

1.TYPE SCS108AG

2.STRUCTURE SILICON CARBIDE EPITAXIAL PLANER SCHOTTKY BARRIER DIODE

3.APPLICATIONS GENERAL RECTIFICATION

 4.ABSOLUTE MAXIMUM RATINGS [T<sub>j</sub> =25°C unless otherwise specified]

 REVERSE VOLTAGE (REPETITIVE PEAK) V<sub>RM</sub> . . . 600V

 REVERSE VOLTAGE (DC) V<sub>R</sub> . . . 600V

 CONTINUOUS FORWARD CURRENT I<sub>F</sub> . . . 8A  
 (T<sub>c</sub>=120°C)

 SURGE NO REPETITIVE FORWARD CURRENT I<sub>FSM</sub> . . . 29A  
 (PW = 8.3ms sinusoidal, T<sub>j</sub>=25 °C)  
 110A  
 (PW = 10μs square, T<sub>j</sub>=25 °C)

 REPETITIVE PEAK FORWARD CURRENT I<sub>FRM</sub> . . . 33A  
 (T<sub>c</sub> =95°C, T<sub>j</sub>=125°C, DUTY CYCLE = 10%)

 TOTAL POWER DISSIPATION P<sub>D</sub> . . . 62W (T<sub>c</sub>=25 °C)

 JUNCTION TEMPERATURE T<sub>j</sub> . . . 150°C

 RANGE OF STORAGE TEMPERATURE T<sub>stg</sub> . . . -55~150°C

5.THERMAL RESISTANCE

 JUNCTION TO CASE R<sub>th(j-c)</sub> . . . 2.0 °C/W

DESIGN

CHECK

APPROVAL

DATE : 22/APR./2010

SPECIFICATION No.Q03141-SCS108AG

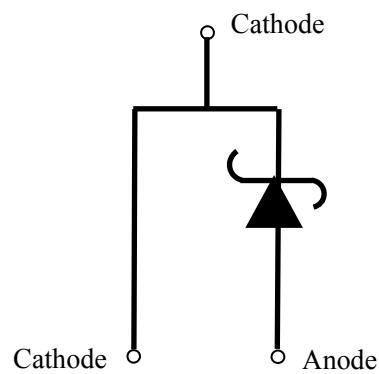
REV. : 1

**ROHM Co.,Ltd.**

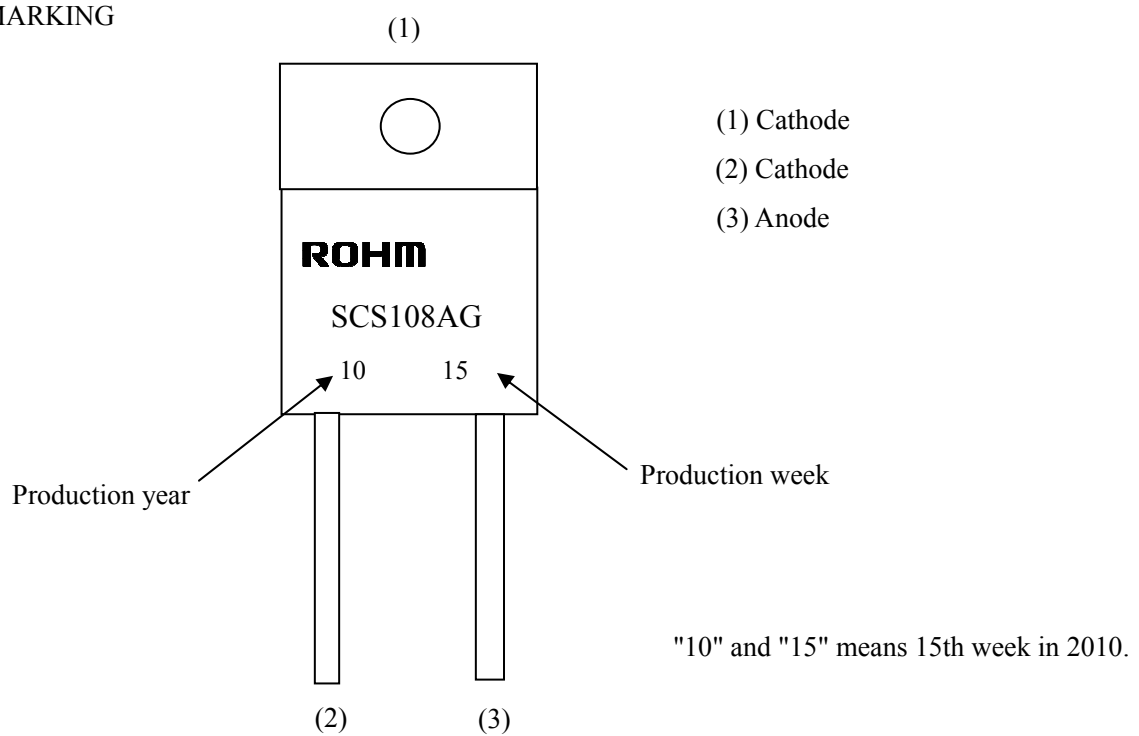
6.ELECTRICAL CHARACTERISTICS [T<sub>j</sub> =25°C unless otherwise specified]

