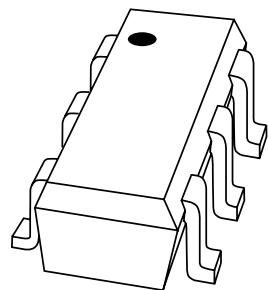


# DATA SHEET



## **BAW101S** High voltage double diode

Product data sheet

2003 May 13

**High voltage double diode****BAW101S****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 BAW101S is a high-speed switching diode array with two separate dice, fabricated in planar technology and encapsulated in a small SOT363 plastic SMD package.

**MARKING**

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BAW101S	K2*

**Note**

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

**PINNING**

PIN	DESCRIPTION
1	anode 1
2	n.c.
3	cathode 2
4	anode 2
5	n.c.
6	cathode 1

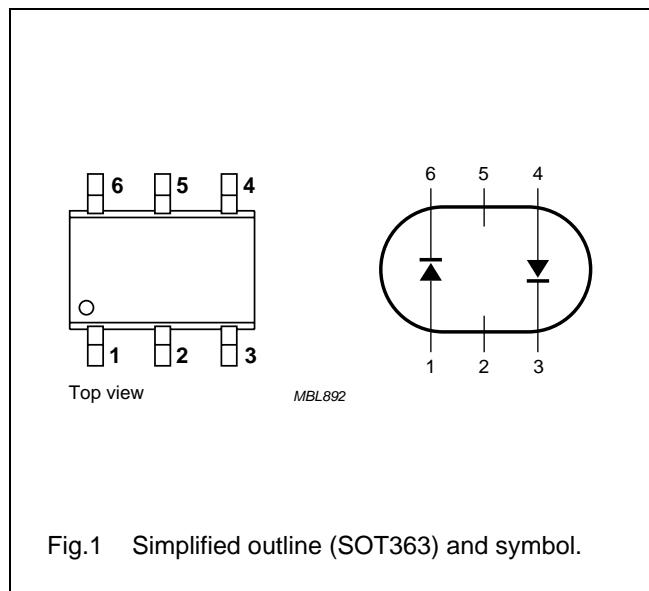


Fig.1 Simplified outline (SOT363) and symbol.

## High voltage double diode

BAW101S

**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		–	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; $T_j = 25^\circ\text{C}$ prior to surge; $t = 1\ \mu\text{s}$	–	4.5	A
$P_{\text{tot}}$	total power dissipation	$T_{\text{amb}} = 25^\circ\text{C}$ ; note 1	–	350	mW
$T_{\text{stg}}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{\text{amb}}$	operating ambient temperature		–65	+150	°C

**Note**

1. Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm<sup>2</sup>.

**ELECTRICAL CHARACTERISTICS** $T_j = 25^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_{BR(R)}$	reverse breakdown voltage	$I_R = 100\ \mu\text{A}$	300	–	V
		$I_F = 100\ \text{mA}$ ; note 1	–	1.1	V
$I_R$	reverse current	$V_R = 250\ \text{V}$	–	150	nA
		$V_R = 250\ \text{V}$ ; $T_{\text{amb}} = 150^\circ\text{C}$	–	50	$\mu\text{A}$
$t_{rr}$	reverse recovery time	when switched from $I_F = 30\ \text{mA}$ to $I_R = 30\ \text{mA}$ ; $R_L = 100\ \Omega$ ; 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  $\mu\text{s}$ ;  $\delta = 0.02$ .

