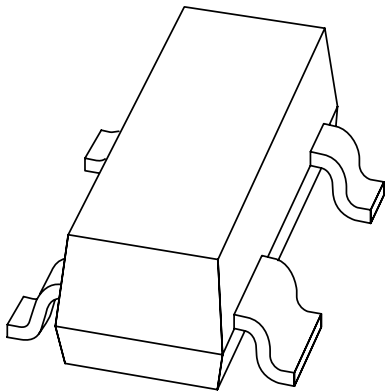


DATA SHEET



BAW101

High voltage double diode

Product data sheet

2003 May 13

High voltage double diode

BAW101

FEATURES

- Small plastic SMD package
- High switching speed: max. 50 ns
- High continuous reverse voltage: 300 V
- Electrically insulated diodes.

APPLICATIONS

- High voltage switching
- Automotive
- Communication.

DESCRIPTION

The BAW101 is a high-speed switching diode array with two separate dice, fabricated in planar technology and encapsulated in a small SOT143B plastic SMD package.

MARKING

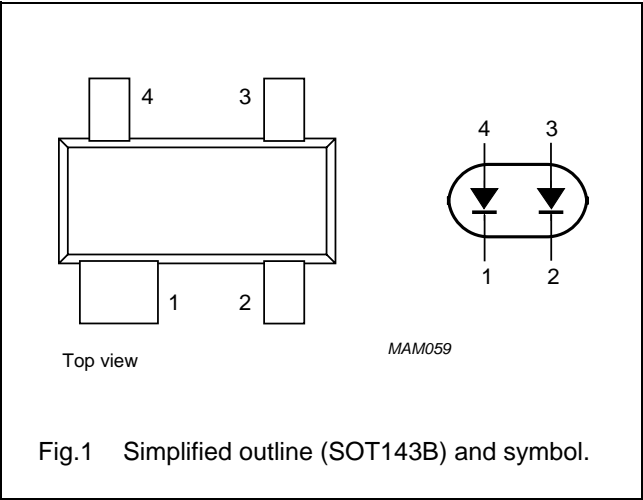
TYPE NUMBER	MARKING CODE ⁽¹⁾
BAW101	*AB

Note

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

PINNING

PIN	DESCRIPTION
1	cathode 1
2	cathode 2
3	anode 2
4	anode 1



High voltage double diode

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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_R	continuous reverse voltage		–	300	V
		series connection	–	600	V
V_{RRM}	repetitive peak reverse voltage		–	300	V
		series connection	–	600	V
I_F	continuous forward current	single diode loaded; note 1; see Fig.2	–	250	mA
		double diode loaded; note 1; see Fig.2	–	140	mA
I_{FRM}	repetitive peak forward current		–	625	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; $t = 1\text{ }\mu\text{s}$	–	4.5	A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 1	–	350	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm².

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
$V_{BR(R)}$	reverse breakdown voltage	$I_R = 100\text{ }\mu\text{A}$	300	–	V
V_F	forward voltage	$I_F = 100\text{ mA}$; note 1	–	1.1	V
I_R	reverse current	$V_R = 250\text{ V}$	–	150	nA
		$V_R = 250\text{ V}$; $T_{amb} = 150\text{ °C}$	–	50	μA
t_{rr}	reverse recovery time	when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 3\text{ mA}$	–	50	ns
C_d	diode capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$	–	2	pF