PARAMETER	ITEM	CONDITION	MIN.	TYP.	MAX.
DC BLOCKING VOLTAGE	V <sub>DC</sub>	I <sub>R</sub> = 0.16mA	600V	-	-
FORWARD VOLTAGE	V <sub>F</sub>	I <sub>F</sub> = 8A, T <sub>j</sub> =25 °C I <sub>F</sub> = 8A, T <sub>j</sub> =150 °C	- -	1.5V 1.6V	1.7V -
REVERSE CURRENT	I <sub>R</sub>	V <sub>R</sub> = 600V, T <sub>j</sub> =25 °C V <sub>R</sub> = 600V, T <sub>j</sub> =150 °C	- -	1.6uA 8uA	160uA -
TOTAL CAPACITANCE	C	V <sub>R</sub> = 1V, f = 1MHz V <sub>R</sub> = 600V, f = 1MHz		345pF 38pF	
TOTAL CAPACITIVE CHARGE	Q <sub>C</sub>	V <sub>R</sub> = 400V di/dt = 300A/us	-	15nC	-
SWITCING TIME	t <sub>c</sub>		-	15ns	-

7.INNER CIRCUIT



8.MARKING



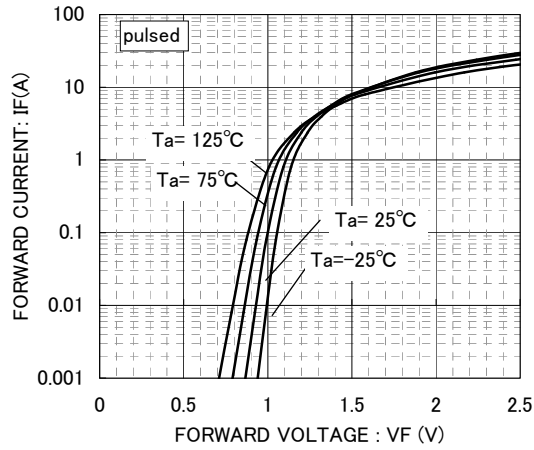


Fig.1 VF-IF CHARACTERISTICS

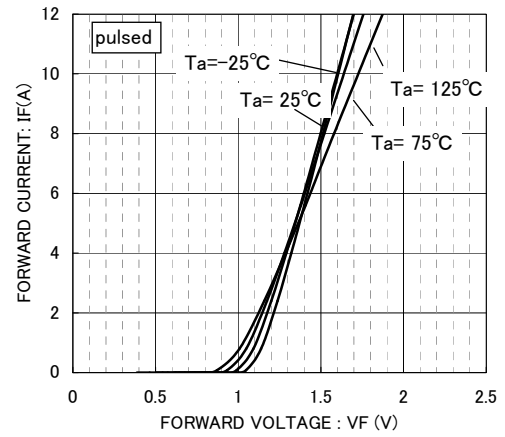


Fig.2 VF-IF CHARACTERISTICS

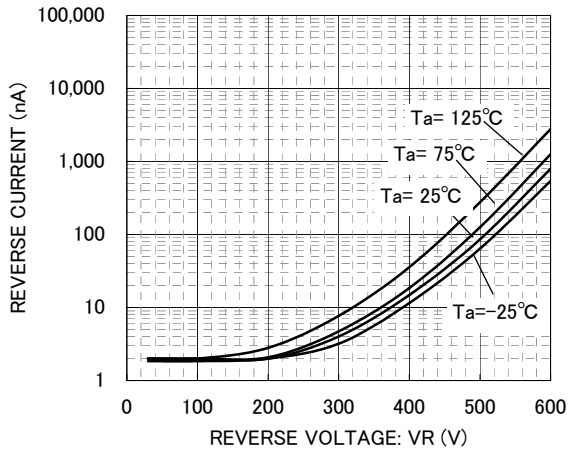


Fig.3 VR-IR CHARACTERISTICS

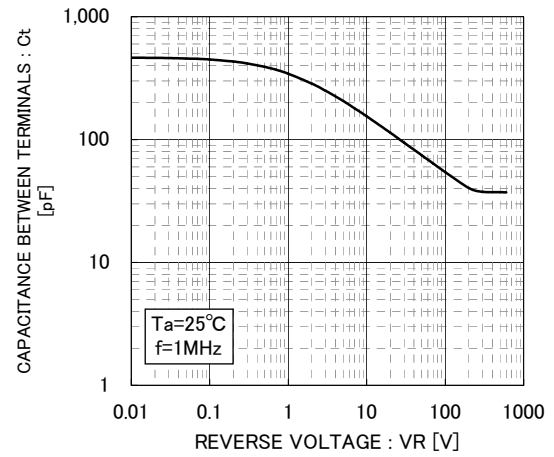


Fig.4 VR-Ct CHARACTERISTICS

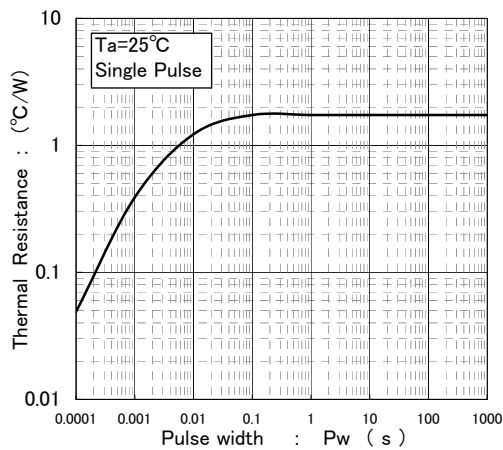


Fig.5 Thermal Resistance vs. Pulse Width

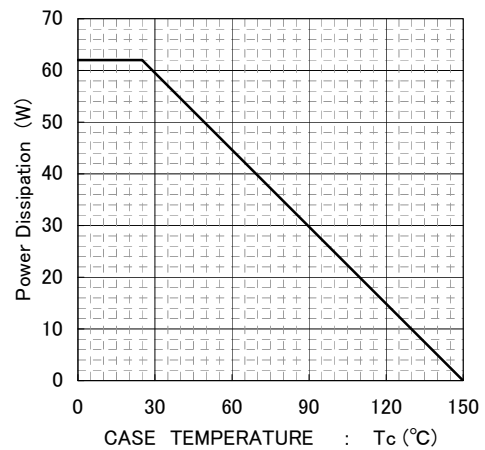


Fig.6 Power Dissipation

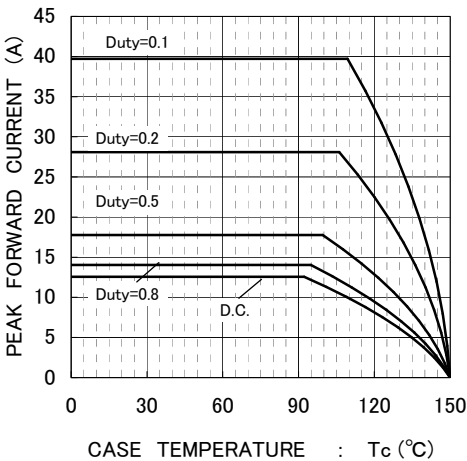


Fig.7 Derating Curve  $I_p$ - $T_c$

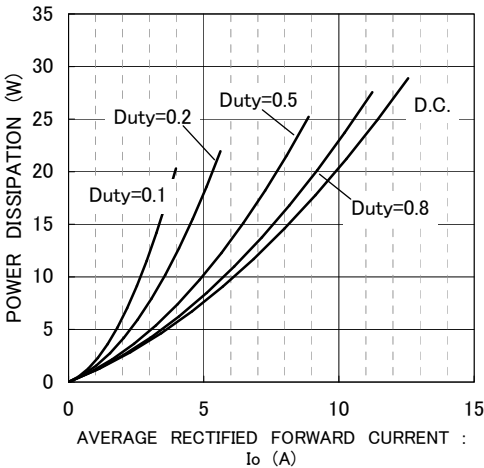


Fig.8  $I_o$ - $P_f$  CHARACTERISTICS

### < Specifications (precautions and prohibitions) >

#### ● Precaution for circuit design

1) The products are designed and produced for application in ordinary electronic equipment (AV equipment, OA equipment, industrial equipment, telecommunication equipment, home appliances, amusement equipment, etc.).

