DISCRETE SEMICONDUCTORS

DATA SHEET



BAT81; BAT82; BAT83 Schottky barrier diodes

Product specification Supersedes data of July 1991 1996 Mar 20





Schottky barrier diodes

BAT81; BAT82; BAT83

FEATURES

- · Low forward voltage
- High breakdown voltage
- · Guard ring protected
- Hermetically-sealed leaded glass package
- · Low diode capacitance.

APPLICATIONS

- · Ultra high-speed switching
- · Voltage clamping
- · Protection circuits
- · Blocking diodes.

DESCRIPTION

Planar Schottky barrier diode with an integrated protection ring against static discharges, encapsulated in a hermetically-sealed subminiature SOD68 (DO-34) package. The diode is suitable for mounting on a 2 E (5.08 mm) pitch.

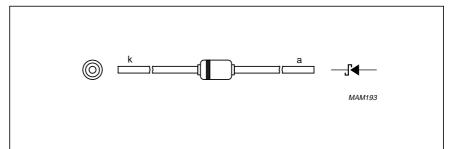


Fig.1 Simplified outline (SOD68; DO-34), pin configuration and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _R	continuous reverse voltage				
	BAT81		_	40	v
	BAT82		_	50	v
	BAT83		_	60	v
I _F	continuous forward current		_	30	mA
I _{FRM}	repetitive peak forward current	$t_p \le 1 \text{ s}; \ \delta \le 0.5$	_	150	mA
I _{FSM}	non-repetitive peak forward current	$t_p \le 10 \text{ ms}$	_	500	mA
T _{stg}	storage temperature		-65	150	°C
Tj	junction temperature		_	125	°C

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ELECTRICAL CHARACTERISTICS

 T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V _F	forward voltage	see Fig.2		
		I _F = 0.1 mA	330	mV
		I _F = 1 mA	410	mV
		I _F = 15 mA	1	V
I _R	reverse current	V _R = V _{Rmax} ; see Fig.3	200	nA
C _d	diode capacitance	f = 1 MHz; V _R = 1 V; see Fig.4	1.6	pF

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	320	K/W

Note

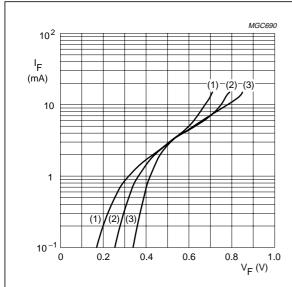
1. Refer to SOD68 standard mounting conditions.

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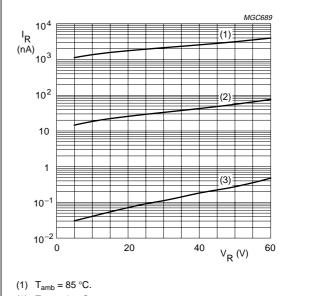
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GRAPHICAL DATA



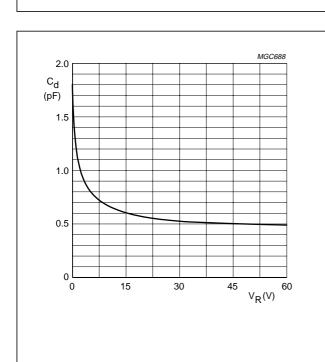
- (1) $T_{amb} = 85 \,^{\circ}C$.
- (2) $T_{amb} = 25 \,^{\circ}C$.
- (3) $T_{amb} = -40 \, ^{\circ}C$.

Fig.2 Forward current as a function of forward voltage; typical values.



- (2) $T_{amb} = 25 \, ^{\circ}C$.
- (3) $T_{amb} = -40 \, ^{\circ}C$.

Fig.3 Reverse current as a function of reverse voltage; typical values.



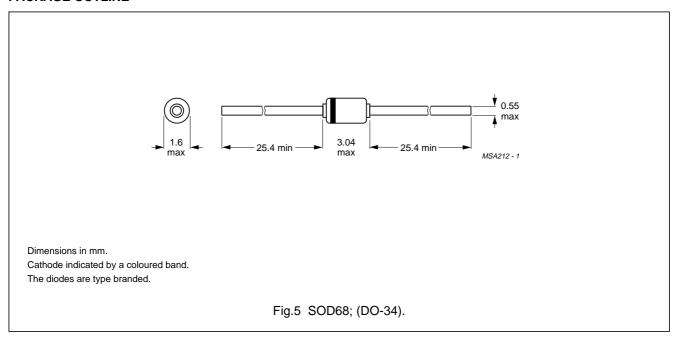
f = 1 MHz.

Fig.4 Diode capacitance as a function of reverse voltage; typical values.

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PACKAGE OUTLINE



DEFINITIONS

Data sheet status		
Objective specification	This data sheet contains target or goal specifications for product development.	
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.	
Product specification	This data sheet contains final product specifications.	
Limiting values		
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.		

Application information

Where application information is given, it is advisory and does not form part of the specification.

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

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