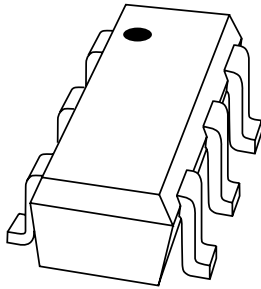


# DATA SHEET



## **BAW56S**

### High-speed double diode array

Product specification  
Supersedes data of 1997 Aug 27  
File under Discrete Semiconductors, SC01

1997 Oct 21

# High-speed double diode array

# BAW56S

## 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.

## PINNING

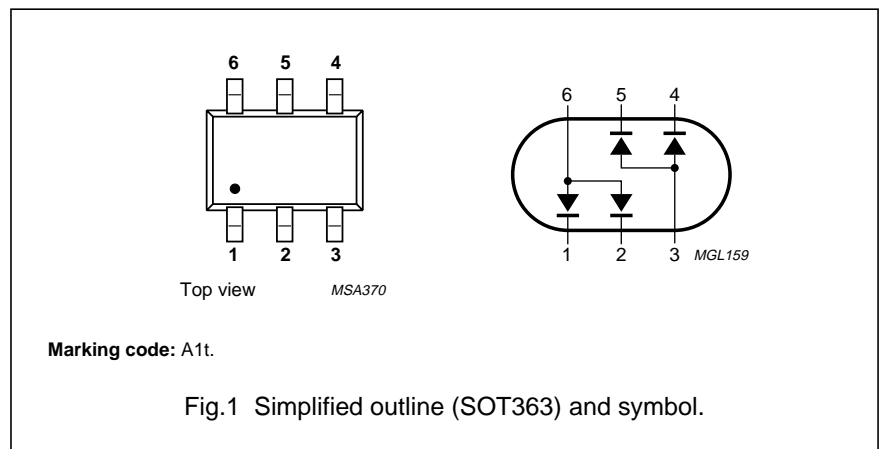
PIN	DESCRIPTION
1	cathode (k1)
2	cathode (k2)
3	common anode (a1)
4	cathode (k3)
5	cathode (k4)
6	common anode (a2)

## APPLICATIONS

- General purpose switching in e.g. surface mounted circuits.

## DESCRIPTION

The BAW56S consists of two dual high-speed switching diodes with common anodes, fabricated in planar technology, and encapsulated in the small SMD SOT363 plastic package.



## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_{RRM}$	repetitive peak reverse voltage		–	85	V
$V_R$	continuous reverse voltage		–	75	V
$I_F$	continuous forward current	single diode loaded; see Fig.2	–	250	mA
		all diodes loaded; see Fig.2	–	100	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	$T_s = 60\text{ °C}$ ; note 1	–	350	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–65	+150	°C

## Note

1. One or more diodes loaded.

## High-speed double diode array

## BAW56S

**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
<b>Per diode</b>				
$V_F$	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	$\mu\text{A}$
		$V_R = 25\text{ V}; T_j = 150\text{ °C}$	30	$\mu\text{A}$
		$V_R = 75\text{ V}; T_j = 150\text{ °C}$	50	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 0; f = 1\text{ MHz};$ 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

**THERMAL CHARACTERISTICS**

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

**Note**

- One or more diodes loaded.

