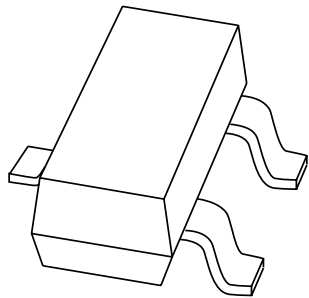


DATA SHEET



BAW56 High-speed double diode

Product specification
Supersedes data of 1999 May 11

2003 Mar 25

High-speed double diode

BAW56

FEATURES

- Small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 450 mA.

APPLICATIONS

- High-speed switching in thick and thin-film circuits.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
BAW56	A1*

Note

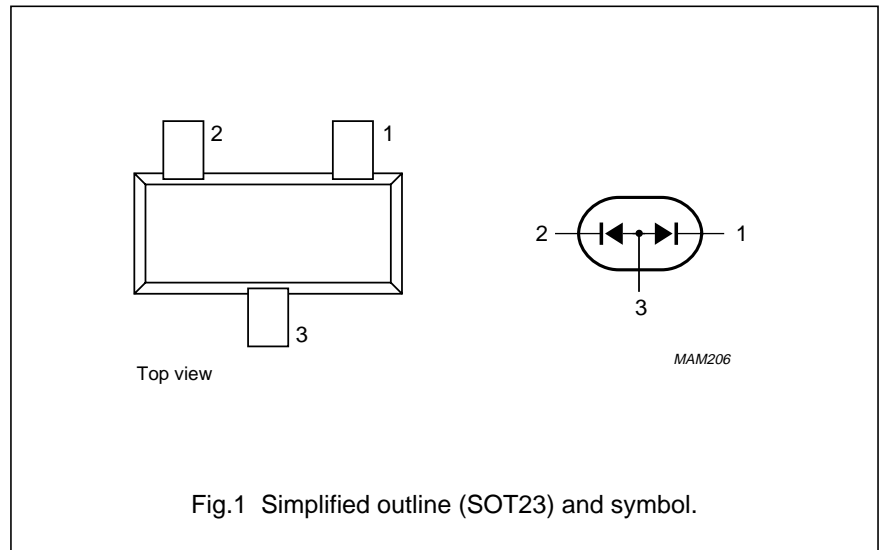
- * = p : Made in Hong Kong.
 * = t : Made in Malaysia.
 * = W : Made in China.

DESCRIPTION

The BAW56 consists of two high-speed switching diodes with common anodes, fabricated in planar technology, and encapsulated in a small SOT23 plastic SMD package.

PINNING

PIN	DESCRIPTION
1	cathode (k1)
2	cathode (k2)
3	common anode



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LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_{RRM}	repetitive peak reverse voltage		–	85	V
V_R	continuous reverse voltage		–	75	V
I_F	continuous forward current	single diode loaded; note 1; see Fig.2	–	215	mA
		double diode loaded; note 1; see Fig.2	–	125	mA
I_{FRM}	repetitive peak forward current		–	450	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\ \mu\text{s}$	–	4	A
		$t = 1\ \text{ms}$	–	1	A
		$t = 1\ \text{s}$	–	0.5	A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

1. Device mounted on an FR4 printed-circuit board.

ELECTRICAL CHARACTERISTICS $T_j = 25\text{ °C}$; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	forward voltage	see Fig.3		
		$I_F = 1\ \text{mA}$	715	mV
		$I_F = 10\ \text{mA}$	855	mV
		$I_F = 50\ \text{mA}$	1	V
		$I_F = 150\ \text{mA}$	1.25	V
I_R	reverse current	see Fig.5		
		$V_R = 25\ \text{V}$	30	nA
		$V_R = 75\ \text{V}$	1	μA
		$V_R = 25\ \text{V}; T_j = 150\text{ °C}$	30	μA
		$V_R = 75\ \text{V}; T_j = 150\text{ °C}$	50	μA
C_d	diode capacitance	$f = 1\ \text{MHz}; V_R = 0$; see Fig.6	2	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\ \text{mA}$ to $I_R = 10\ \text{mA}$; $R_L = 100\ \Omega$; measured at $I_R = 1\ \text{mA}$; see Fig.7	4	ns
V_{fr}	forward recovery voltage	when switched from $I_F = 10\ \text{mA}$; $t_r = 20\ \text{ns}$; see Fig.8	1.75	V