Note

1. Pulse test: pulse width = 300 μs ; $\delta = 0.02$.

High voltage double diode

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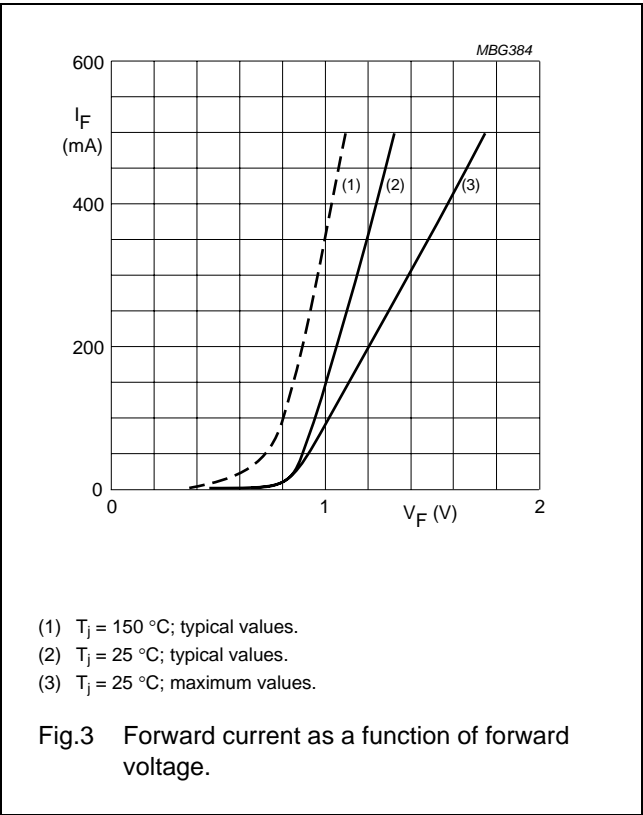
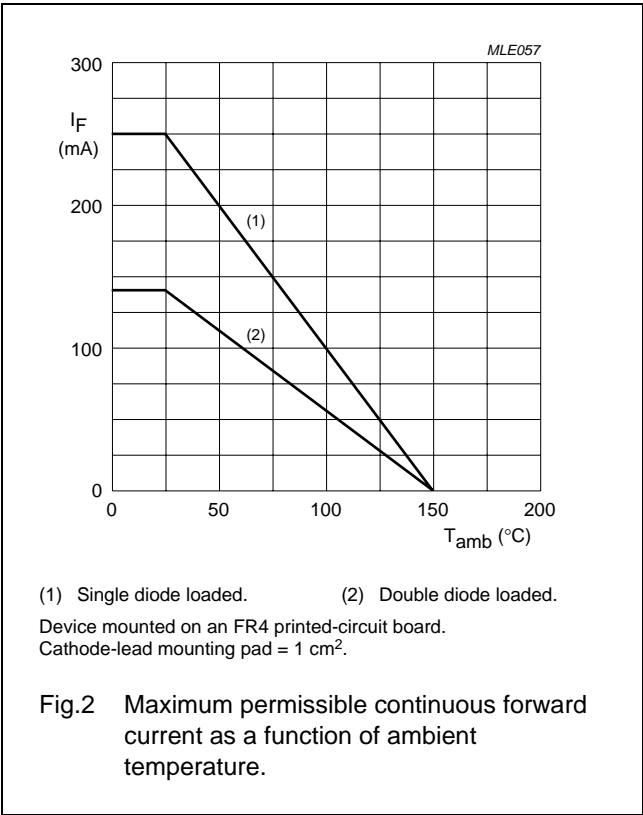
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	note 1	255	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 2	357	K/W

Notes

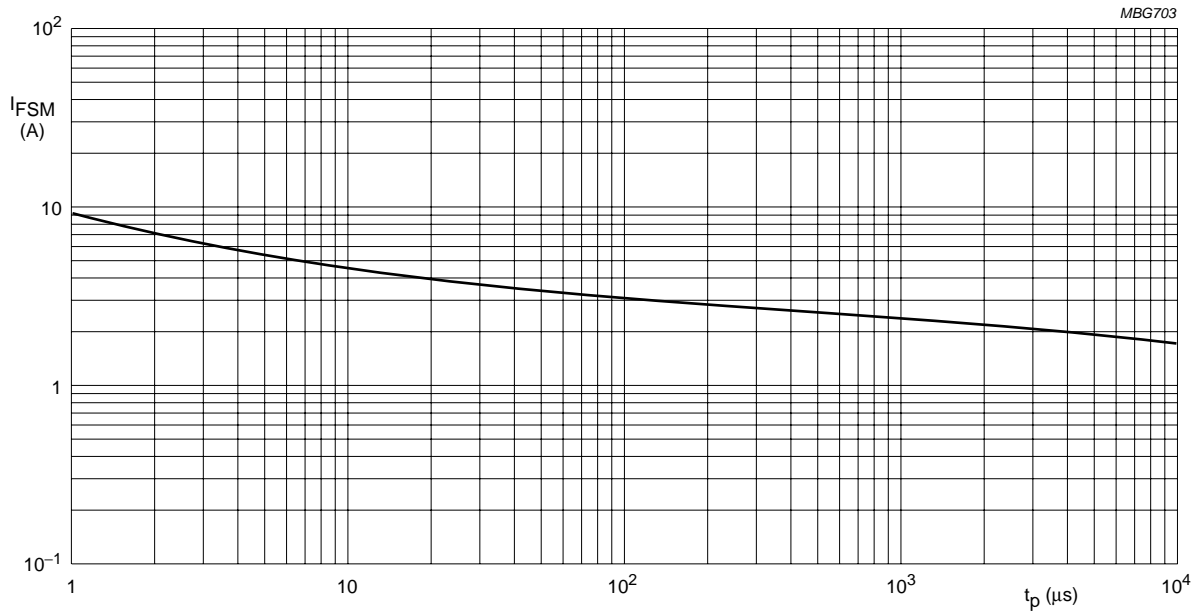
1. One or more diodes loaded.
2. Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm².

