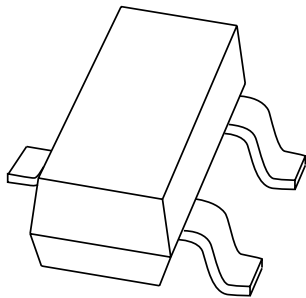


# DATA SHEET



## **BAT54 series** Schottky barrier (double) diodes

Product specification  
Supersedes data of 2001 Oct 12

2002 Mar 04

# Schottky barrier (double) diodes

# BAT54 series

### FEATURES

- Low forward voltage
- Guard ring protected
- Small plastic SMD package.

### APPLICATIONS

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

### DESCRIPTION

Planar Schottky barrier diodes encapsulated in a SOT23 small plastic SMD package. Single diodes and double diodes with different pinning are available.

### MARKING

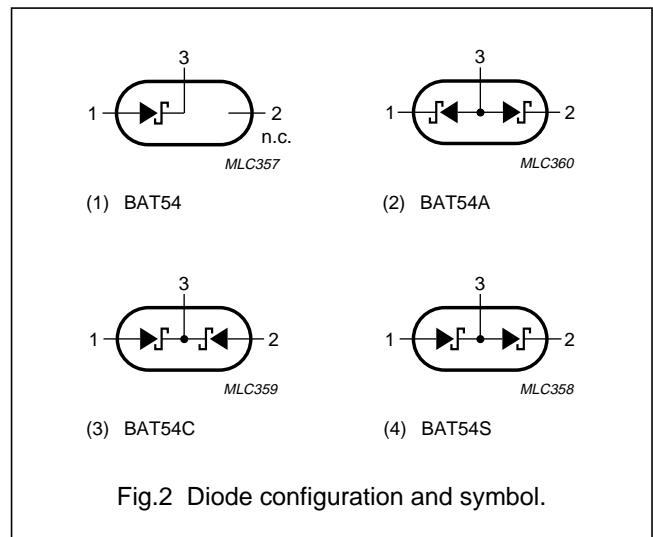
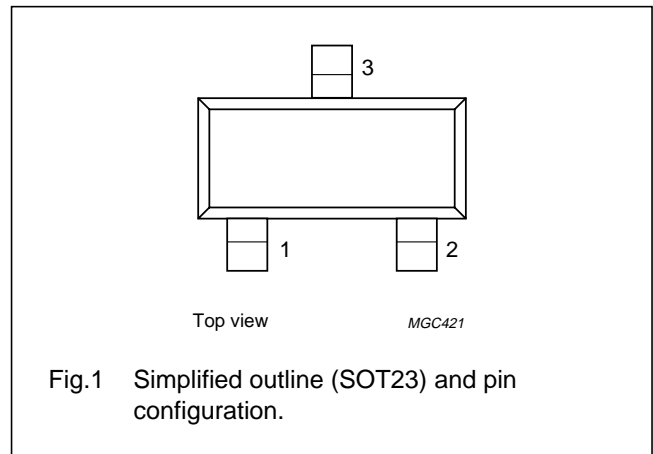
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BAT54	L4*
BAT54A	L42 or *V3
BAT54C	L43 or *W1
BAT54S	L44 or *V4

### Note

- \* = p : Made in Hong Kong.  
 \* = t : Made in Malaysia.  
 \* = W: Made in China.

### PINNING

PIN	DESCRIPTION			
	BAT54	BAT54A	BAT54C	BAT54S
1	a	k <sub>1</sub>	a <sub>1</sub>	a <sub>1</sub>
2	n.c.	k <sub>2</sub>	a <sub>2</sub>	k <sub>2</sub>
3	k	a <sub>1</sub> , a <sub>2</sub>	k <sub>1</sub> , k <sub>2</sub>	k <sub>1</sub> , a <sub>2</sub>



## Schottky barrier (double) diodes

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**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_R$	continuous reverse voltage		–	30	V
$I_F$	continuous forward current		–	200	mA
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1 \text{ s}$ ; $\delta \leq 0.5$	–	300	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p < 10 \text{ ms}$	–	600	mA
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	125	°C
<b>Per device</b>					
$P_{tot}$	total power dissipation	$T_{amb} \leq 25 \text{ °C}$	–	230	mW