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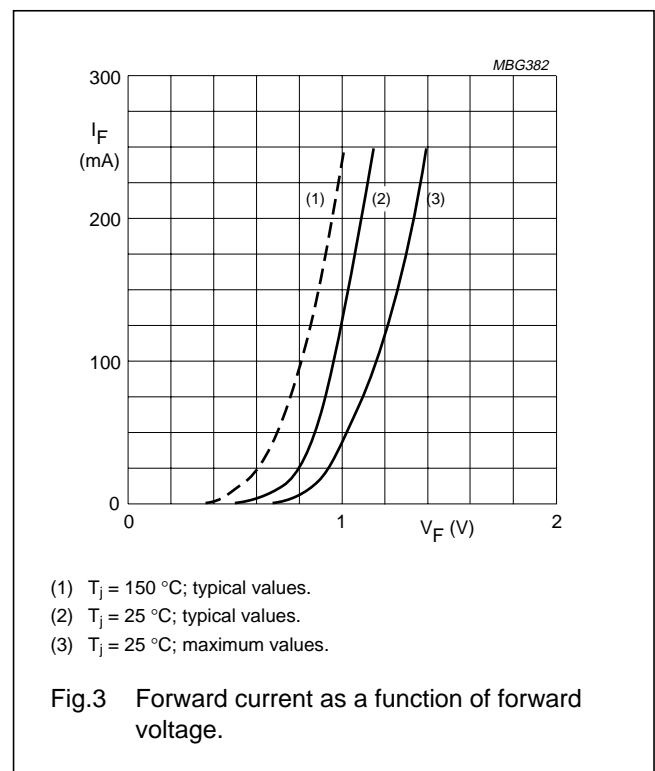
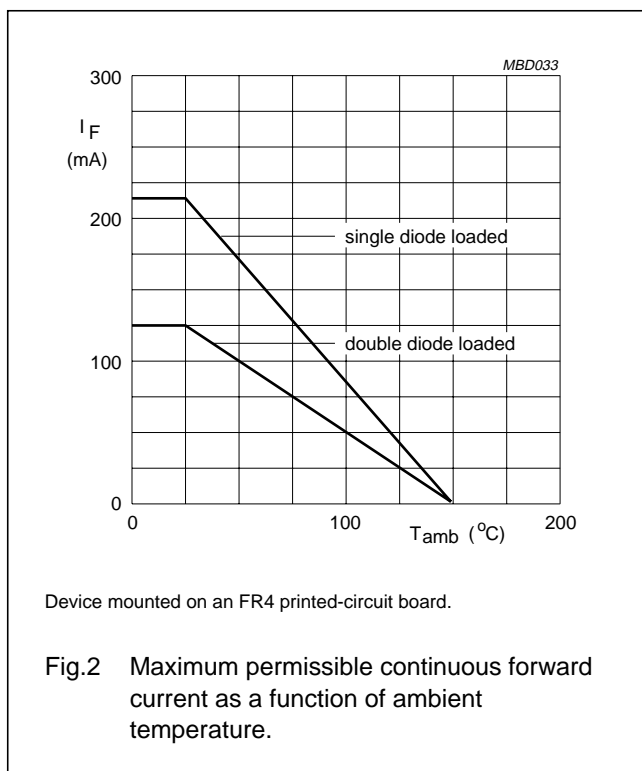
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		360	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

