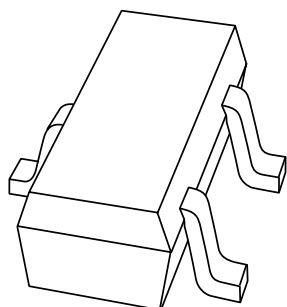


DATA SHEET



BAW56T High-speed double diode

Product specification
File under Discrete Semiconductors, SC01

1997 Dec 19

High-speed double diode

BAW56T

FEATURES

- Very 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. 500 mA.

APPLICATIONS

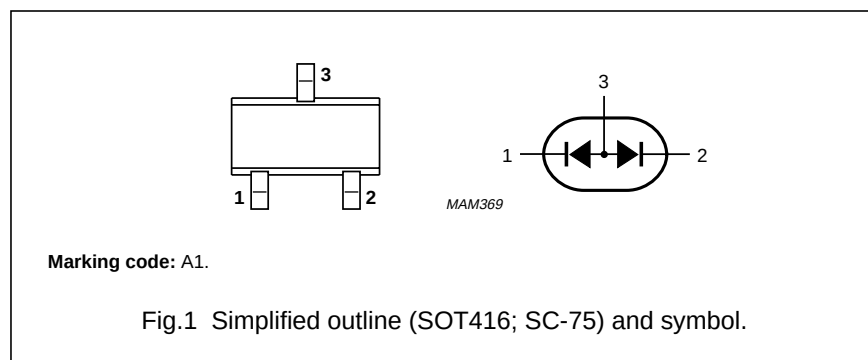
- High-speed switching in e.g. surface mounted circuits.

DESCRIPTION

Two high-speed switching diodes in a common anode configuration, fabricated in planar technology, in a very small rectangular SMD SOT416 (SC-75) package.

PINNING

PIN	DESCRIPTION
1	cathode 1
2	cathode 2
3	common anode



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode (unless otherwise specified)					
V_{RRM}	repetitive peak reverse voltage		–	85	V
V_R	continuous reverse voltage		–	75	V
I_F	continuous forward current	$T_s = 90\text{ °C}$; see Fig.2 single diode loaded	–	150	mA
		both diodes loaded	–	75	mA
I_{FRM}	repetitive peak forward current		–	500	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\text{ }\mu\text{s}$	–	4	A
		$t = 1\text{ ms}$	–	1	A
		$t = 1\text{ s}$	–	0.5	A
P_{tot}	total power dissipation	$T_s = 90\text{ °C}$; one diode loaded	–	170	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	+150	°C

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	forward voltage	see Fig.3 $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 50\text{ mA}$ $I_F = 150\text{ mA}$	0.715 0.855 1 1.25	V V V V
I_R	reverse current	see Fig.5 $V_R = 25\text{ V}$ $V_R = 75\text{ V}$ $V_R = 25\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$ $V_R = 75\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$	30 1 30 50	nA μA μA μA
C_d	diode capacitance	$V_R = 0$; $f = 1\text{ MHz}$; see Fig.6	2	pF
t_{rr}	reverse recovery time	switching from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 1\text{ mA}$; see Fig.7	4	ns
V_{fr}	forward recovery voltage	switched to $I_F = 10\text{ mA}$; $t_r = 20\text{ ns}$; see Fig.8	1.75	V