## High voltage double diode

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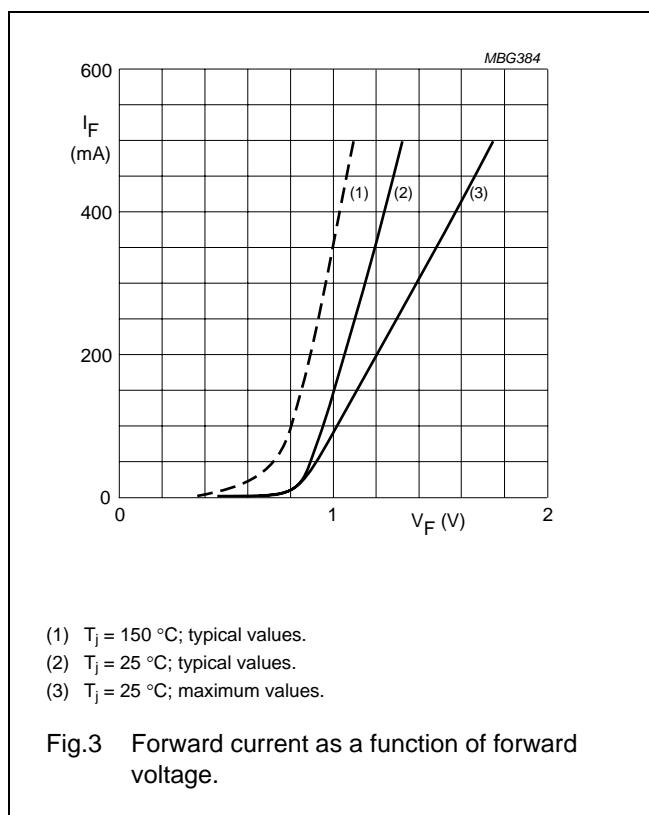
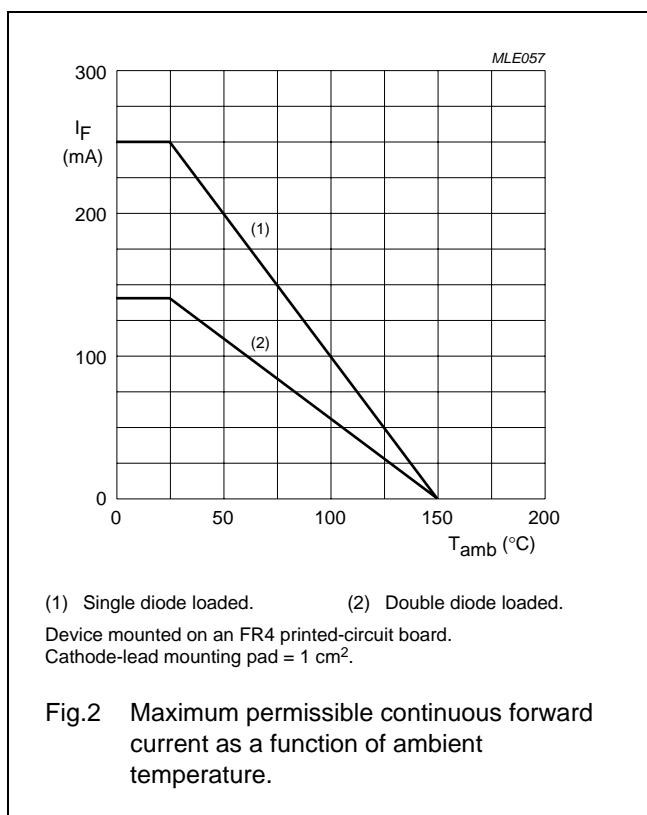
## THERMAL CHARACTERISTICS