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

**Note**

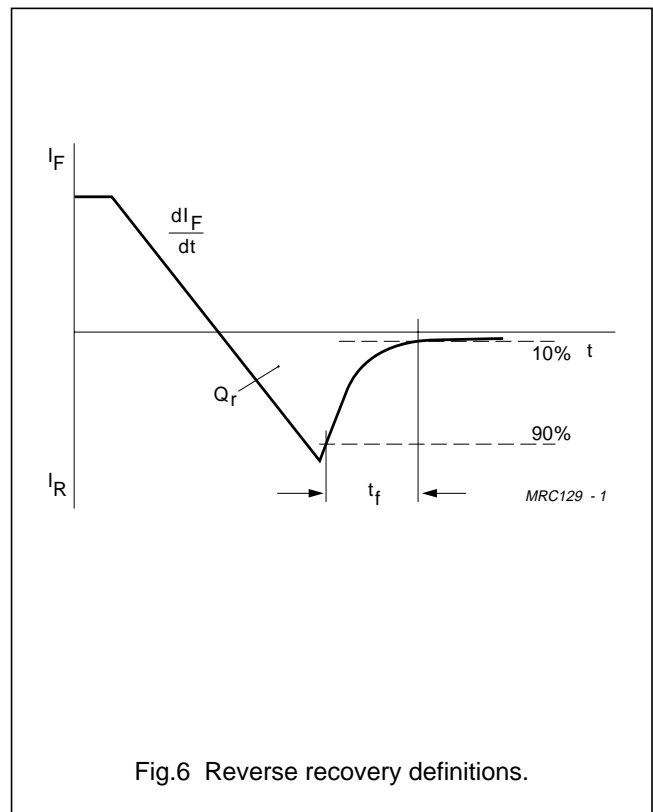
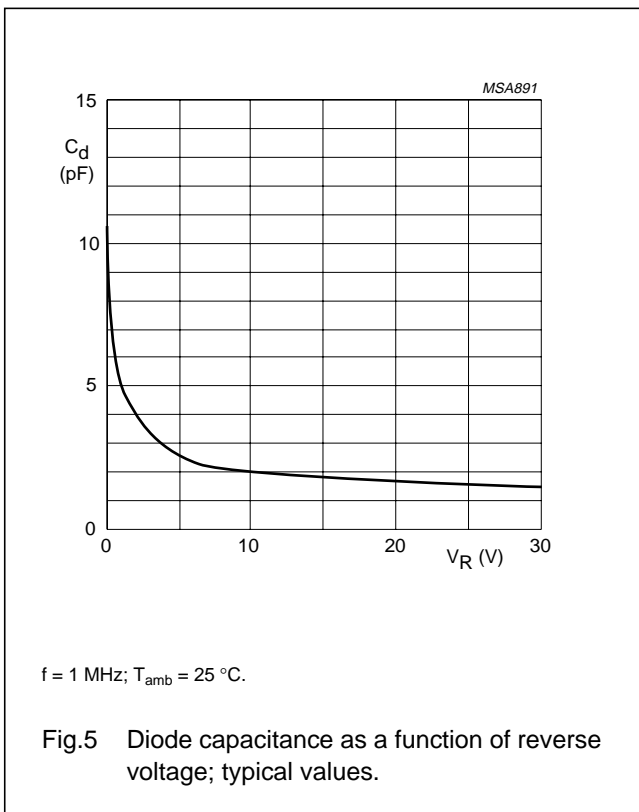
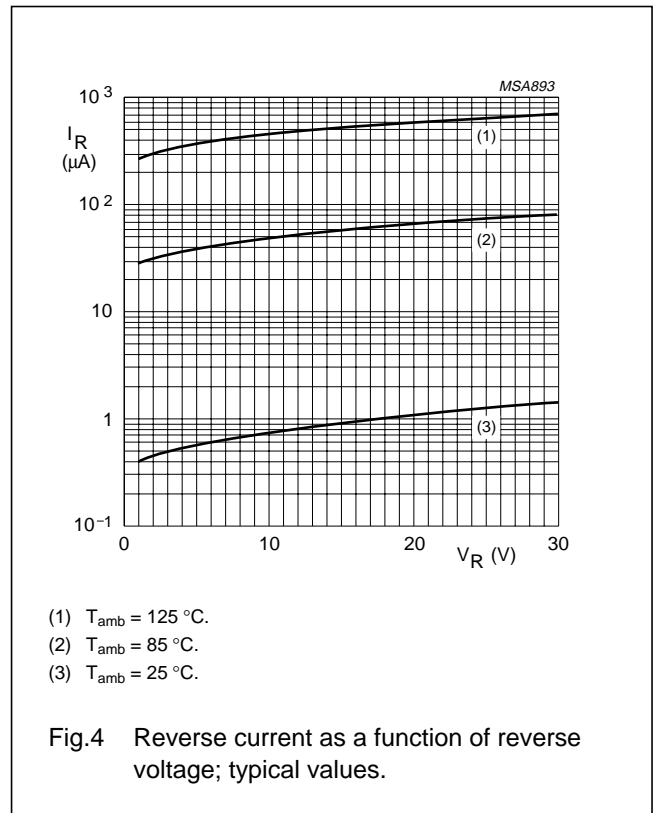
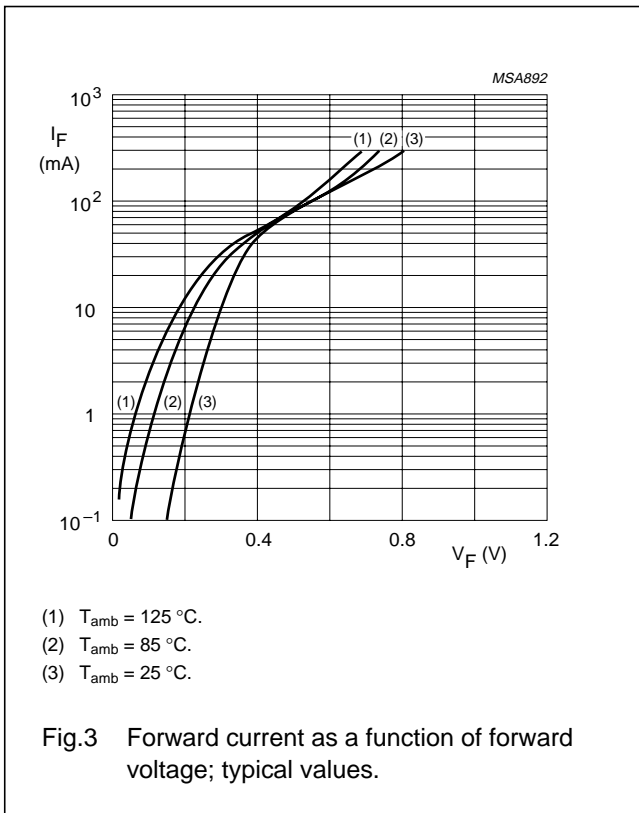
1. Refer to SOT23 standard mounting conditions.

