Schottky Barrier Diode

BAT54SHM Data Sheet

Application

Small current rectification

Features

- 1) Small power mold type (SOT-23)
- 2) High reliability
- 3) Low V_F

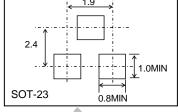
Construction

Silicon epitaxial planar type

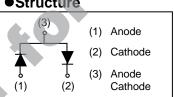
Dimensions (Unit : mm) 0.95+0.2 (3)

ROHM: SSD3 JEDEC: SOT-23 JEITA:-

●Land Size Figure (Unit : mm)

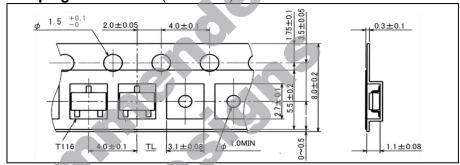






●Taping Dimensions (Unit : mm)

1.9±0.2



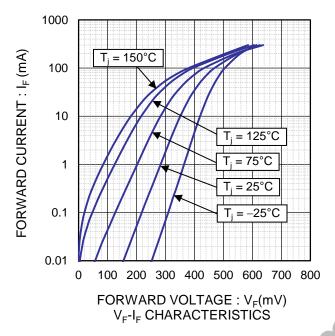
● Absolute Maximum Ratings (T_a= 25°C)

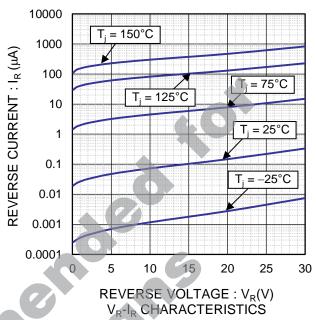
Parameter	Symbol	Conditions	Limits	Unit
Repetitive peak reverse voltage	V_{RM}	Duty≦0.5	30	V
Reverse voltage	V_R	Direct reverse voltage	30	V
Forward current	l _F	Direct forward current, Per diode	200	mA
Repetitive peak forward current	I _{FRM}	t ≦1s, Duty≦0.5, Per diode	300	mA
Non-repetitive forward surge current	FSM	60Hz half sin wave, one cycle, Non-repetitive at T _a =25°C, Per diode	600	mA
Junction temperature	T_j	-	150	°C
Storage temperature	T _{stg}	-	-55 to +150	°C

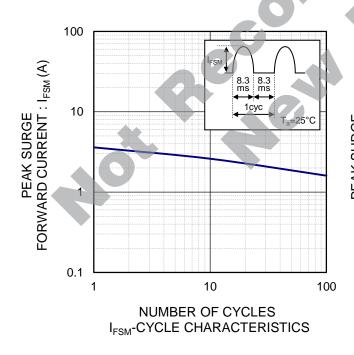
●Electrical Characteristics (T_a= 25°C)

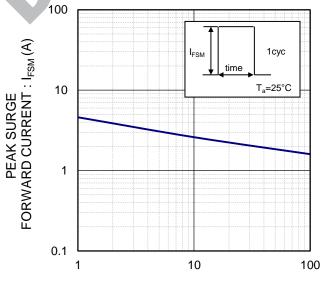
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
Forward voltage	V_{F1}	I _F =0.1mA	-	-	240	mV
	V_{F2}	I _F =1mA	1	-	320	mV
	V_{F3}	I _F =10mA	1	•	400	mV
	V_{F4}	I _F =30mA	1	•	500	mV
	V_{F5}	I _F =100mA	ı	1	800	mV
Reverse current	I _R	V _R =25V	1	•	2	μΑ
Reverse recovery time	t _{rr}	$I_F=I_R=10\text{mA}, R_L=50\Omega, I_{rr}=1\text{mA}$	1	-	50	ns
Capacitance between terminals	C _t	f=1MHz, V _R =1V	-	-	12	pF

•Electrical Characteristic Curves



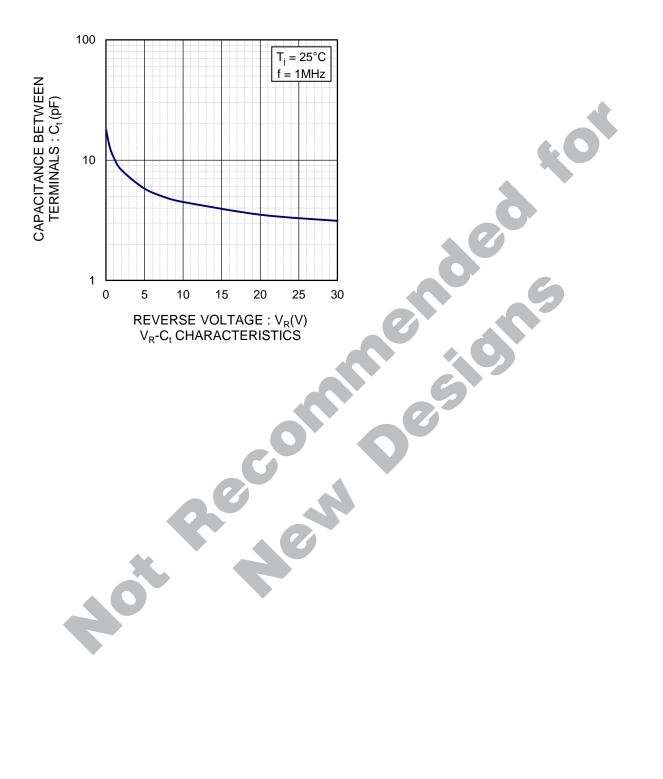






$$\label{eq:time_to_time_to_time} \begin{split} & \mathsf{TIME}: \mathsf{t}\;(\mathsf{ms}) \\ & \mathsf{I}_{\mathsf{FSM}}\text{-}\mathsf{t}\;\mathsf{CHARACTERISTICS} \end{split}$$

•Electrical Characteristic Curves



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(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASSⅢ	CLASSⅢ	CLASS II b	CLASSⅢ
CLASSIV	CLASSIII	CLASSⅢ	CLASSIII

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 - [f] Sealing or coating our Products with resin or other coating materials
 - [g] Use of our Products without cleaning residue of flux (even if you use no-clean type fluxes, cleaning residue of flux is recommended); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - [h] Use of the Products in places subject to dew condensation
- 4. The Products are not subject to radiation-proof design.
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- 6. 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.
- 7. De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta). When used in sealed area, confirm the actual ambient temperature.
- 8. Confirm that operation temperature is within the specified range described in the product specification.
- 9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- 1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- 2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

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- 1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
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Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not 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 lonizer, 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 places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
- 2. Even under ROHM recommended storage condition, solderability of products out of recommended storage time period may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is exceeding the recommended storage time period.
- 3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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