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

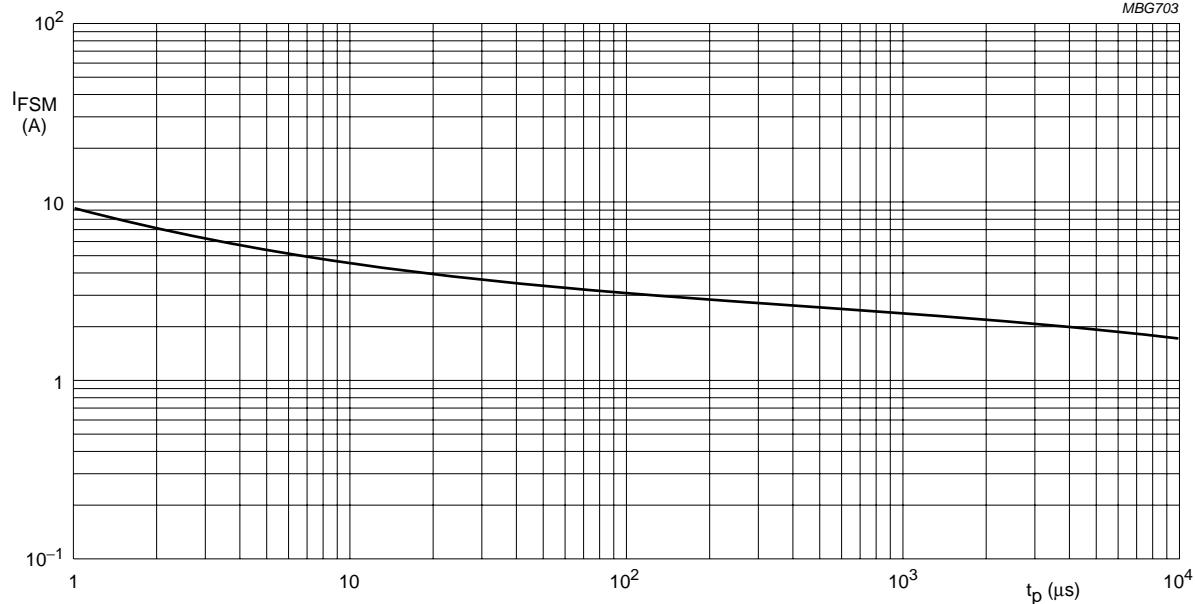
1. One or more diodes loaded.
2. Device mounted on an FR4 printed-circuit board, cathode-lead mounting pad = 1 cm<sup>2</sup>.

## GRAPHICAL DATA



## High voltage double diode

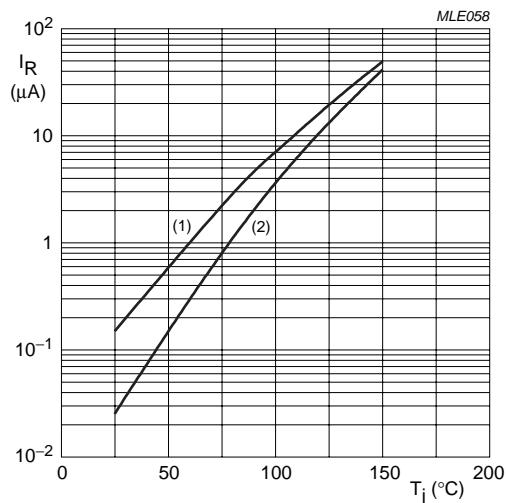
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Based on square wave currents.

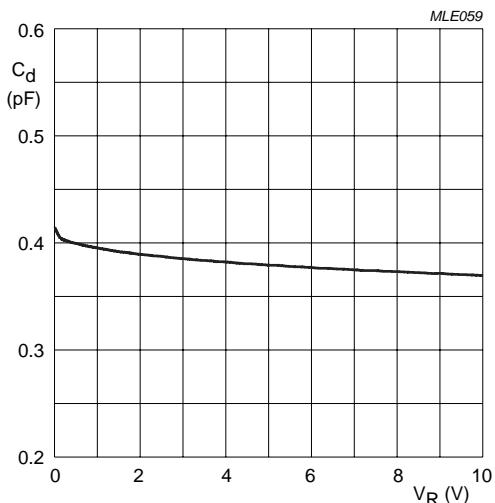
$T_j = 25^\circ\text{C}$  prior to surge.

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.



