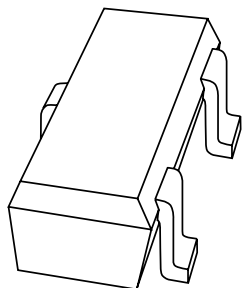


# DATA SHEET



## **1PS193** High-speed diode

Product data sheet  
Supersedes data of April 1996

1996 Sep 11

## High-speed diode

## 1PS193

## FEATURES

- 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

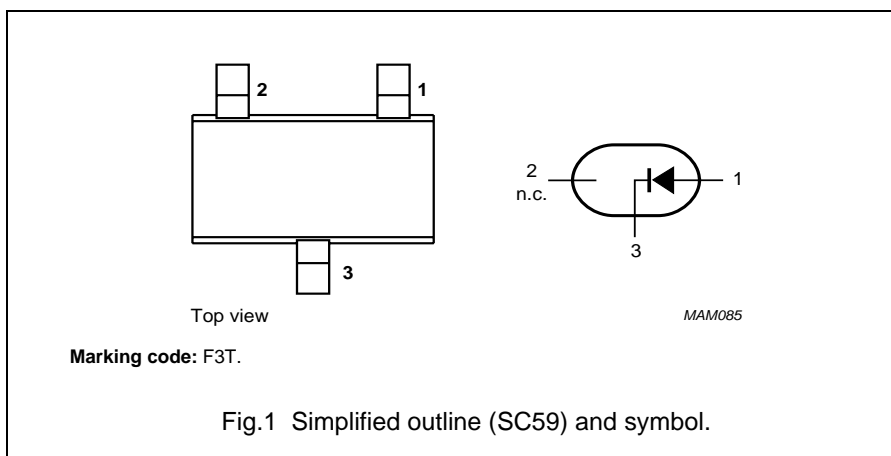
- High-speed switching in e.g. surface mounted circuits.

## DESCRIPTION

The 1PS193 is a high-speed switching diode, fabricated in planar technology, and encapsulated in the small plastic SMD SC59 package.

## PINNING

PIN	DESCRIPTION
1	anode
2	not connected
3	cathode



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage		—	85	V
$V_R$	continuous reverse voltage		—	80	V
$I_F$	continuous forward current	see Fig.2; note 1	—	215	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 $t = 1\text{ }\mu\text{s}$ $t = 1\text{ s}$	— —	4 0.5	A A
$P_{tot}$	total power dissipation	$T_{amb} = 25\text{ °C}$ ; note 1	—	250	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 diode

1PS193

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_F$	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	$\mu\text{A}$
		$V_R = 25\text{ V}$ ; $T_j = 150\text{ }^{\circ}\text{C}$	–	30	$\mu\text{A}$
		$V_R = 80\text{ V}$ ; $T_j = 150\text{ }^{\circ}\text{C}$ ;	–	100	$\mu\text{A}$
$C_d$	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 $I_R = 10\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; measured at $I_R = 1\text{ mA}$ ; see Fig.6	–	4	ns
$V_{fr}$	forward recovery voltage	when switched from $I_F = 10\text{ mA}$ ; $t_p = 20\text{ ns}$ ; see Fig.7	–	1.75	V

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		250	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

