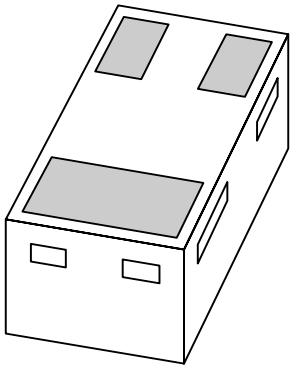
DATA SHEET



BAT54CM
Schottky barrier double diode

Product data sheet

2003 Nov 11

Schottky barrier double diode BAT54CM

FEATURES

- Low forward voltage
- Leadless ultra small plastic package ($1.0 \times 0.6 \times 0.5$ mm)
- Boardspace 1.17 mm^2 (approx. 10% of SOT23)
- Power dissipation comparable to SOT23.

APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Mobile communications, digital (still) cameras, PDAs and PCMCIA cards.

DESCRIPTION

Planar Schottky barrier double diode encapsulated in a SOT883 leadless ultra small plastic package.

MARKING

TYPE NUMBER	MARKING CODE
BAT54CM	S3

PINNING

PIN	DESCRIPTION
1	anode (a_1)
2	anode (a_2)
3	common cathode

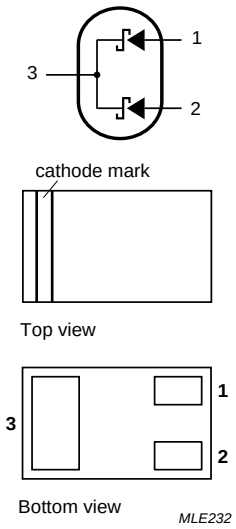


Fig.1 Simplified outline (SOT883) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BAT54CM	–	leadless ultra small plastic package; 3 solder lands; body $1.0 \times 0.6 \times 0.5$ mm	SOT883

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
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		–	150	°C
P_{tot}	total power dissipation (per package)	$T_{amb} \leq 25$ °C; note 1	–	250	mW

Note

1. Refer to SOT883 standard mounting conditions (footprint); FR4 with 60 μm copper strip line.

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 SOT883 standard mounting conditions (footprint), FR4 with 60 μm copper strip line.

Soldering

Reflow soldering is the only recommended soldering method.

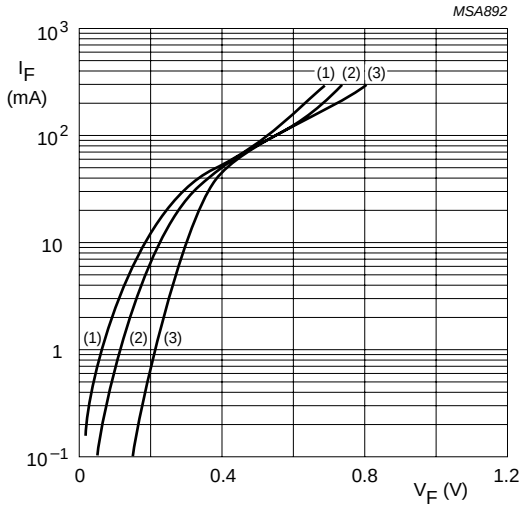
ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	forward voltage	see Fig.2;		
		$I_F = 0.1$ 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	continuous reverse current	$V_R = 25$ V; note 1; see Fig.3	2	μA
C_d	diode capacitance	f = 1 MHz; $V_R = 1$ V; see Fig.4	10	pF

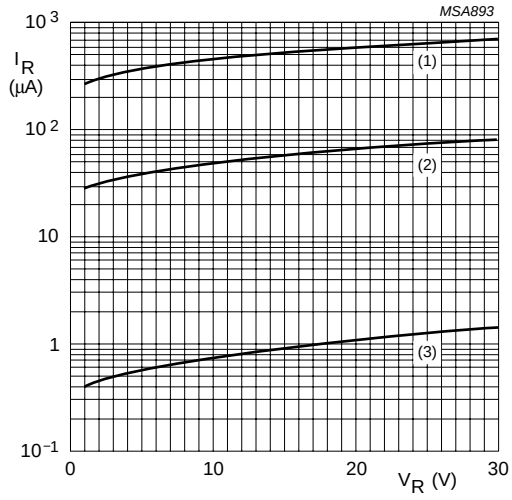
Note

1. Pulsed test: $t_p \leq 300$ μs; $\delta \leq 0.02$.



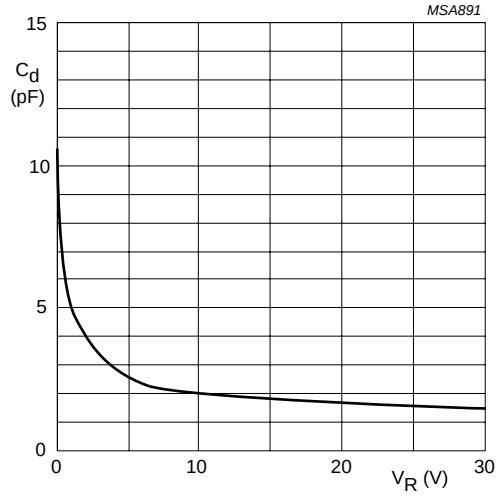
(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.

Fig.2 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.3 Reverse current as a function of reverse voltage; typical values.