Note

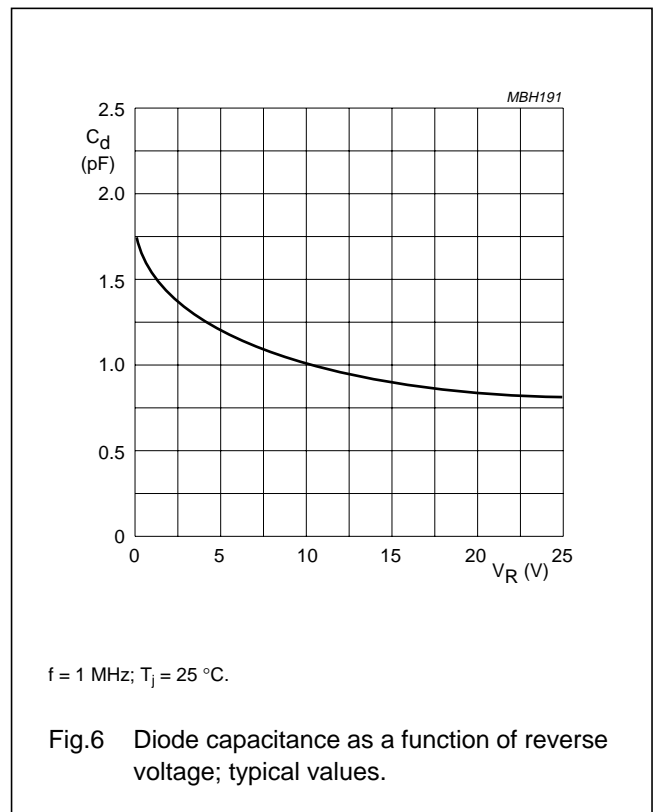
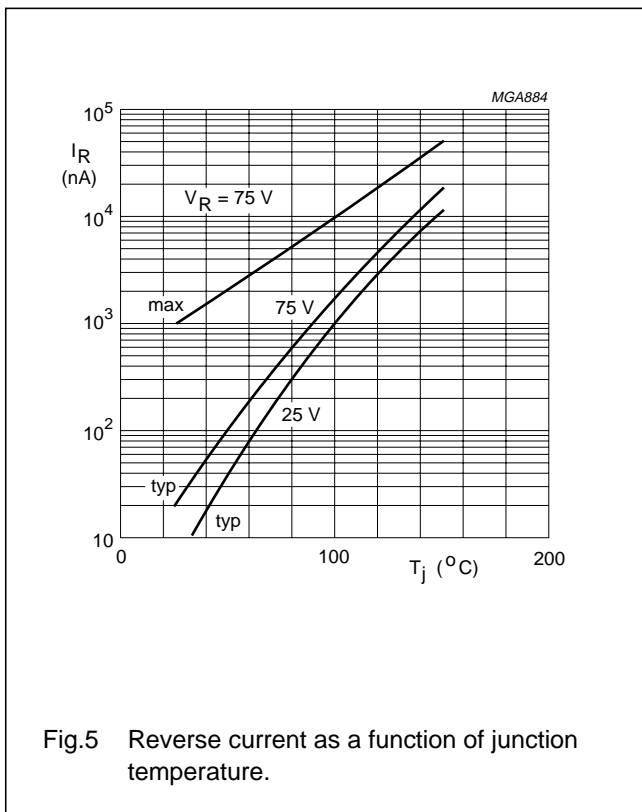
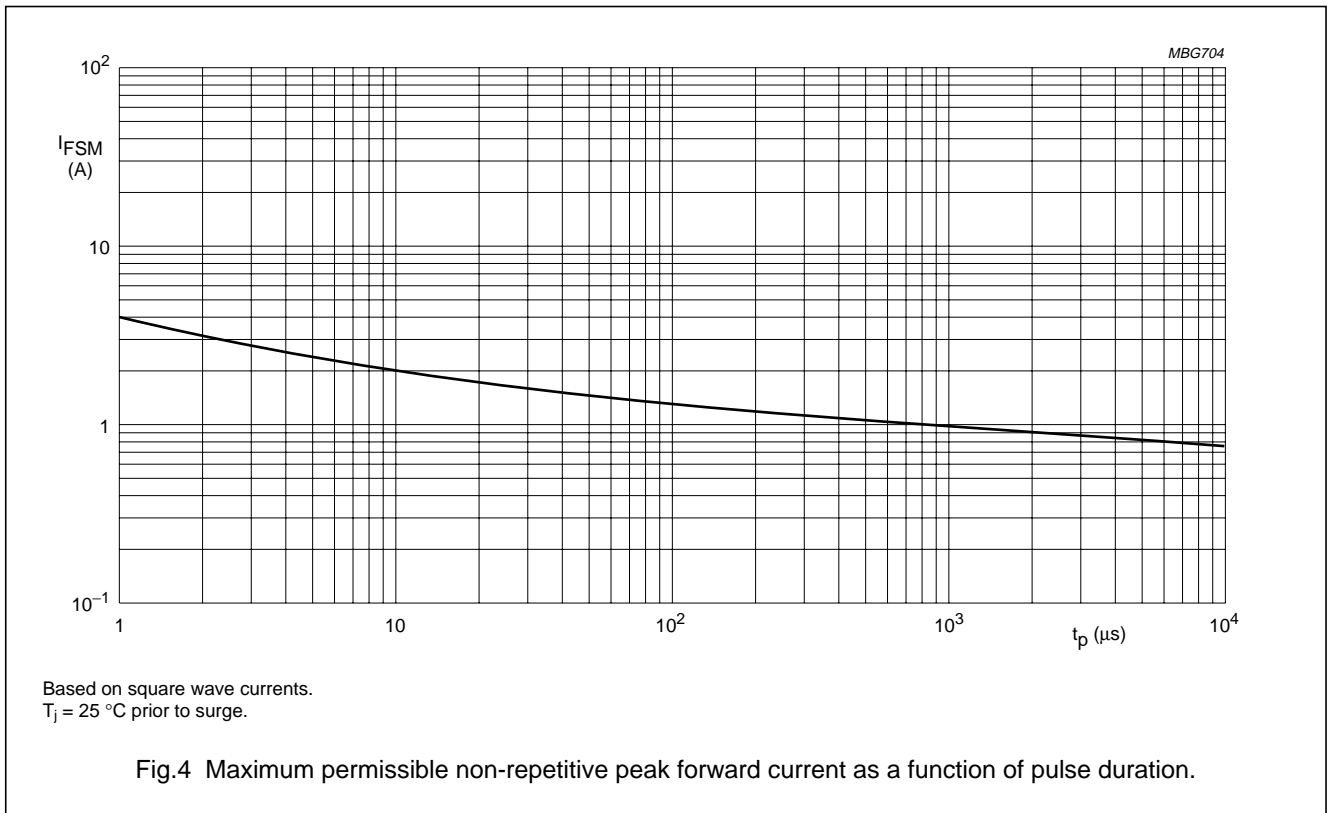
1. Device mounted on an FR4 printed-circuit board.