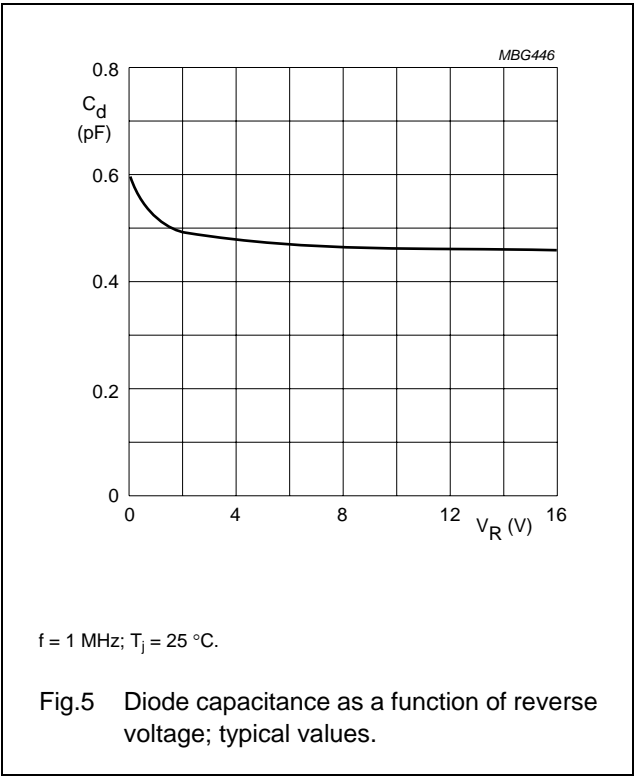
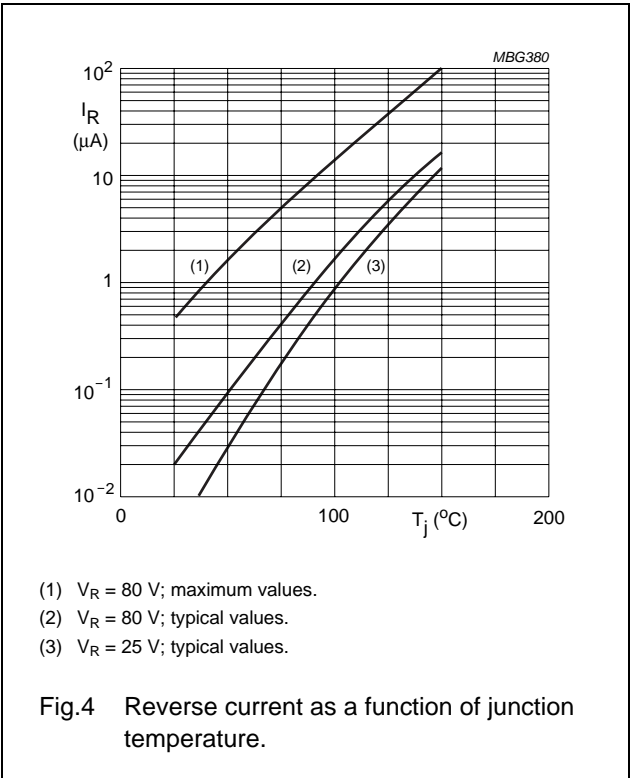
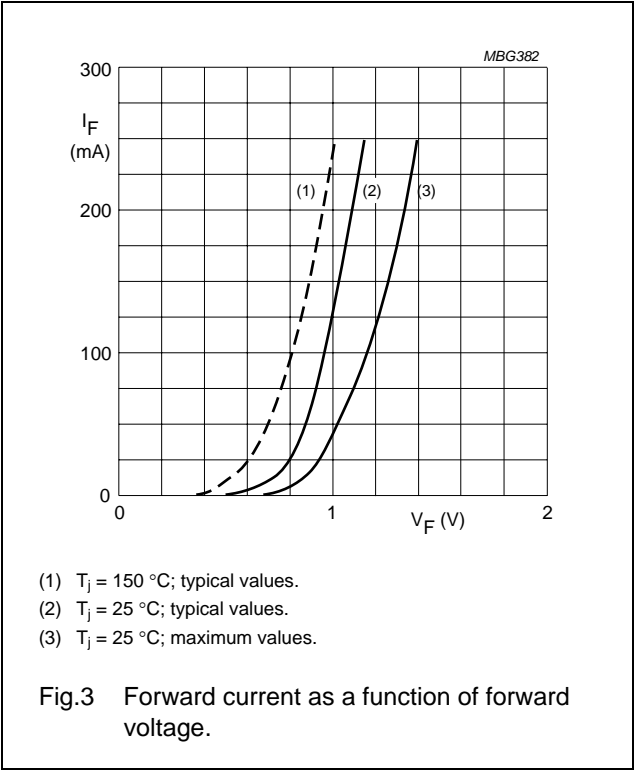
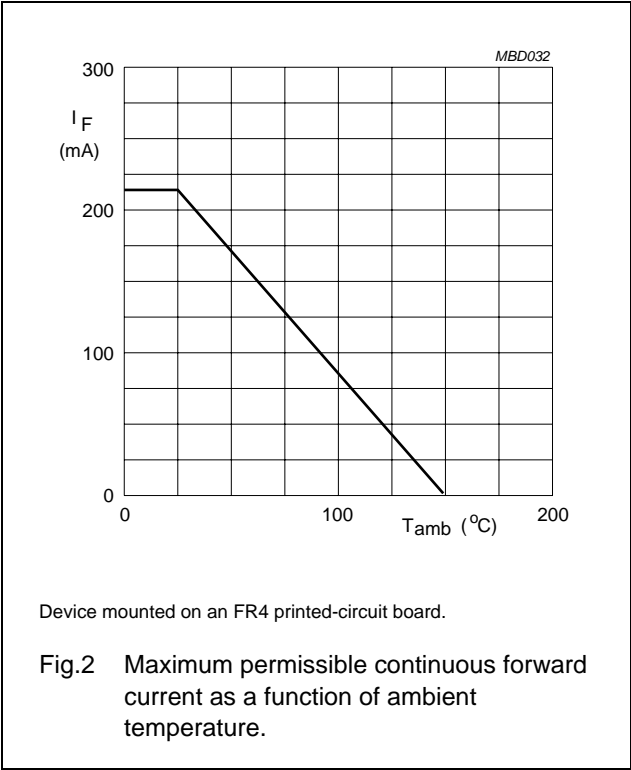
**Note**