If the products are to be used in devices requiring extremely high reliability (medical equipment, transport equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or operational error may endanger human life and sufficient fail-safe measures, please consult with the ROHM sales staff in advance. If product malfunctions may result in serious damage, including that to human life, sufficient fail-safe measures must be taken, including the following:

- [a] Installation of protection circuits or other protective devices to improve system safety
- [b] Installation of redundant circuits in the case of single-circuit failure

2) The products are designed for use in a standard environment and not in any special environments. Application of the products in a special environment can deteriorate product performance. Accordingly, verification and confirmation of product performance, prior to use, is recommended if used under the following conditions:

- [a] Use in various types of liquid, including water, oils, chemicals, and organic solvents
- [b] Use outdoors where the products are exposed to direct sunlight, or in dusty places
- [c] Use in places where the products are exposed to sea winds or corrosive gases, including  $\text{Cl}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{NH}_3$ ,  $\text{SO}_2$ , and  $\text{NO}_2$
- [d] Use in places where the products are exposed to static electricity or electromagnetic waves
- [e] Use in proximity to heat-producing components, plastic cords, or other flammable items
- [f] Use involving sealing or coating the products with resin or other coating materials
- [g] Use involving unclean solder or use of water or water-soluble cleaning agents for cleaning after soldering
- [h] Use of the products in places subject to dew condensation

3) The products are not radiation resistant.

