S	30 A	160 °C	36 V	44 V
SG-10LZ40R				

Absolute Maximum Ratings

Unless otherwise specified, T_A = 25 °C

Parameter	Symbol	Conditions	Rating	Unit	Remarks
Peak Reverse Voltage	V_{RM}		32	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	
Surge Reverse Voltage	V_{RSM}	One shot, See Figure 2.	50	V	
Junction Temperature	T_J		−40 to 160	°C	

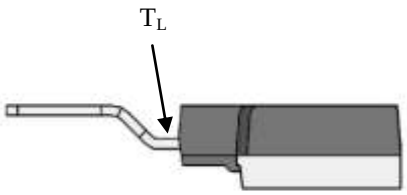


Figure 1. Lead Temperature Measurement Conditions

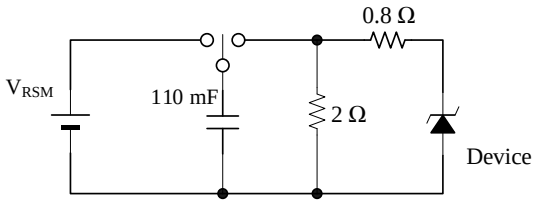


Figure 2. Surge Reverse Voltage Measurement Circuit (JASO A-1)

Electrical Characteristics

Unless otherwise specified, T_A = 25 °C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	Remarks
Forward Voltage Drop	V_F	I_F = 100 A	—	—	1.2	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	36	40	44	V	
Breakdown Voltage Temperature Coefficient	r_Z	I_Z = 10 mA	—	35	—	mV/°C	
Thermal Resistance	$R_{th(j-L)}$	(1)	—	1.0	—	°C/W	

