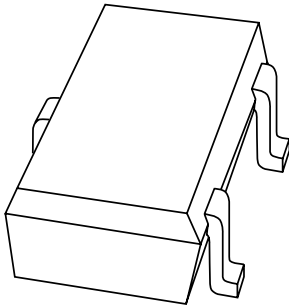


DATA SHEET



1PS302 High-speed double diode

Product specification
Supersedes data of 1996 Sep 03
File under Discrete Semiconductors, SC01

1996 Oct 04

High-speed double diode

1PS302

FEATURES

- Very small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 80 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

APPLICATIONS

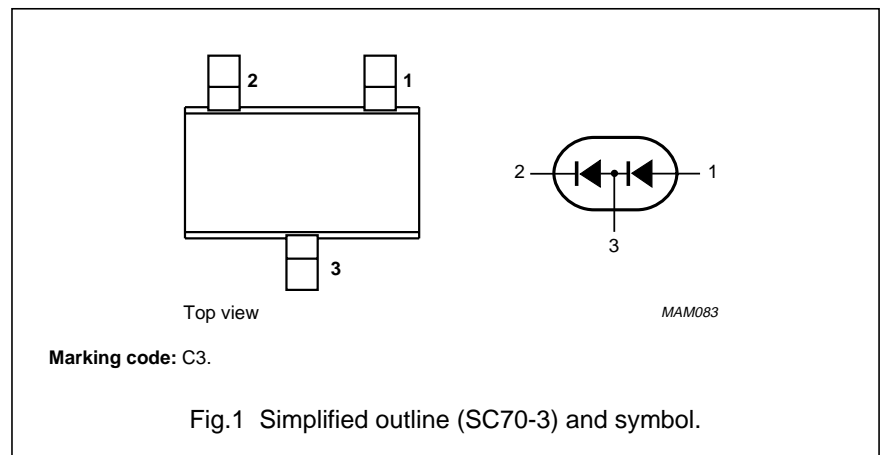
- High-speed switching in e.g. surface mounted circuits.

DESCRIPTION

The 1PS302 consists of two high-speed switching diodes connected in series, fabricated in planar technology, and encapsulated in the very small rectangular plastic SMD SC70-3 package.

PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	common connection



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_{RRM}	repetitive peak reverse voltage		–	85	V
V_R	continuous reverse voltage		–	80	V
I_F	continuous forward current	single diode loaded; see Fig.2; note 1	–	200	mA
		double diode loaded; see Fig.2; note 1	–	170	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			
		$t = 1\ \mu\text{s}$	–	4	A
		$t = 1\ \text{s}$	–	0.5	A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 1	–	300	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

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

High-speed double diode

1PS302

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
Per diode					
V_F	forward voltage	see Fig.3			
		$I_F = 1\text{ mA}$	610	–	mV
		$I_F = 10\text{ mA}$	740	–	mV
		$I_F = 50\text{ mA}$	–	1.0	V
		$I_F = 100\text{ mA}$	–	1.2	V
I_R	reverse current	see Fig.4			
		$V_R = 25\text{ V}$	–	30	nA
		$V_R = 80\text{ V}$	–	0.5	μA
		$V_R = 25\text{ V}; T_j = 150\text{ }^\circ\text{C}$	–	30	μA
		$V_R = 80\text{ V}; T_j = 150\text{ }^\circ\text{C}$	–	100	μA
C_d	diode capacitance	$f = 1\text{ MHz}; V_R = 0$; see Fig.5	–	1.5	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.6	–	4	ns
V_{fr}	forward recovery voltage	when switched from $I_F = 10\text{ mA}$; $t_r = 20\text{ ns}$; see Fig.7	–	1.75	V

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		200	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	415	K/W