GRAPHICAL DATA



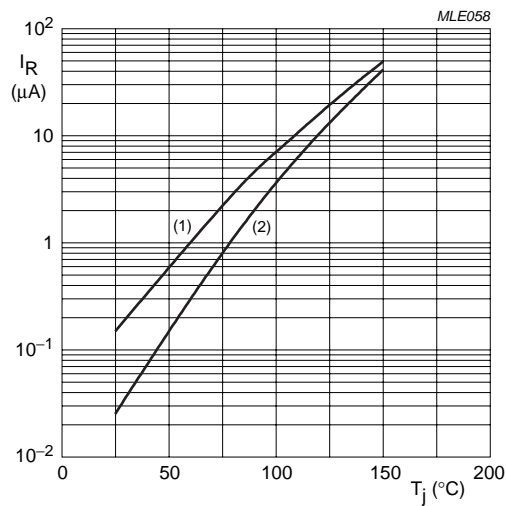
High voltage double diode

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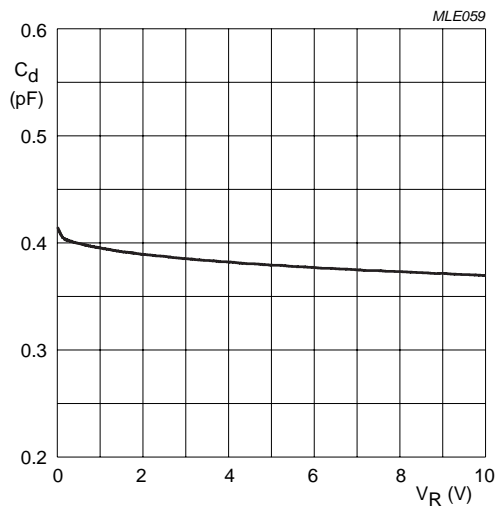
Based on square wave currents.
 $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge.

Fig.4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.



(1) $V_R = V_{RMAX}$: maximum values.
(2) $V_R = V_{RMAX}$: typical values.

Fig.5 Reverse current as a function of junction temperature.



$f = 1\text{ MHz}$; $T_j = 25\text{ }^{\circ}\text{C}$.

Fig.6 Diode capacitance as a function of reverse voltage; typical values.

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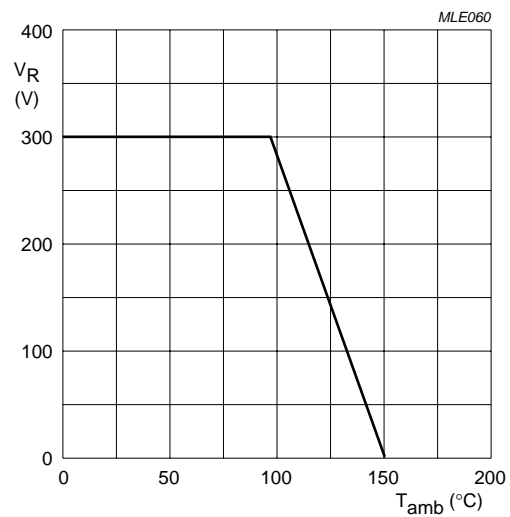


Fig.7 Maximum permissible continuous reverse voltage as a function of ambient temperature.