High-speed double diode array

BAW56S

GRAPHICAL DATA

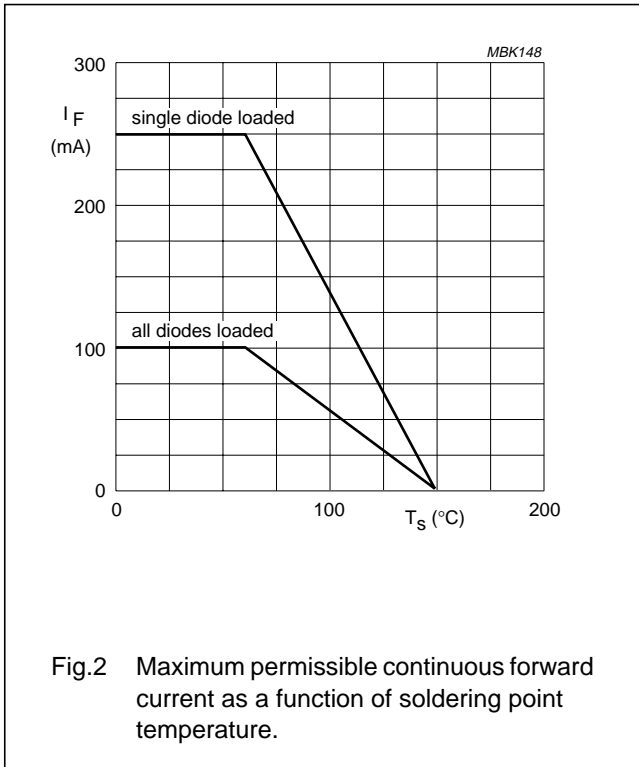
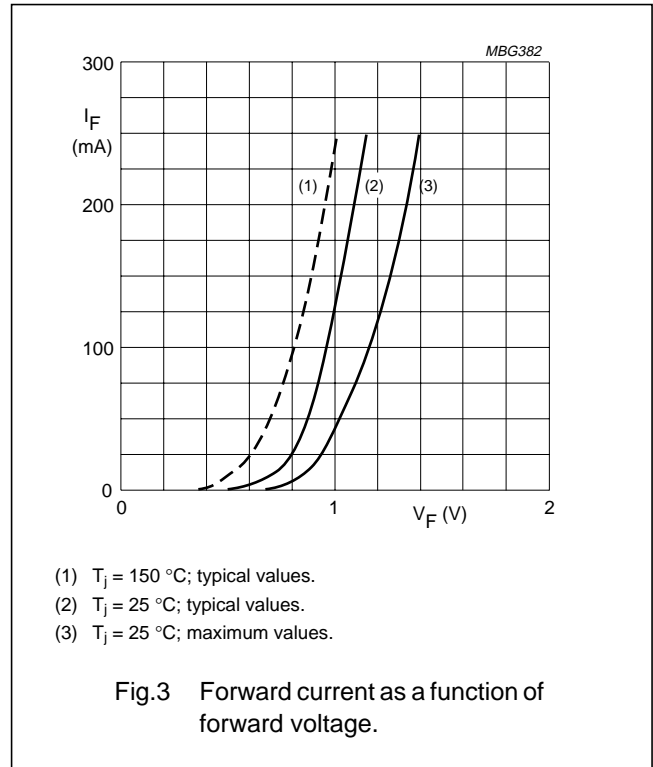
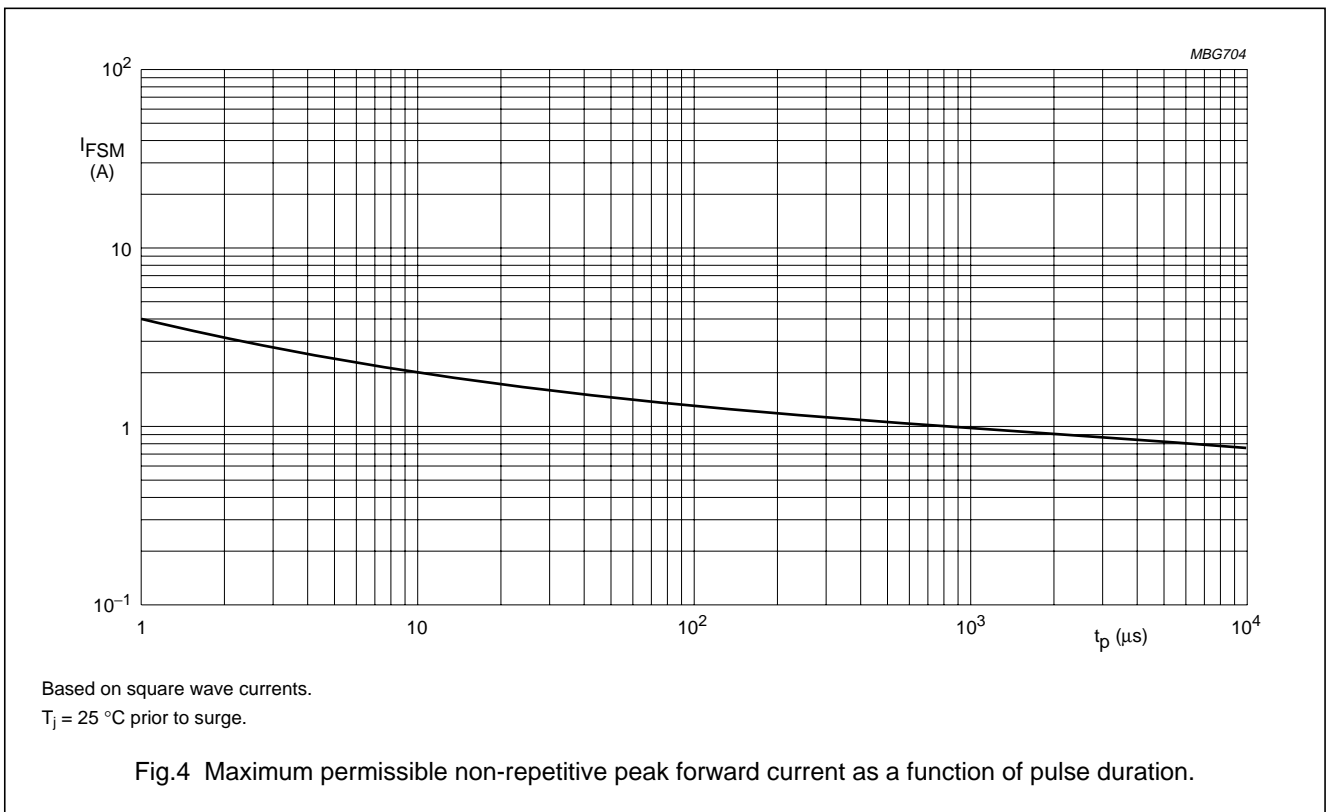