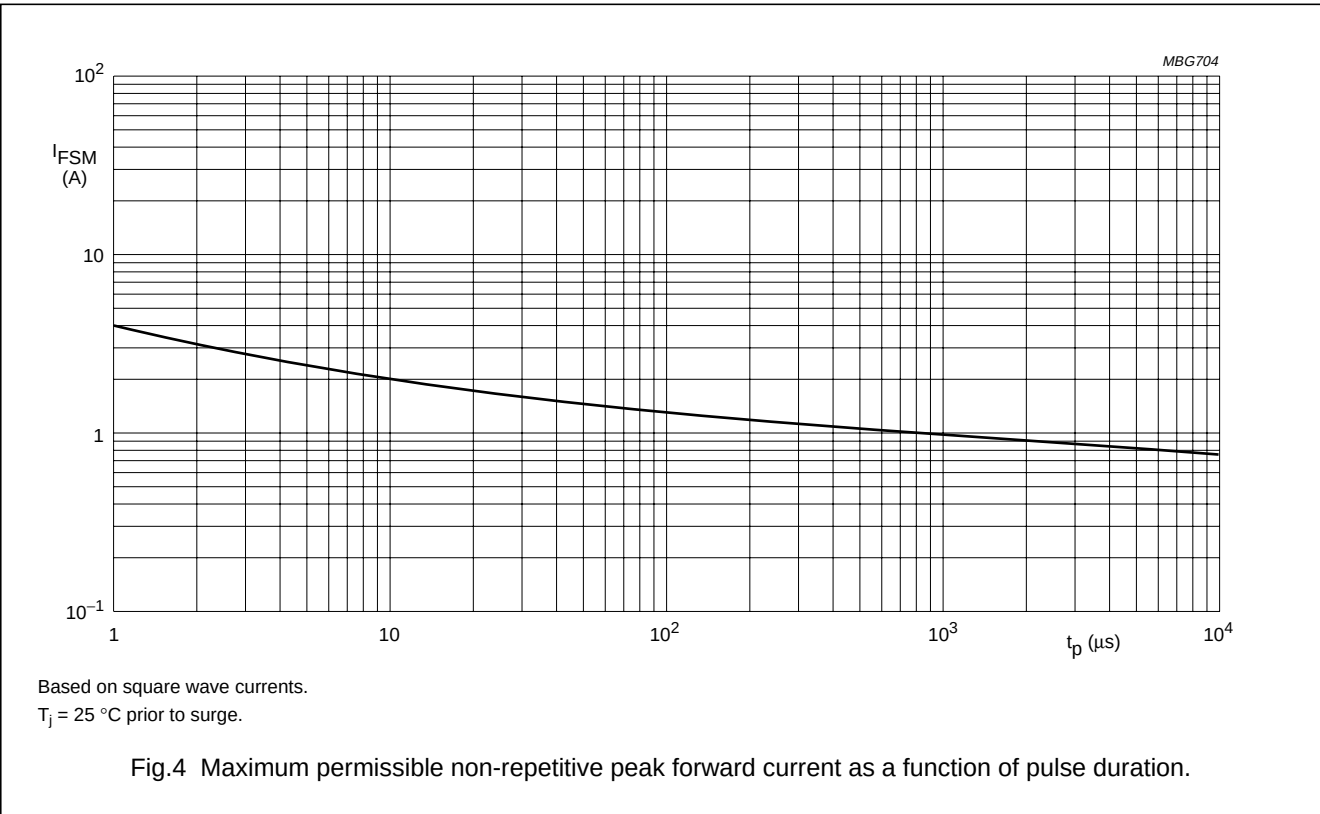
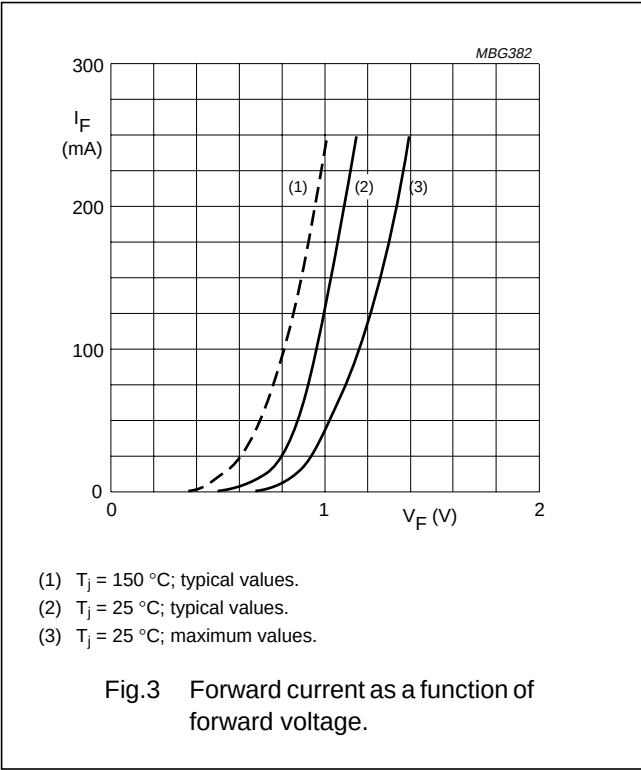
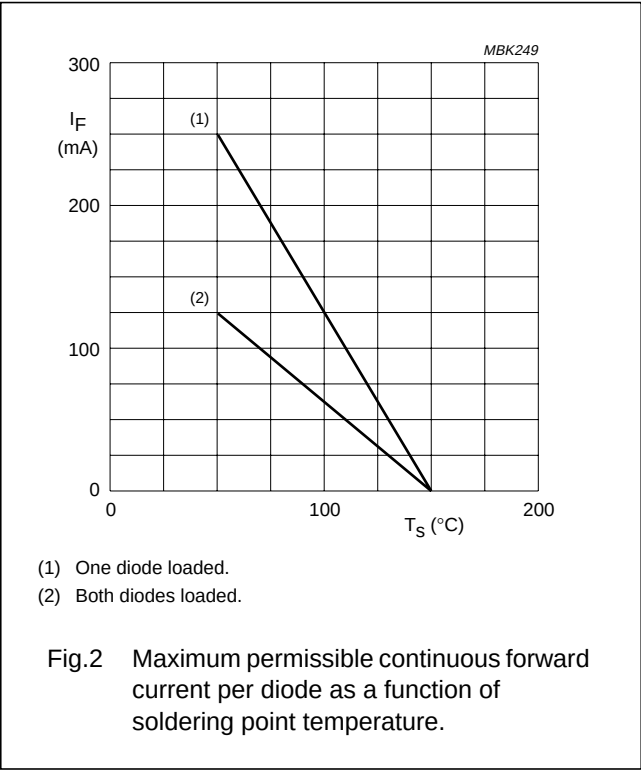
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	one diode loaded	350	K/W