(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

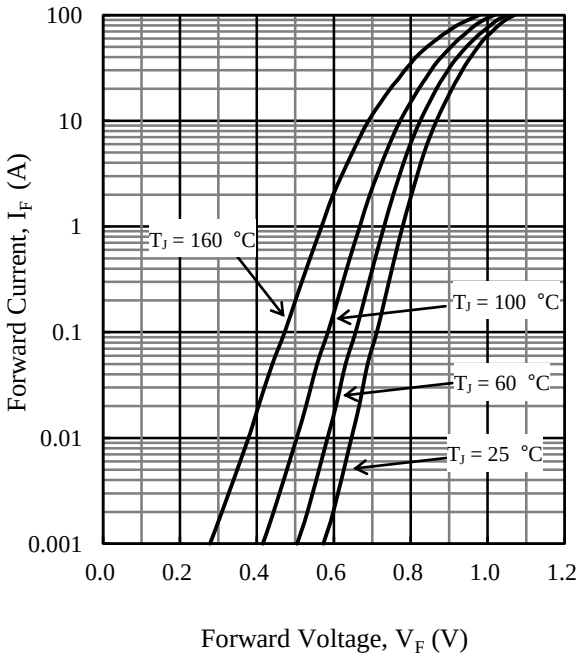


Figure 3. I_F vs. V_F Typical Characteristics

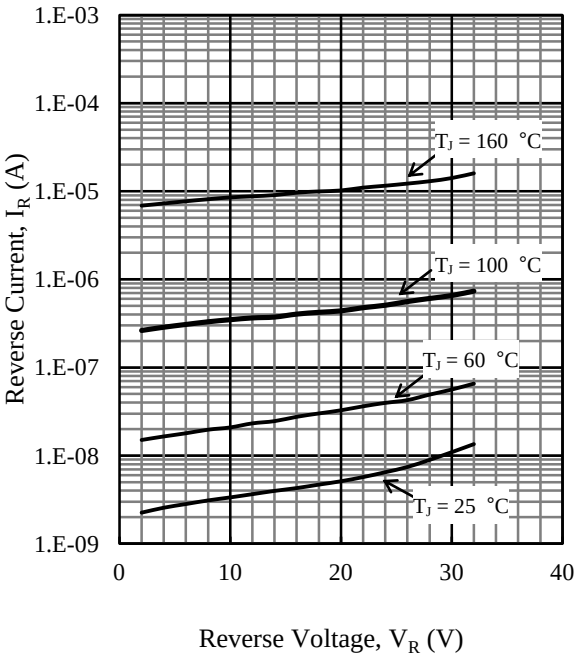


Figure 4. I_R vs. V_R Typical Characteristics

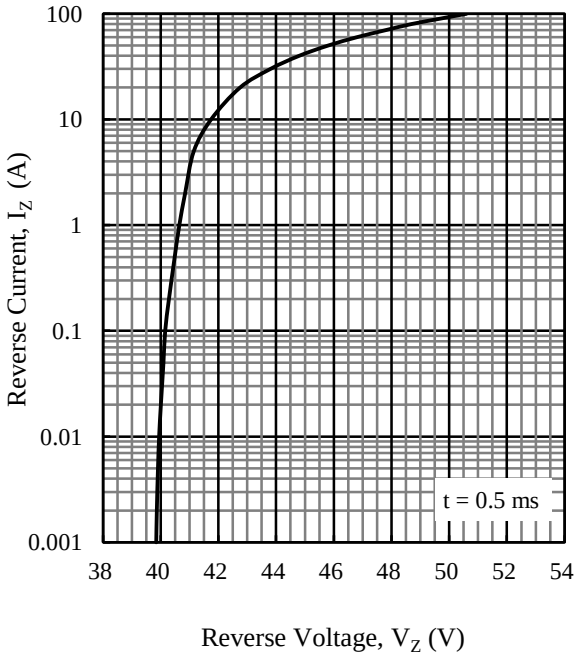


Figure 5. I_Z vs. V_Z Typical Characteristics

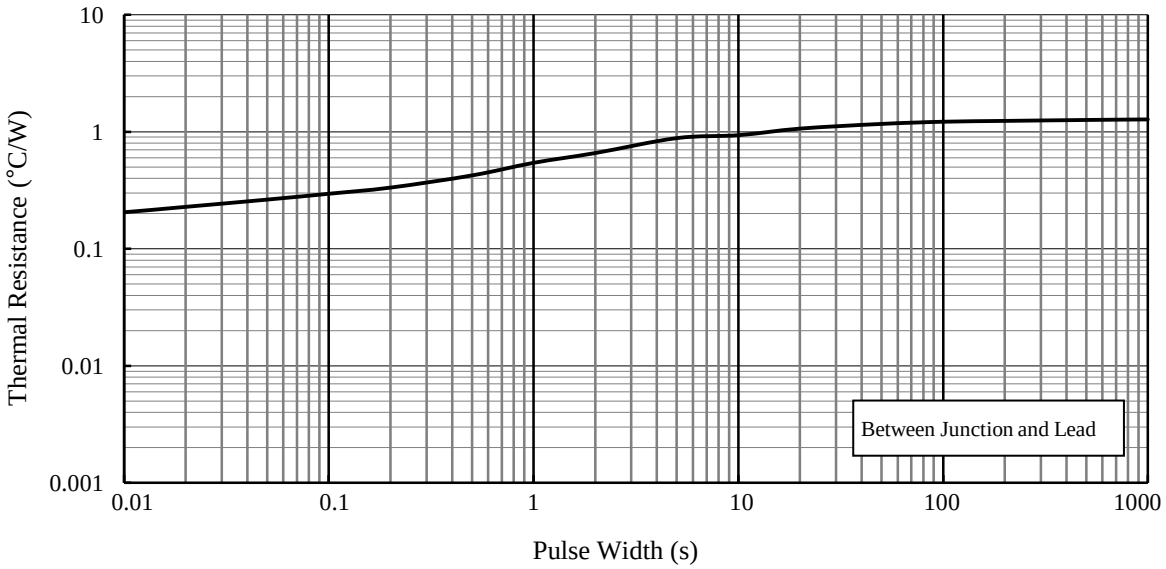
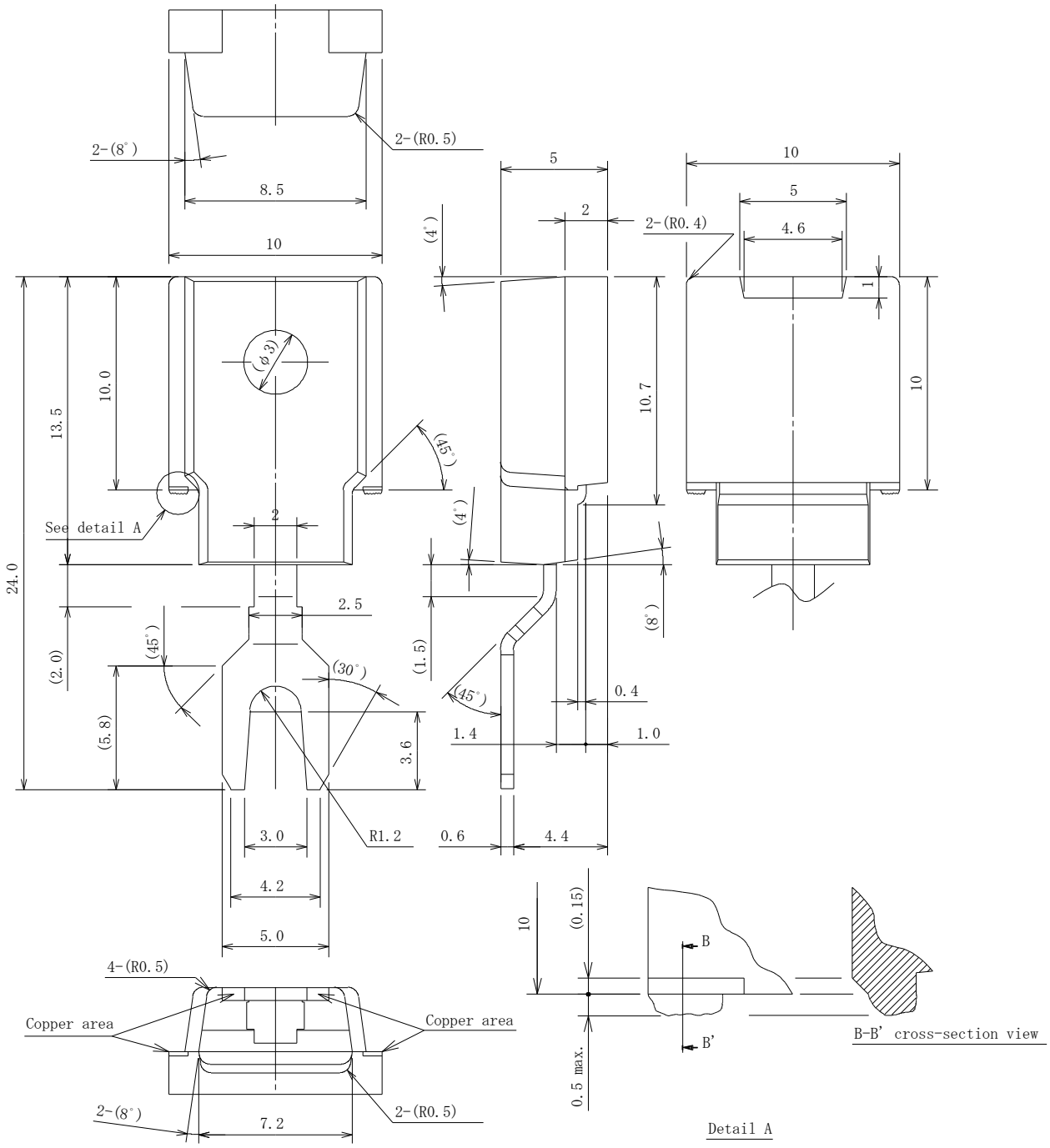


Figure 6. Typical Transient Thermal Resistance [2]

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

Physical Dimensions

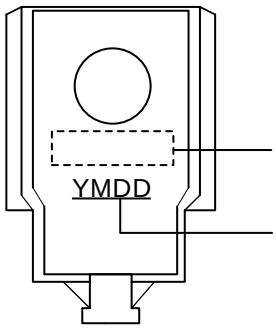
● **SG-10**



NOTES:

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

Marking Diagram



Specific Device Code (See Table 1)

Lot Number:
Y is the last digit of the year of manufacture (0 to 9)
M is the month of the year (1 to 9, O, N, or D)
DD is the day of the month (01 to 31)

Table 1. Specific Device Code

Specific Device Code	Part Number
B44S	SG-10LZ40S
B44R	SG-10LZ40R

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DSGN-AEZ-16003