Fig.2 Maximum permissible continuous forward current as a function of soldering point temperature.



- (1)  $T_j = 150$  °C; typical values.
- (2)  $T_j = 25$  °C; typical values.
- (3)  $T_j = 25$  °C; maximum values.

Fig.3 Forward current as a function of forward voltage.

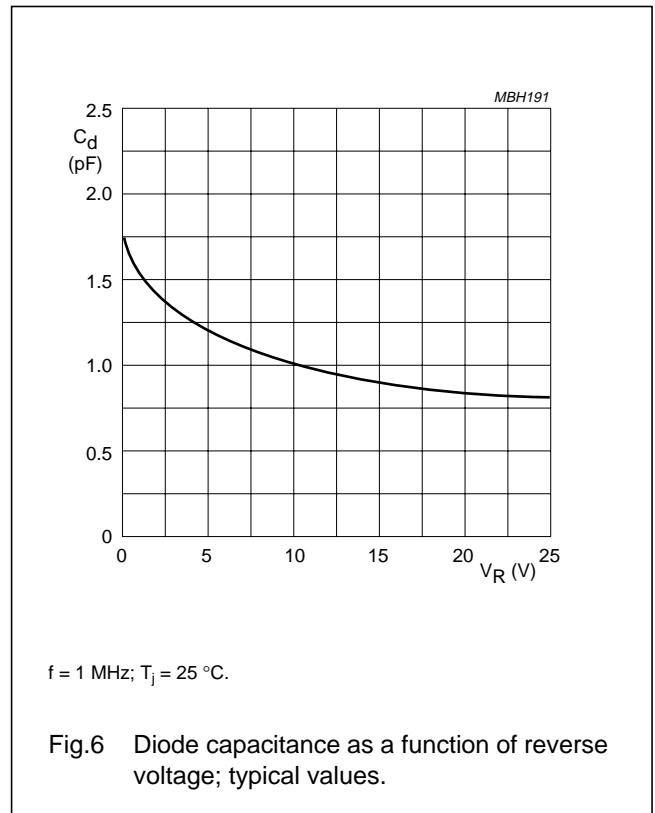
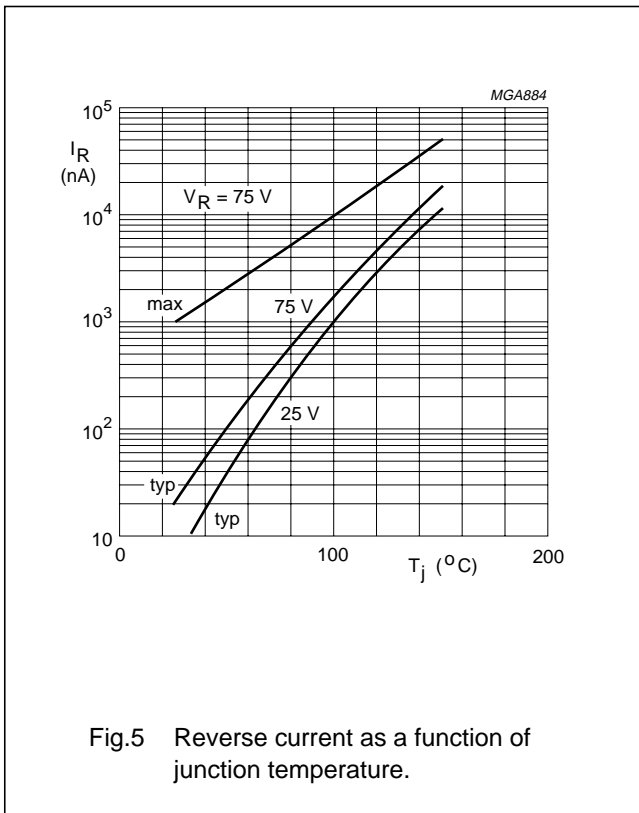


Based on square wave currents.  
 $T_j = 25$  °C prior to surge.