High-speed double diode

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GRAPHICAL DATA



High-speed double diode

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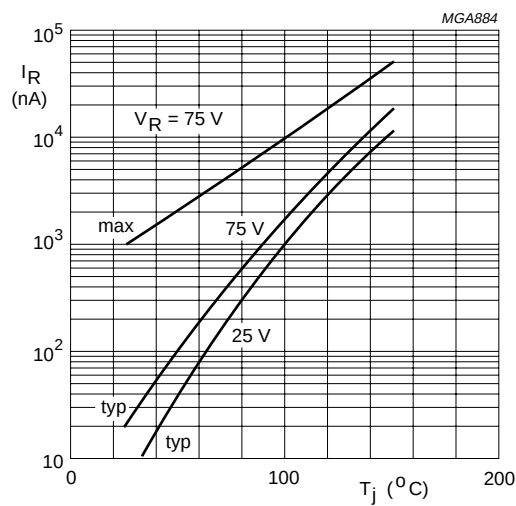
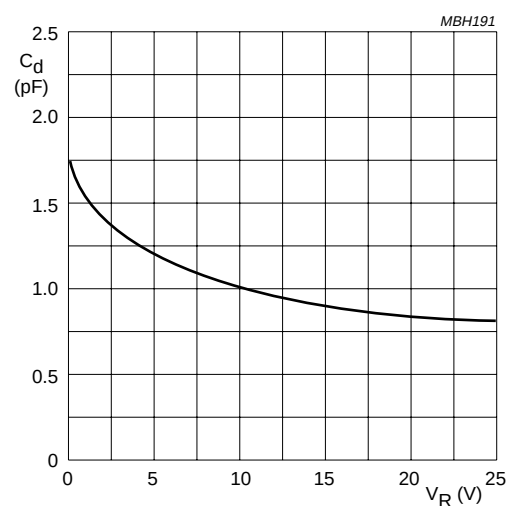


Fig.5 Reverse current as a function of junction temperature.