4) The company is not responsible for any problems resulting from use of the products under conditions not recommended herein.


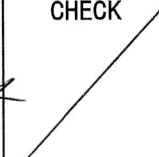

5) The company should be notified of any product safety issues. Moreover, product safety issues should be periodically monitored by the customer.

6) De-rate power dissipation (Pd) depending on ambient temperature (Ta).  
When used in sealed area, confirm the actual ambient temperature.

7) Confirm that operation temperature is within the specified range described in product specification.

8) Failure induced under deviant condition from what defined in the product specification can not be guaranteed.

9) When product safety related problems arises, please immediately inform to ROHM, and consider technical counter measure.

DESIGN	CHECK	APPROVAL	DATE:28/DEC./2010	SPECIFICATION No. : SIC-01-PL-005
			REV.0	<b>ROHM Co., Ltd.</b>

## &lt; Specifications (precautions and prohibitions) &gt;

● **Precaution for mounting / circuit board design**

- 1) When a highly active halogenous (chlorine, bromine, etc.) flux is used, the remainder of flux may negatively affect product performance and reliability.
- 2) In principle, the reflow soldering method must be used; if flow soldering method is preferred, please consult with the company in advance.

Regarding precaution for mounting / circuit board design, please specially refer to ROHM mounting specification. (describe precaution for mounting / circuit design in this section, if it is not prepared separately.)

● **Precautions regarding application examples and external circuits**

- 1) If change is made to the constant of an external circuit, allow a sufficient margin due to variations of the characteristics of the products and external components, including transient characteristics, as well as static characteristics.
- 2) The application examples, their constants, and other types of information contained herein are applicable only when the products are used in accordance with standard methods. Therefore, if mass production is intended, sufficient consideration to external conditions must be made.

● **Precaution for electrostatic**

This product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution during manufacturing and storing so that voltage exceeding product maximum rating won't be applied to products. Please take special care under dry condition (e.g. grounding of human body / equipment / solder iron, isolation from charged objects, setting of ionizer, friction prevention and temperature / humidity control).

● **Precaution for storage / transportation**

- 1) Product performance and soldered connections may deteriorate if the products are stored in the following places:
  - [a] Where the products are exposed to sea winds or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - [b] Where the temperature or humidity exceeds those recommended by the company  
temperature: 5°C - 40°C, humidity 30% - 80%
  - [c] Storage in direct sunshine or condensation
  - [d] Storage in high Electrostatic
- 2) Even under ROHM recommended storage condition, solderability of products over following terms may be degraded. The terms for dipped SMD, plated SMD and THD are one year, three years and two years, respectively.  
It is strongly recommended to confirm solderability before using products of which storage time is exceeding recommended storage time period.
  - Recommended storage condition: temperature 5°C - 40°C, humidity 30% - 80%
- 3) Store / transport cartons in the correct direction, which is indicated on a carton as a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.

## &lt; Specifications (precautions and prohibitions) &gt;

● **Precaution for disposition**

When disposing products please dispose them properly with a industry waste company.

● **Prohibitions regarding industrial property**

- 1) These specifications contain information related to the ROHM industrial property. Any use of them other than pertaining to the usage of appropriate products is not permitted. Duplication of these specifications and its disclosure to a third party without the company's permission is prohibited.
- 2) Information and data on products, including application examples, contained in these specifications are simply for reference; the company does not guarantee any industrial property rights, intellectual property rights, or any other rights of a third party regarding this information or data. Accordingly, the company does not bear any responsibility for:
  - [a] infringement of the intellectual property rights of a third party
  - [b] any problems incurred by the use of the products listed herein.
- 3) The company prohibits the purchaser of its products to exercise or use the intellectual property rights, industrial property rights, or any other rights that either belong to or are controlled by the company, other than the right to use, sell, or dispose of the products.

● **Precautions on use of products**

- 1) Verification and confirmation of performance characteristics of products, after on-board mounting, is advised.
- 2) In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse) is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

● **Other matters**

- 1) Please sign these specifications and return one copy to the company.  
If a copy is not returned within three months after the issued date specified on the front page of these specifications, the company will consider the specifications accepted.
- 2) If any matter related to these specifications needs to be clarified, discussions shall be held promptly between the two parties concerned to determine the issue.