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

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

## High voltage double diode

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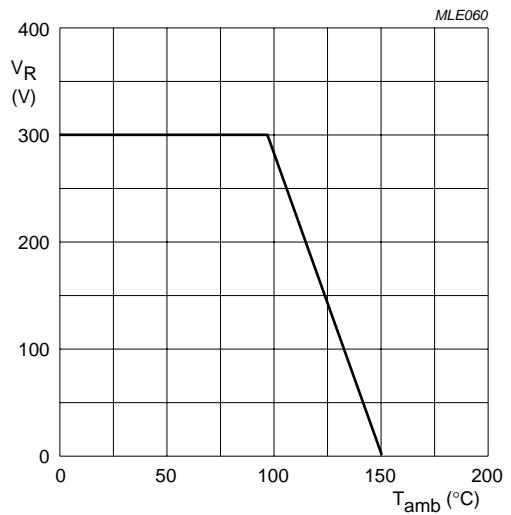


Fig.7 Maximum permissible continuous reverse voltage as a function of ambient temperature.

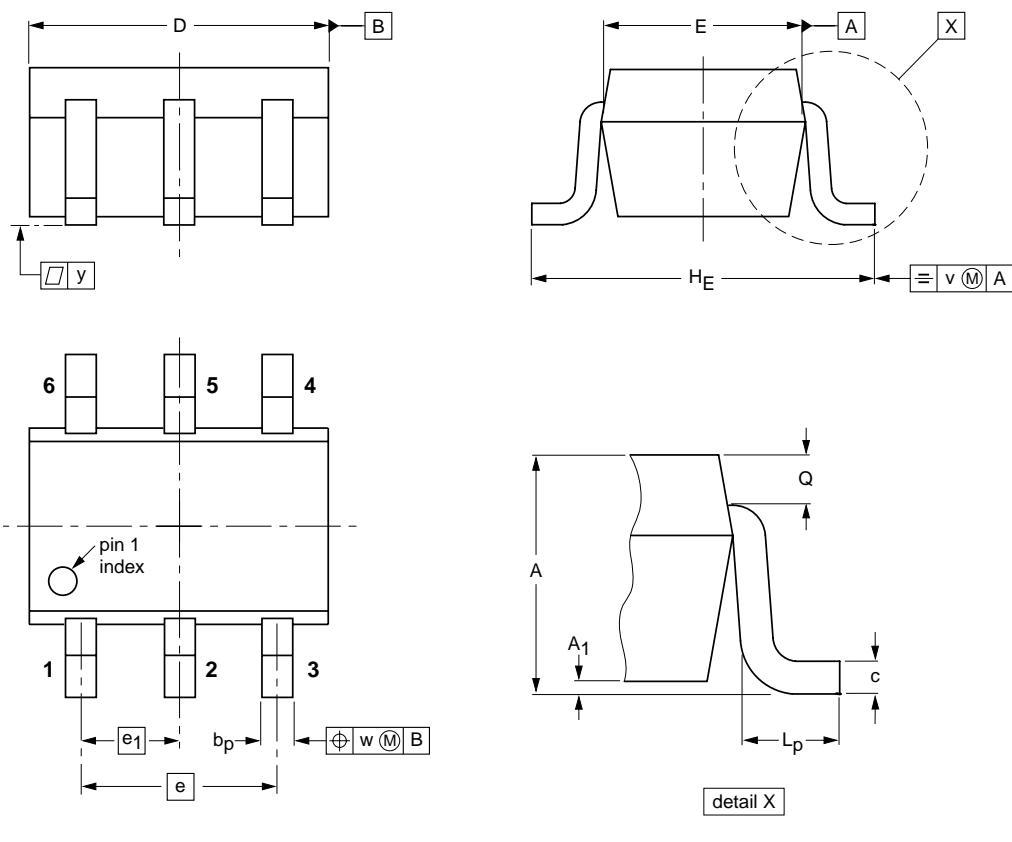
## High voltage double diode

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## PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



## 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	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT363			SC-88			97-02-28

## High voltage double diode

BAW101S

## DATA SHEET STATUS

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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