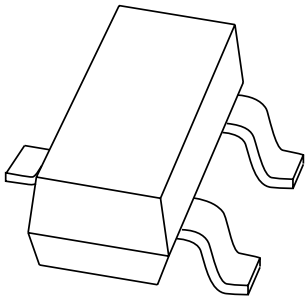
DATA SHEET



BAT54 series
Schottky barrier (double) diodes

Product specification
Supersedes data of 2001 Oct 12

2002 Mar 04

Philips
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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(1)
BAT54	L4∗
BAT54A	L42 or ∗V3
BAT54C	L43 or ∗W1
BAT54S	L44 or ∗V4

Note

1. ∗ = p : Made in Hong Kong.
   ∗ = t : Made in Malaysia.
   ∗ = W: Made in China.

PINNING

PIN	DESCRIPTION			
	BAT54	BAT54A	BAT54C	BAT54S
1	a	k_1	a_1	a_1
2	n.c.	k_2	a_2	k_2
3	k	a_1, a_2	k_1, k_2	k_1, a_2

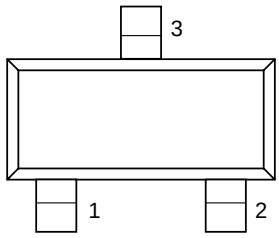


Fig.1 Simplified outline (SOT23) and pin configuration.

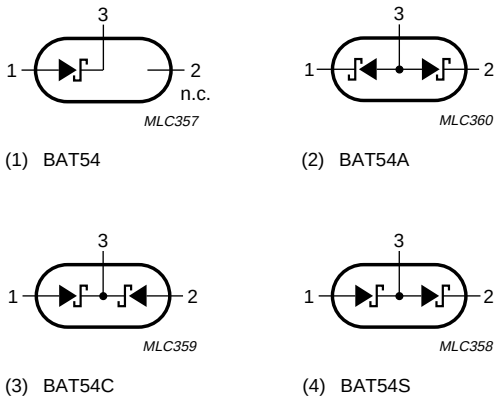


Fig.2 Diode configuration and symbol.

LIMITING VALUES

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

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

THERMAL CHARACTERISTICS

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

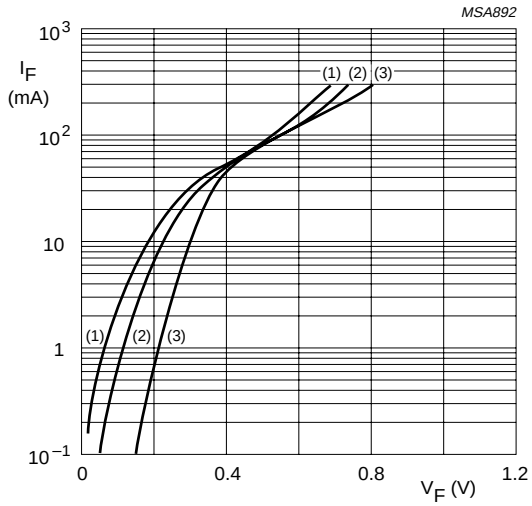
Note

1. Refer to SOT23 standard mounting conditions.

CHARACTERISTICS

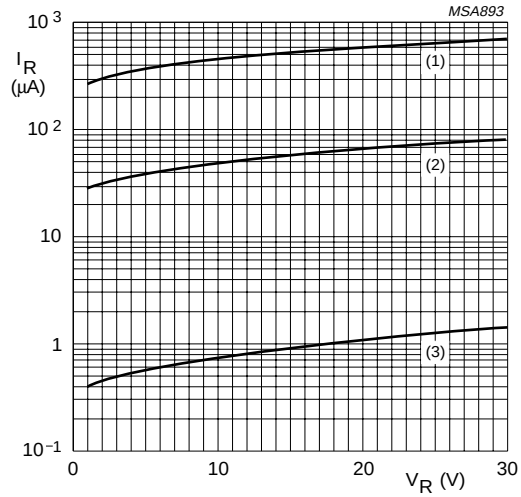
T_{amb} = 25 °C unless otherwise specified.

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



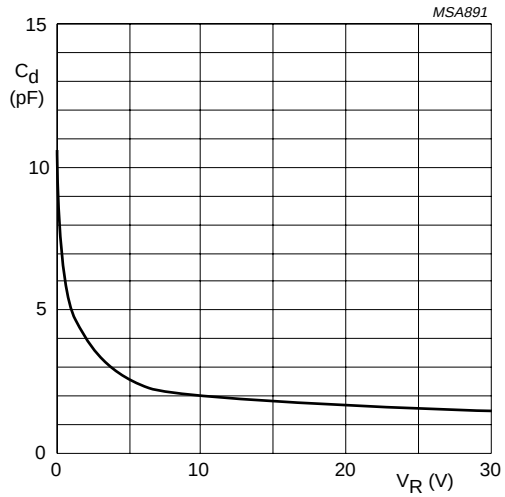
(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.