**CHARACTERISTICS** $T_{amb} = 25 \text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
<b>Per diode</b>				
$V_F$	forward voltage	see Fig.3 $I_F = 0.1 \text{ mA}$ $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 30 \text{ mA}$ $I_F = 100 \text{ mA}$	240 320 400 500 800	mV mV mV mV mV
$I_R$	reverse current	$V_R = 25 \text{ V}$ ; see Fig.4	2	$\mu\text{A}$
$t_{rr}$	reverse recovery time	when switched from $I_F = 10 \text{ mA}$ to $I_R = 10 \text{ mA}$ ; $R_L = 100 \text{ }\Omega$ ; measured at $I_R = 1 \text{ mA}$ ; see Fig.6	5	ns
$C_d$	diode capacitance	$f = 1 \text{ MHz}$ ; $V_R = 1 \text{ V}$ ; see Fig.5	10	pF

Schottky barrier (double) diodes

BAT54 series



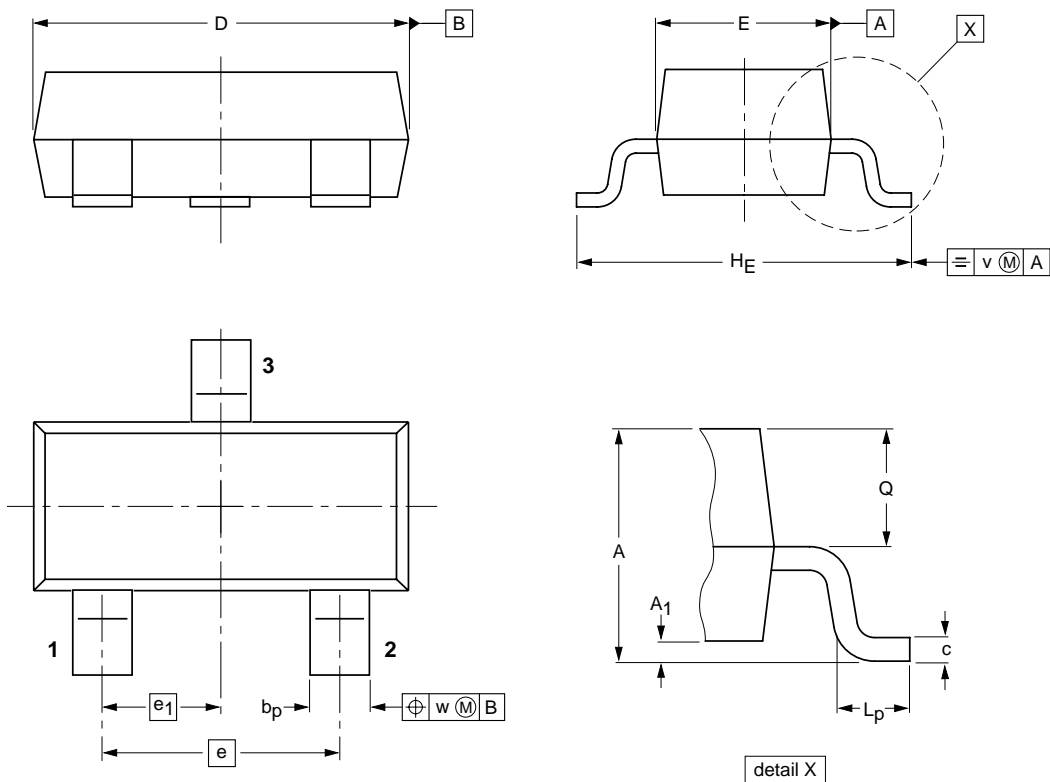
Schottky barrier (double) diodes

BAT54 series

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOT23		TO-236AB			97-02-28 99-09-13

## Schottky barrier (double) diodes

## BAT54 series

## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A.

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Schottky barrier (double) diodes

BAT54 series

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**NOTES**

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