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

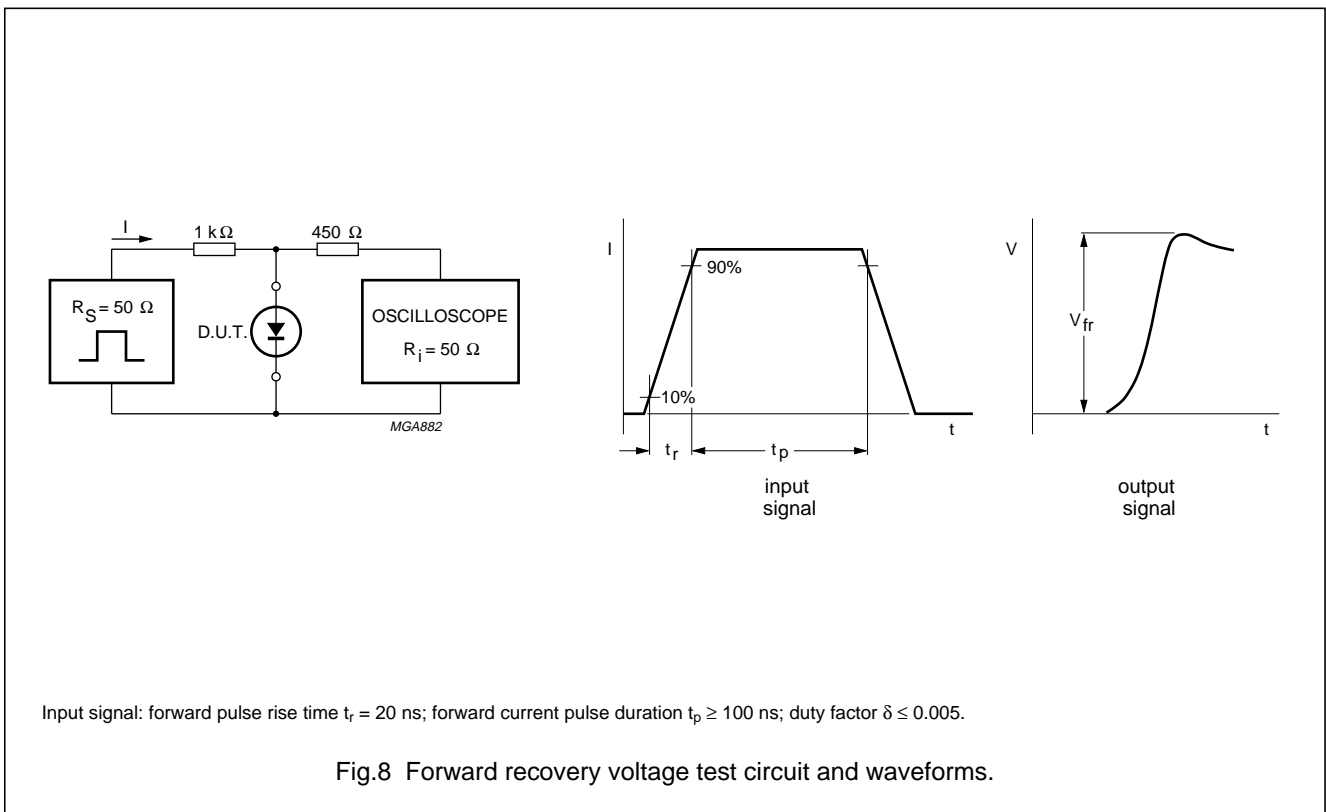