GRAPHICAL DATA



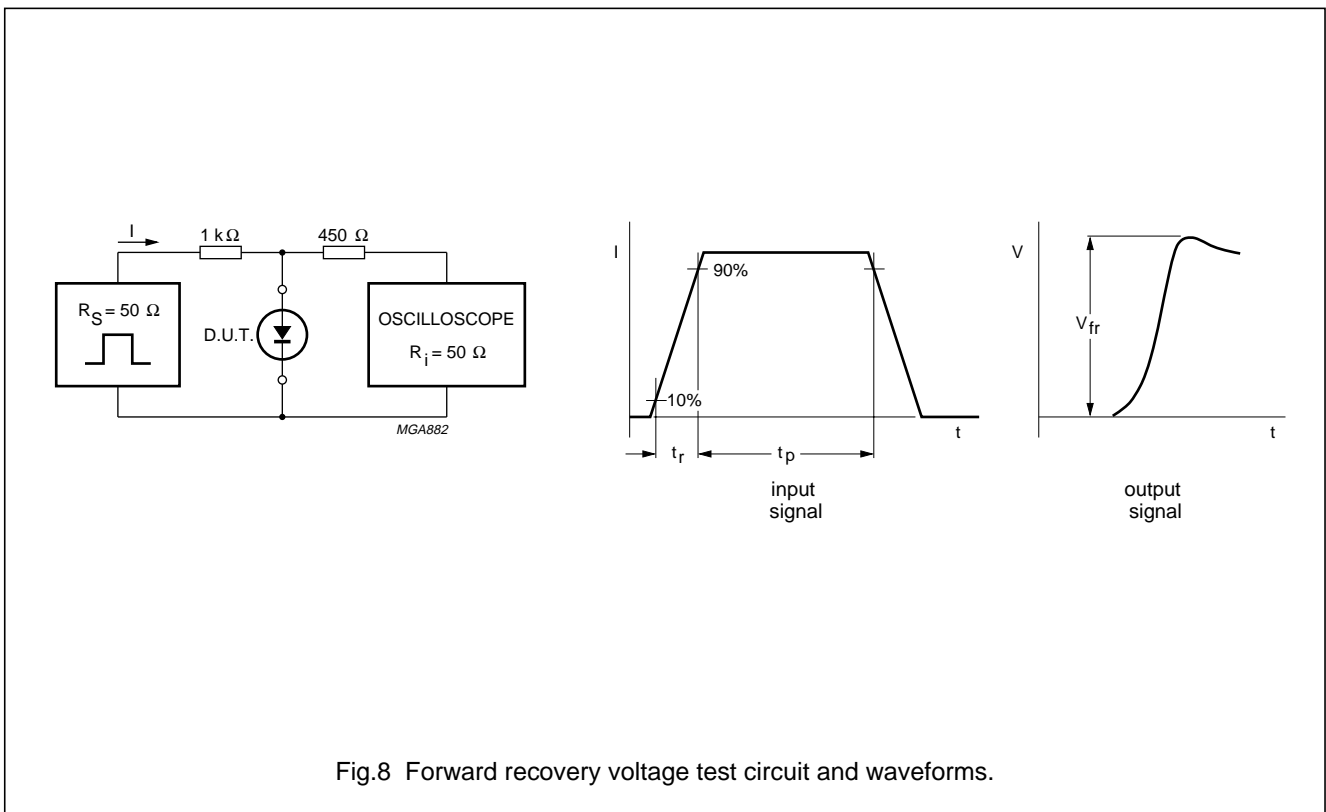