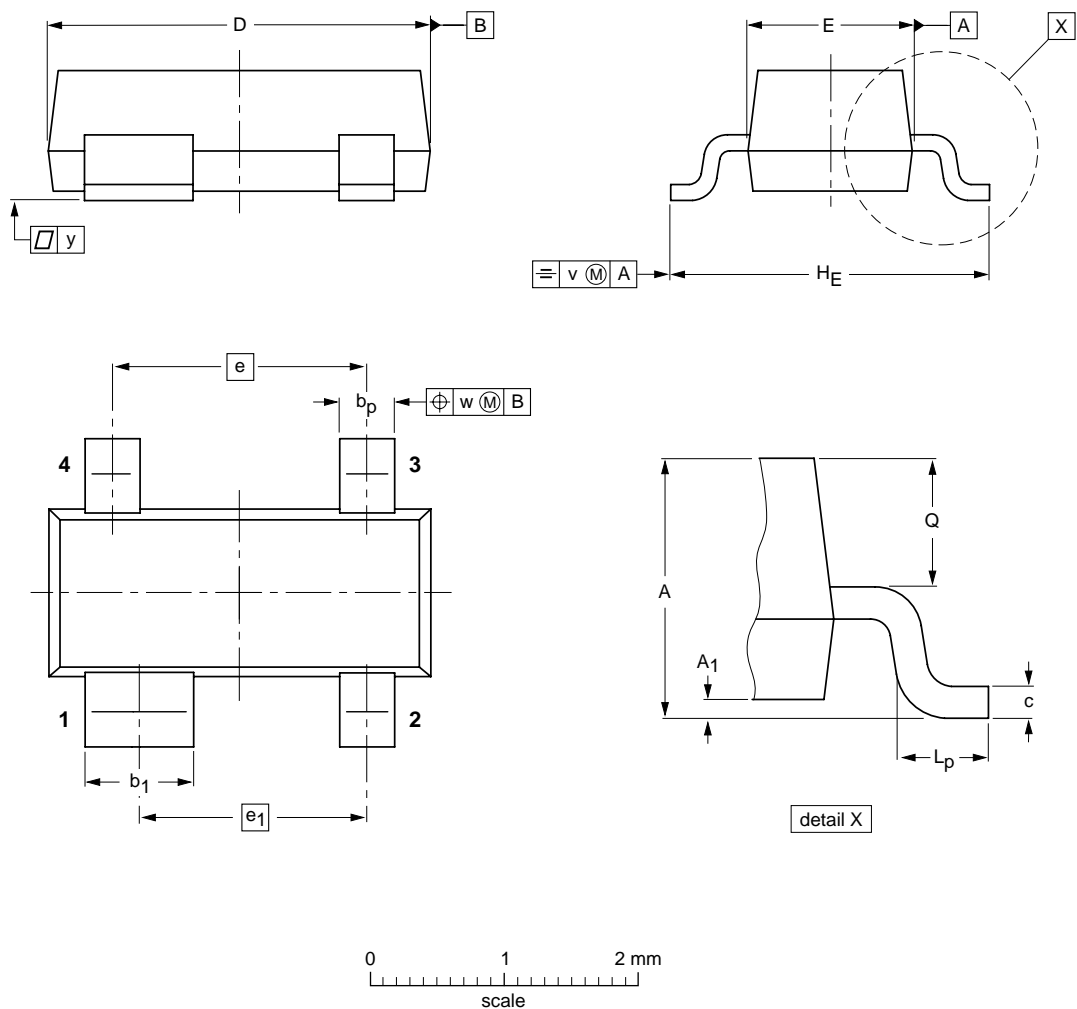
High voltage double diode

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PACKAGE OUTLINE

Plastic surface mounted package; 4 leads

SOT143B



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	b ₁	c	D	E	e	e ₁	H _E	L _p	Q	v	w	y
mm	1.1 0.9	0.1	0.48 0.38	0.88 0.78	0.15 0.09	3.0 2.8	1.4 1.2	1.9	1.7	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT143B						97-02-28

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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.

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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>.

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Customer notification

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For additional information please visit: **<http://www.nxp.com>**

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