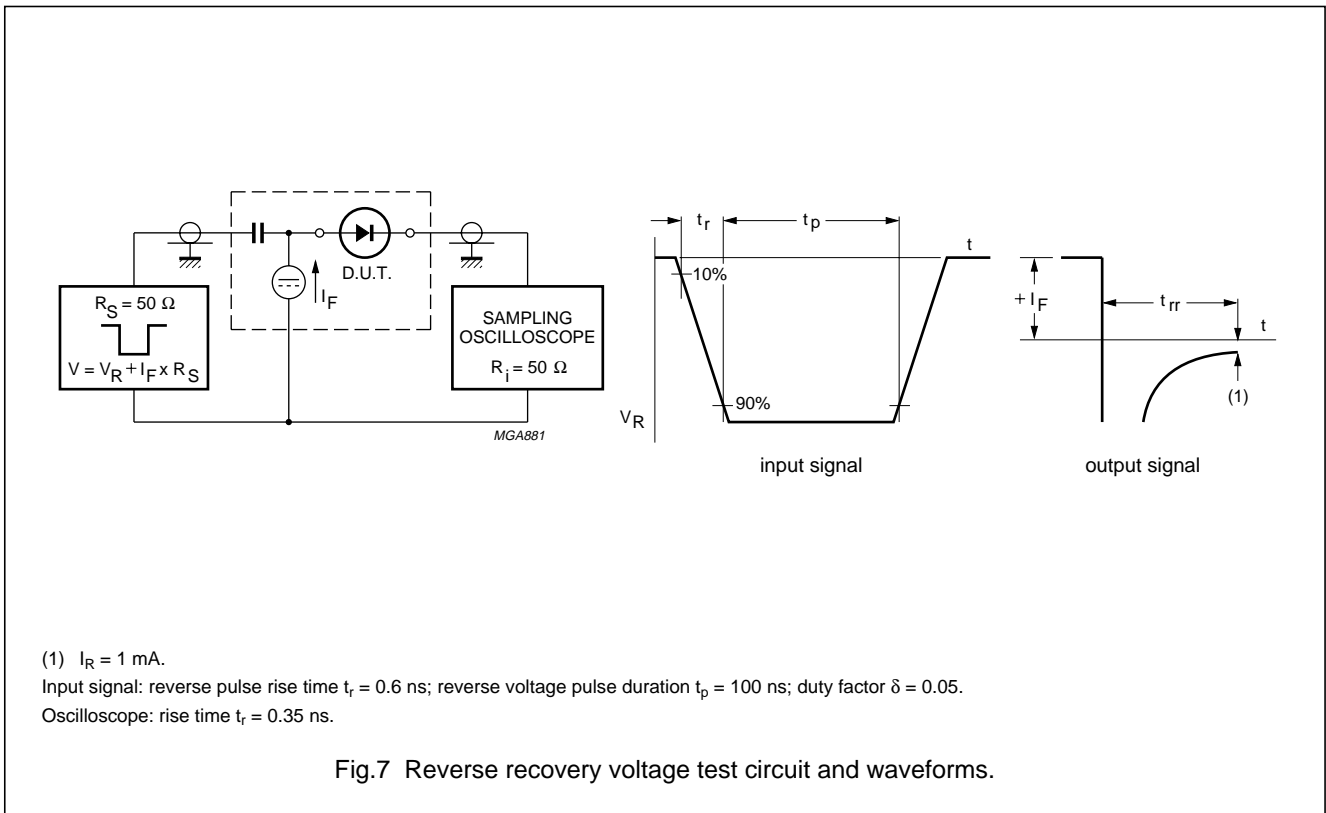
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High-speed double diode array