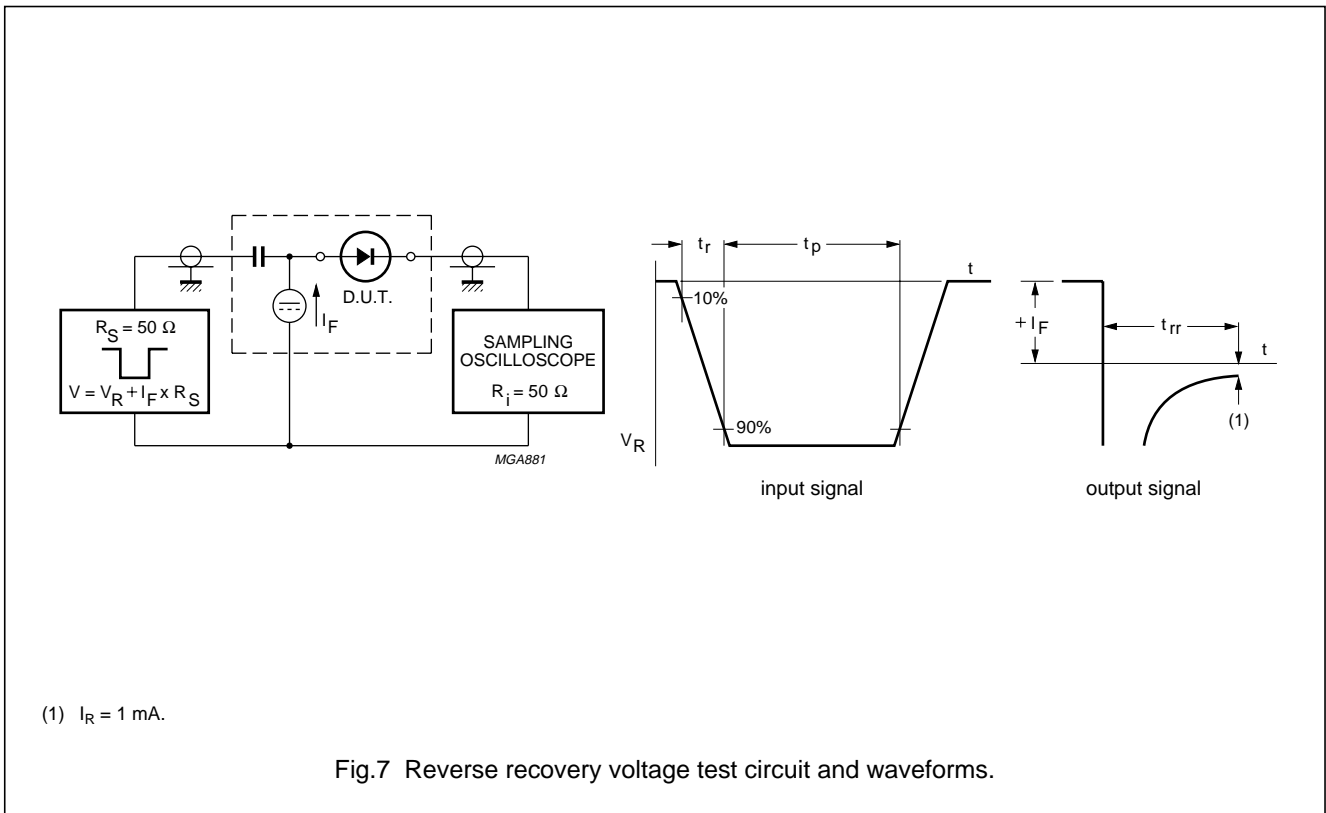
High-speed double diode