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

High-speed diode

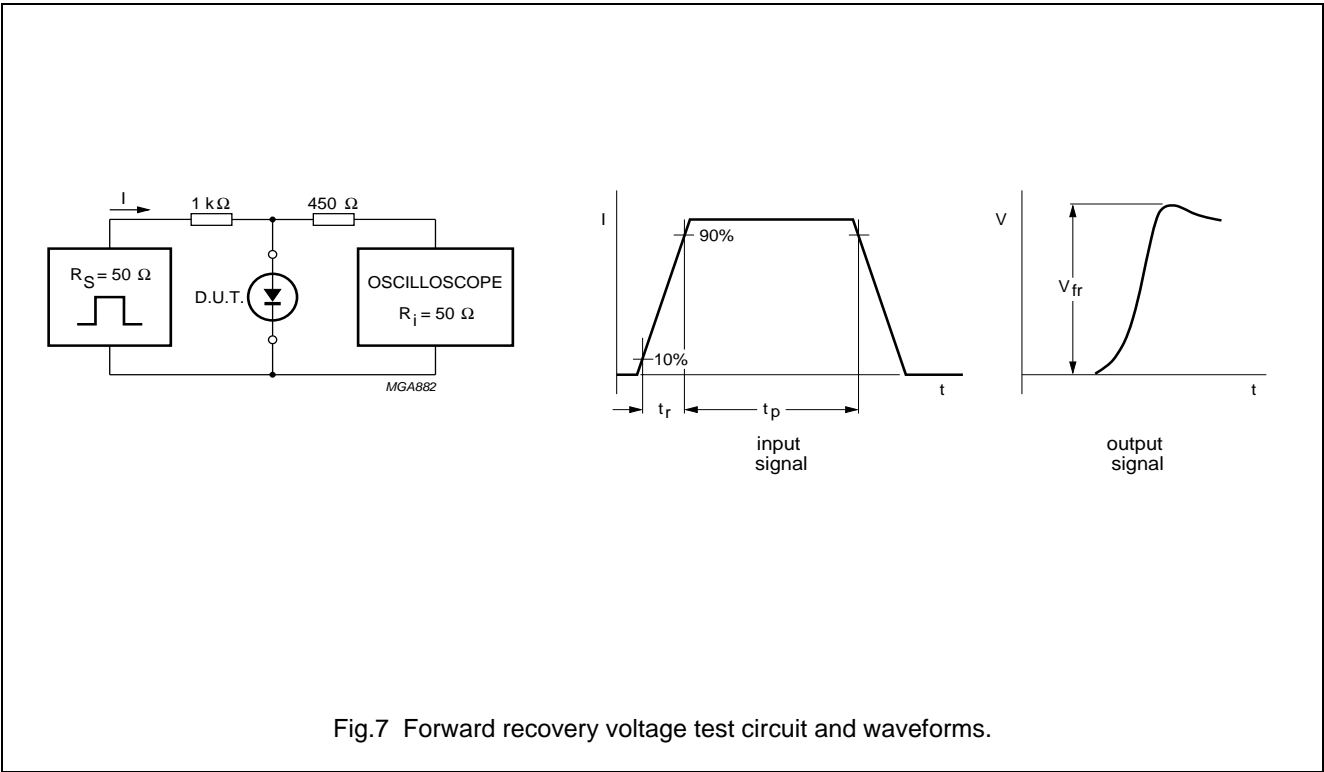
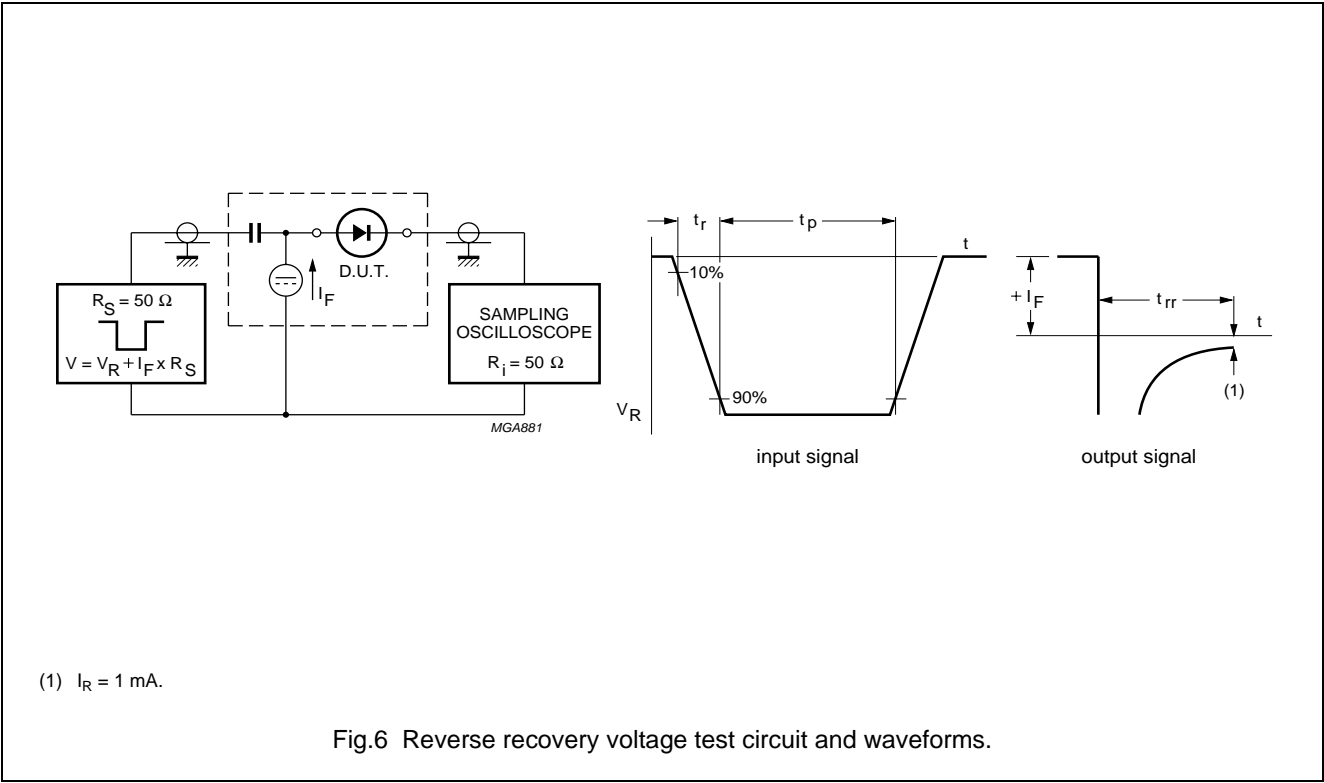
1PS193