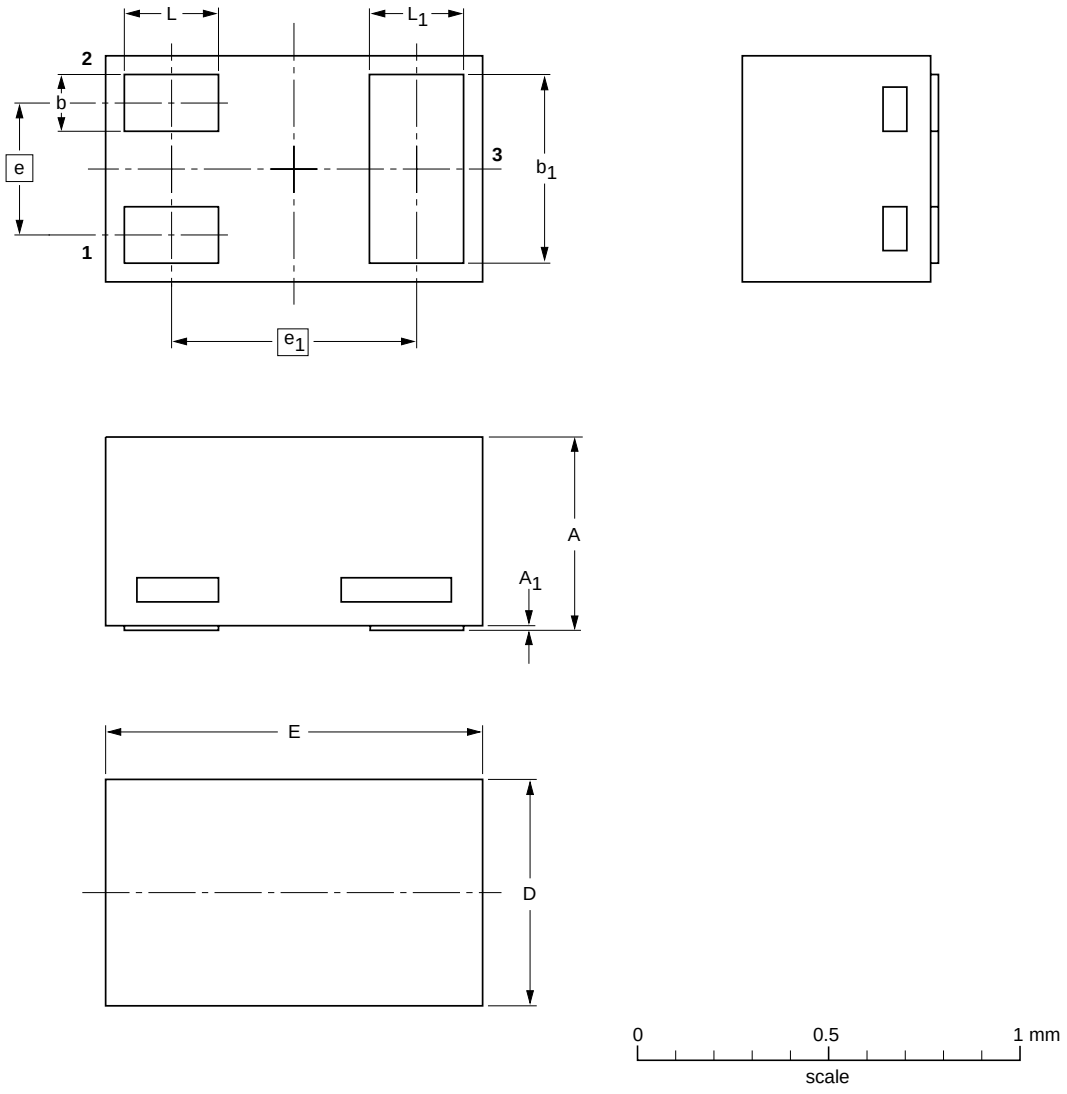


f = 1 MHz; T_{amb} = 25 °C.

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

PACKAGE OUTLINE

Leadless ultra small plastic package; 3 solder lands; body 1.0 x 0.6 x 0.5 mm **SOT883**



DIMENSIONS (mm are the original dimensions)

UNIT	A(1)	A_1 max.	b	b_1	D	E	e	e_1	L	L_1
mm	0.50 0.46	0.03	0.20 0.12	0.55 0.47	0.62 0.55	1.02 0.95	0.35	0.65	0.30 0.22	0.30 0.22

Note

1. Including plating thickness

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT883			SC-101			~~03-02-05~~ 03-04-03

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

Notes

1. Please consult the most recently issued document before initiating or completing a design.
2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

DISCLAIMERS

General — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in medical, military, aircraft, space or life support equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors accepts no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Limiting values — Stress above one or more limiting values (as defined in the Absolute Maximum Ratings System of IEC 60134) may cause permanent damage to the device. Limiting values are stress ratings only and operation of the device at these or any other conditions above those given in the Characteristics sections of this document is not implied. Exposure to limiting values for extended periods may affect device reliability.

Terms and conditions of sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at http://www.nxp.com/profile/terms, including those pertaining to warranty, intellectual property rights infringement and limitation of liability, unless explicitly otherwise agreed to in writing by NXP Semiconductors. In case of any inconsistency or conflict between information in this document and such terms and conditions, the latter will prevail.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from national authorities.

Quick reference data — The Quick reference data is an extract of the product data given in the Limiting values and Characteristics sections of this document, and as such is not complete, exhaustive or legally binding.

NXP Semiconductors

Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors. No changes were made to the content, except for the legal definitions and disclaimers.

Contact information

For additional information please visit: **http://www.nxp.com**
For sales offices addresses send e-mail to: **salesaddresses@nxp.com**

Printed in The Netherlands R76/01/pp7 Date of release: 2003 Nov 11 Document order number: 9397 750 11909