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High-speed double diode

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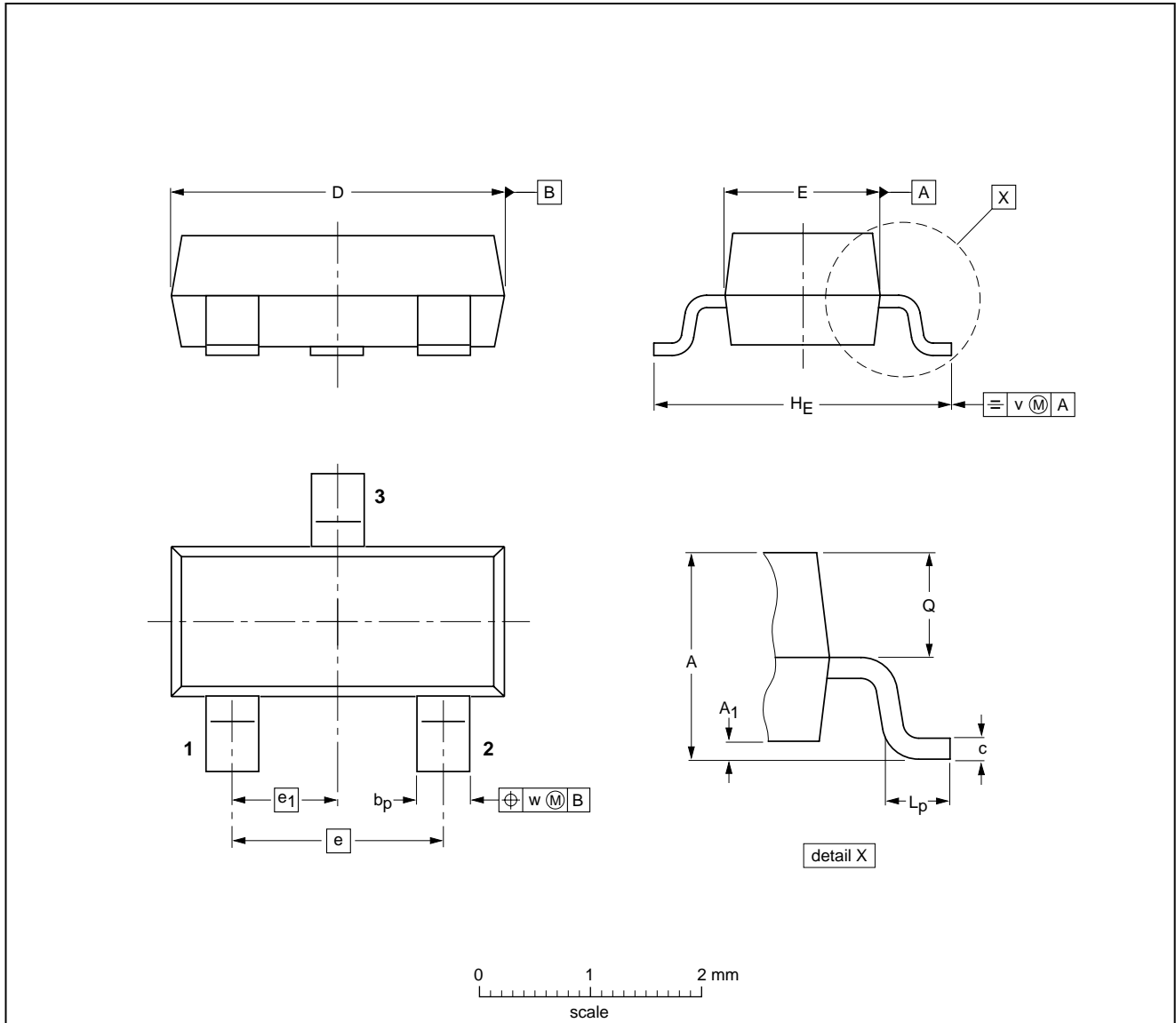
High-speed double diode

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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

High-speed double diode

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DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	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.
II	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.
III	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. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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NOTES

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NOTES

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NOTES

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Contact information

For additional information please visit <http://www.semiconductors.philips.com>. Fax: +31 40 27 24825

For sales offices addresses send e-mail to: sales.addresses@www.semiconductors.philips.com.

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