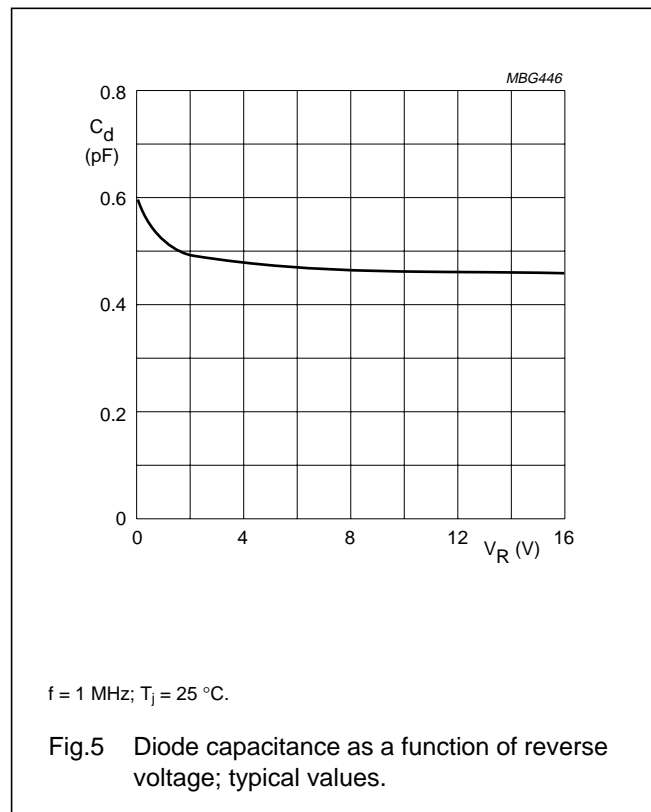
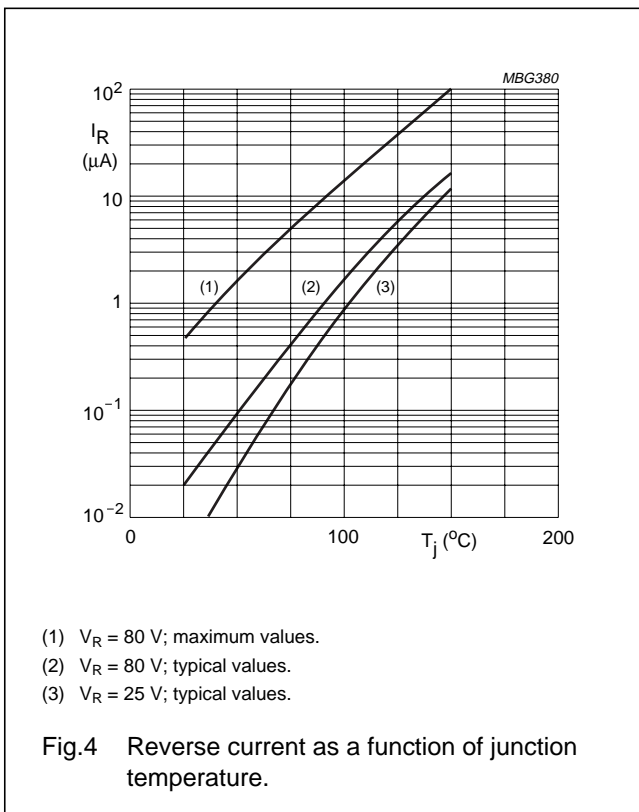
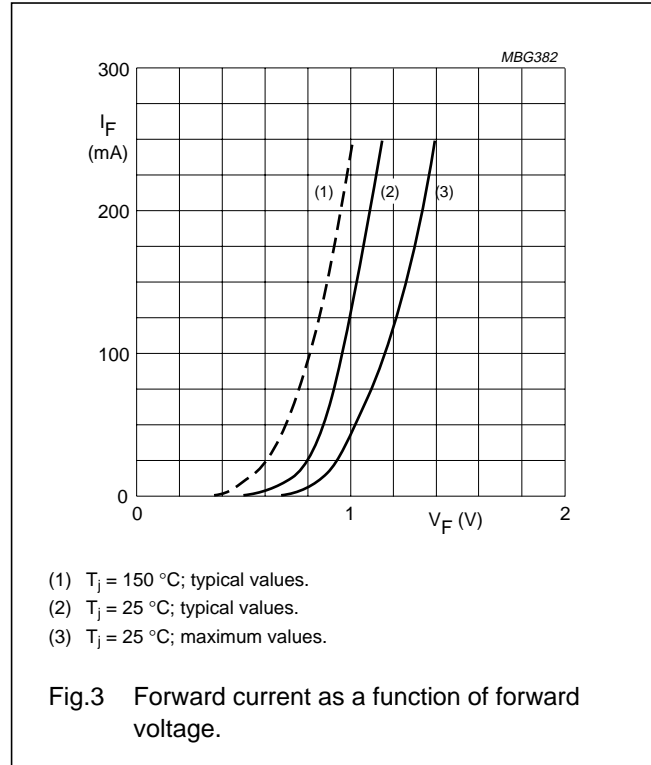
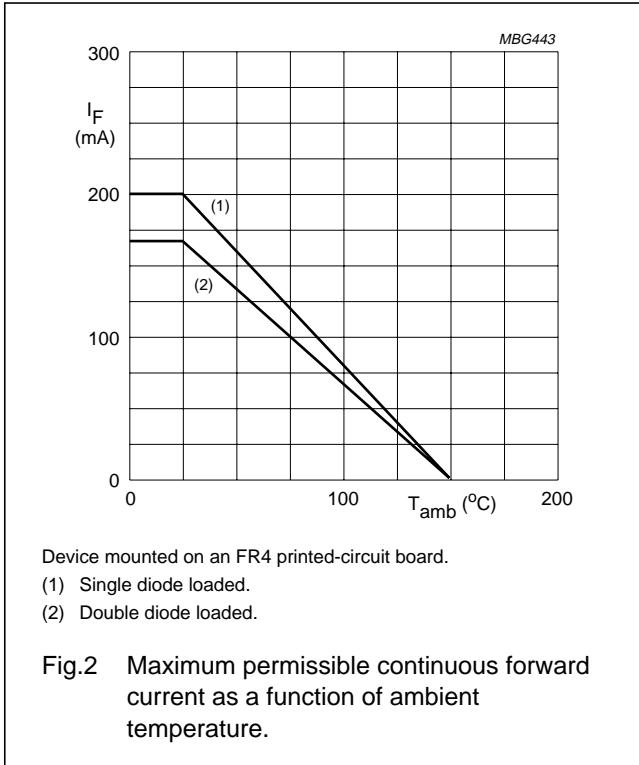
Note

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

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1PS302

GRAPHICAL DATA



High-speed double diode

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