GRAPHICAL DATA



High-speed diode

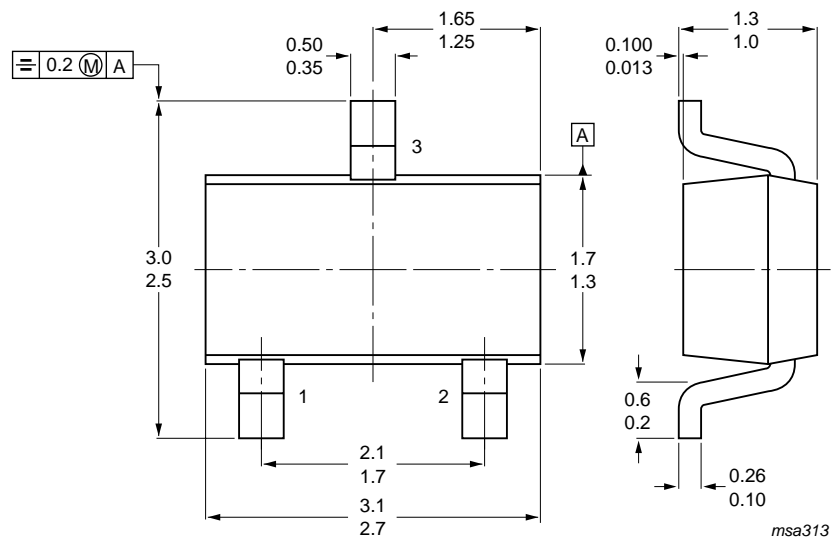
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High-speed diode

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PACKAGE OUTLINE



Dimensions in mm.

Fig.8 SC59.

## High-speed diode

1PS193

## 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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