Fig.3 Forward current as a function of forward voltage; typical values.



(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.

Fig.4 Reverse current as a function of reverse voltage; typical values.



f = 1 MHz; T_{amb} = 25 °C.

Fig.5 Diode capacitance as a function of reverse voltage; typical values.

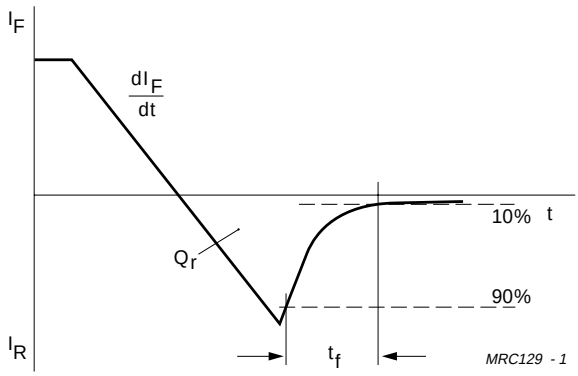
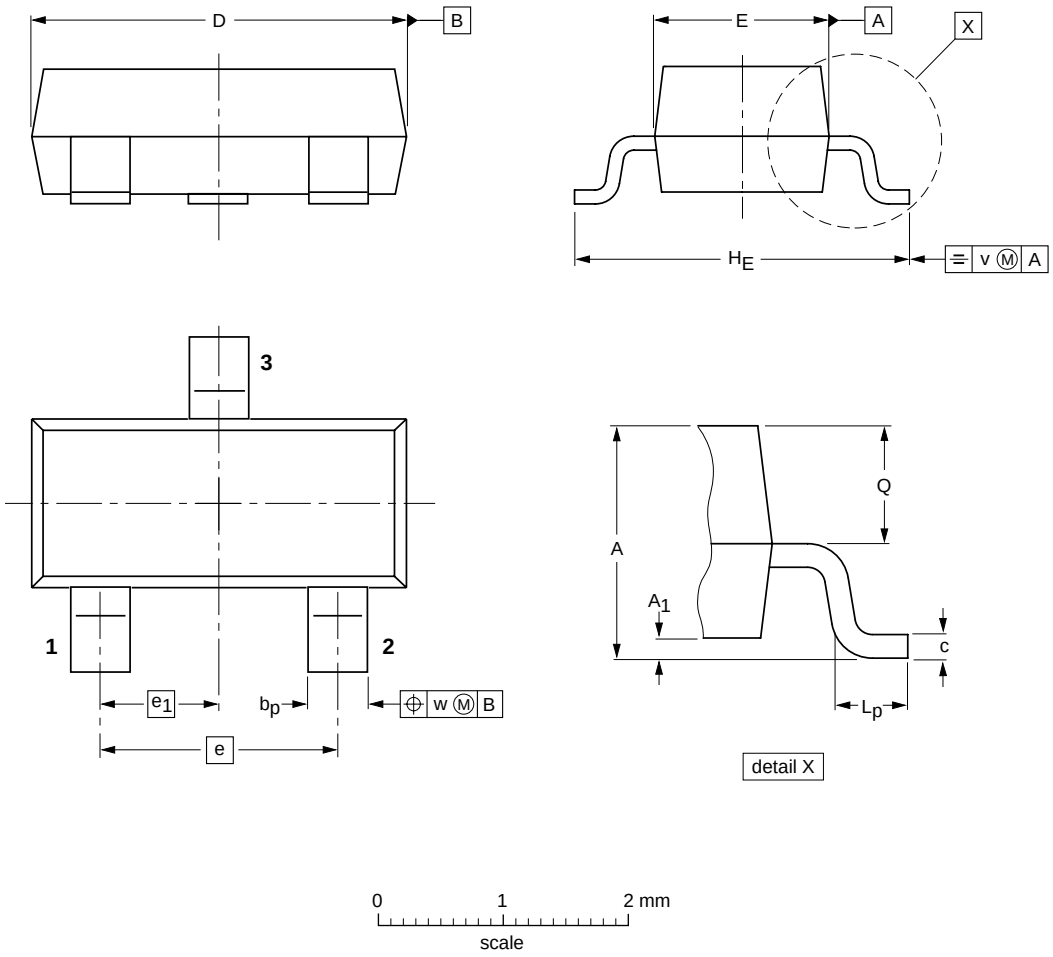


Fig.6 Reverse recovery definitions.

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT23**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	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

DATA SHEET STATUS

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	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.
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