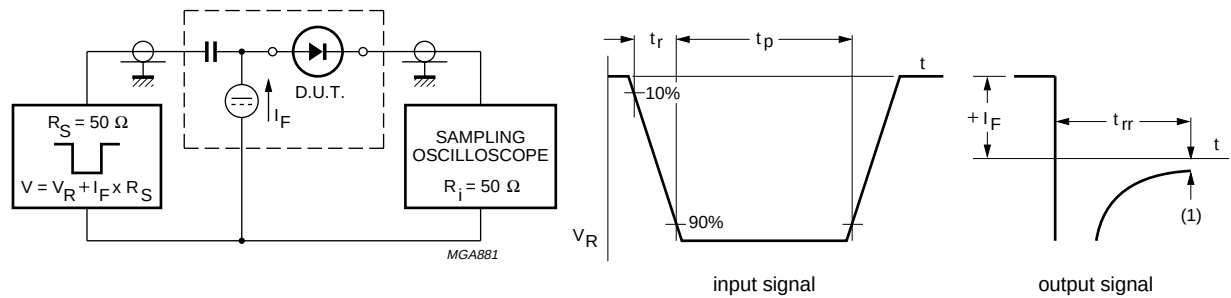


$f = 1 \text{ MHz}; T_j = 25^{\circ}\text{C}.$

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

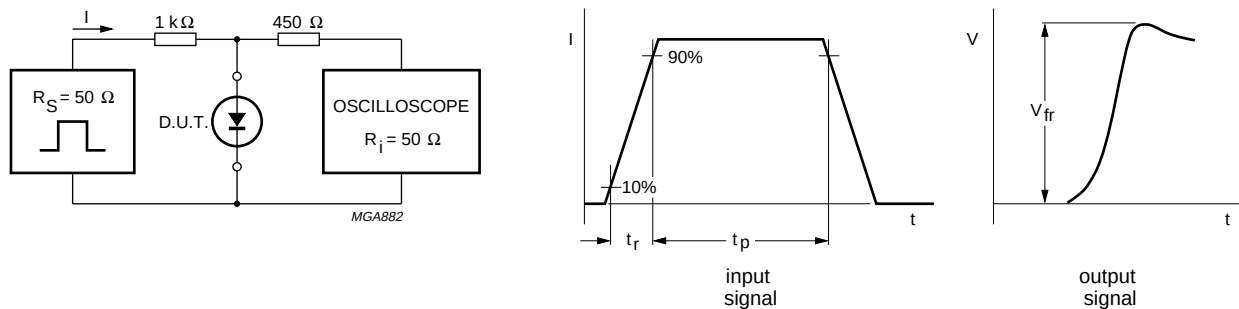
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(1) $I_R = 1\text{ mA}$.
Input signal: reverse pulse rise time $t_r = 0.6\text{ ns}$; reverse voltage pulse duration $t_p = 100\text{ ns}$; duty factor $\delta = 0.05$.
Oscilloscope: rise time $t_r = 0.35\text{ ns}$.

Fig.7 Reverse recovery voltage test circuit and waveforms.



Input signal: forward pulse rise time $t_r = 20\text{ ns}$; forward current pulse duration $t_p \geq 100\text{ ns}$; duty factor $\delta \leq 0.005$.

Fig.8 Forward recovery voltage test circuit and waveforms.

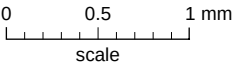
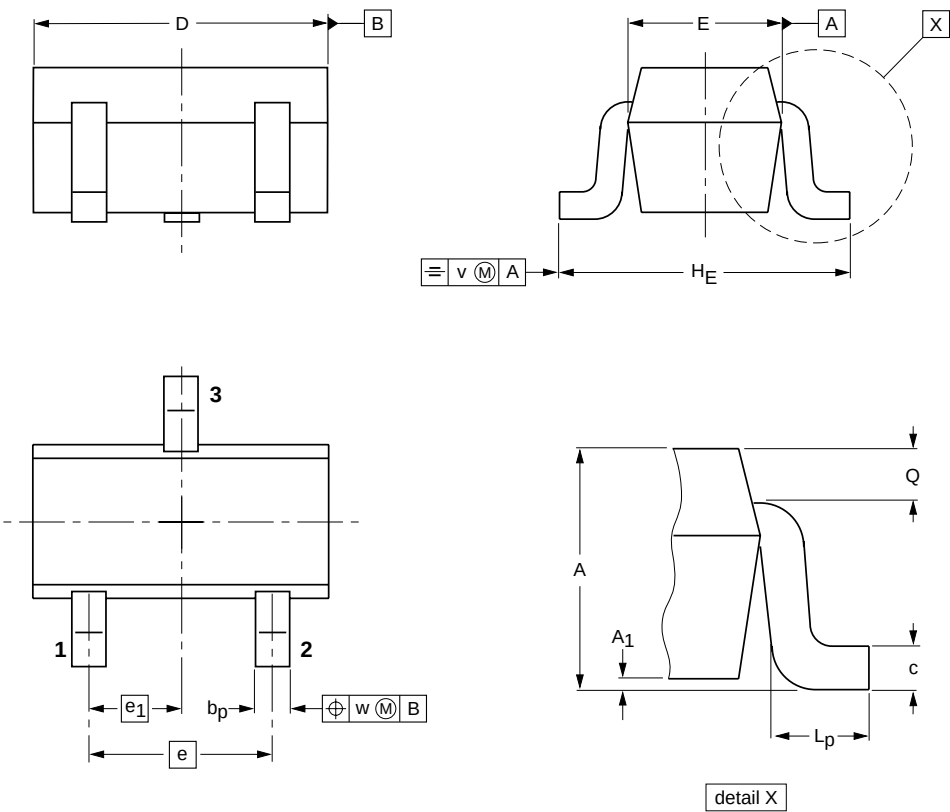
High-speed double diode

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PACKAGE OUTLINE

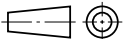
Plastic surface mounted package; 3 leads

SOT416



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	0.95 0.60	0.1	0.30 0.15	0.25 0.10	1.8 1.4	0.9 0.7	1	0.5	1.75 1.45	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT416			SC-75			97-02-28

High-speed double diodeBAW56T

DEFINITIONS

Data Sheet Status	
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.
Limiting values	
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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

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NOTES

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NOTES

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NOTES

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