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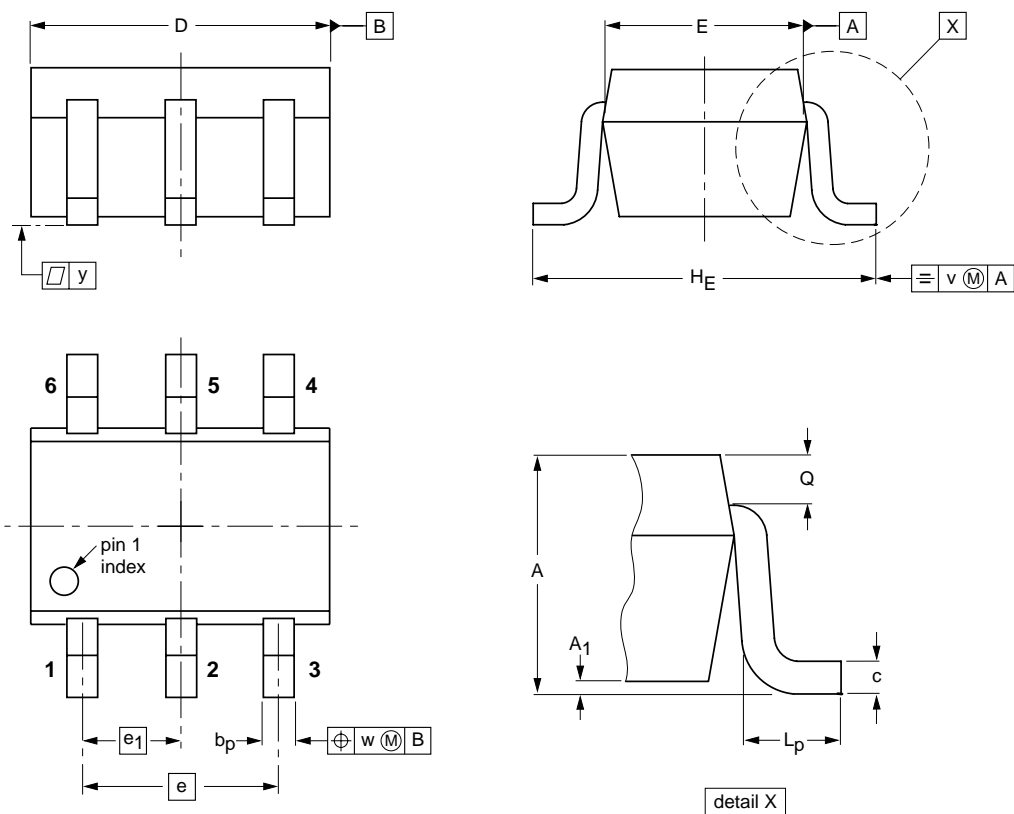
# High-speed double diode array

# BAW56S

## PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub> max	bp	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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-speed double diode array

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**DEFINITIONS**

<b>Data Sheet Status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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.	
<b>Application information</b>	
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**NOTES**

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**NOTES**

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