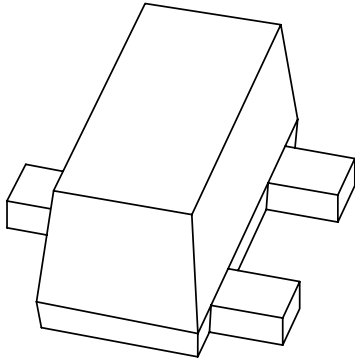


# DATA SHEET



**1PS89SS04; 1PS89SS05;  
1PS89SS06**

**High-speed double diodes**

Preliminary specification  
Supersedes data of 1999 Mar 01

1999 Jun 08

# High-speed double diodes

## 1PS89SS04; 1PS89SS05; 1PS89SS06

### FEATURES

- Power dissipation comparable to SOT23
- Ultra 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

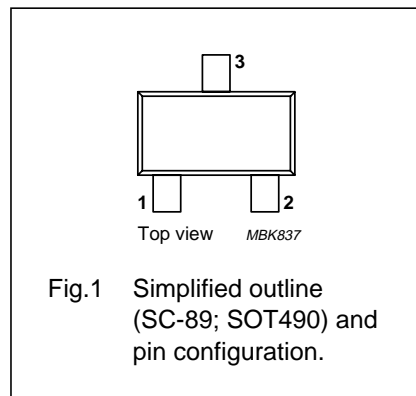
- High speed switching in e.g. surface mounted circuits.

### DESCRIPTION

Two high-speed switching diodes in planar technology, with different configurations, in an ultra small SC-89 (SOT490) plastic SMD package.

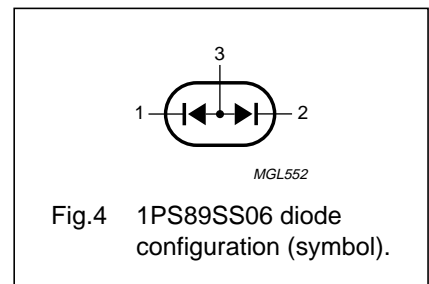
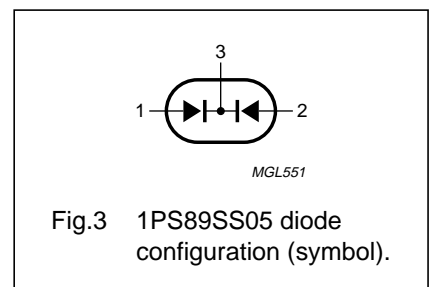
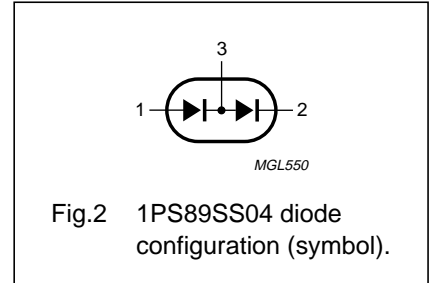
### PINNING

PIN	1PS89SS..		
	04	05	06
1	a <sub>1</sub>	a <sub>1</sub>	k <sub>1</sub>
2	k <sub>2</sub>	a <sub>2</sub>	k <sub>2</sub>
3	k <sub>1</sub> , a <sub>2</sub>	k <sub>1</sub> , k <sub>2</sub>	a <sub>1</sub> , a <sub>2</sub>



### MARKING

TYPE NUMBER	MARKING CODE
1PS89SS04	S4
1PS89SS05	S5
1PS89SS06	S6



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b> unless otherwise specified					
V <sub>R</sub>	continuous reverse voltage		–	80	V
V <sub>RRM</sub>	repetitive peak reverse voltage		–	85	V
I <sub>F</sub>	continuous forward current	T <sub>amb</sub> = 25 °C; note 1; see Fig.5 single diode loaded both diodes loaded	–	200 125	mA mA
I <sub>FRM</sub>	repetitive peak forward current		–	500	mA
I <sub>FSM</sub>	non-repetitive peak forward current	square wave; T <sub>j</sub> = 25 °C prior to surge; see Fig.7 t = 1 μs t = 1 s	–	4 0.5	A A

## High-speed double diodes

1PS89SS04; 1PS89SS05;  
1PS89SS06

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$P_{tot}$	total power dissipation (per package)	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	250	mW
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	+150	°C

**Note**

1. Refer to SC-89 (SOT490) standard mounting conditions.

**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT	
<b>Per diode</b>						
$V_F$	forward voltage	see Fig.6				
		$I_F = 1\text{ mA}$	610	–	mV	
		$I_F = 10\text{ mA}$	740	–	mV	
		$I_F = 50\text{ mA}$	–	1	V	
		$I_F = 100\text{ mA}$	–	1.2	V	
$I_R$	reverse current	see Fig.8				
		$V_R = 25\text{ V}$	–	30	nA	
		$V_R = 80\text{ V}$	–	0.5	μA	
		$V_R = 25\text{ V}; T_j = 150\text{ °C}$	–	30	μA	
		$V_R = 80\text{ V}; T_j = 150\text{ °C}$	–	100	μA	
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.9				
			1PS89SS04	–	1.5	pF
			1PS89SS05	–	1.5	pF
	1PS89SS06	–	2	pF		
$t_{rr}$	reverse recovery time	switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$ ; $R_L = 100\text{ }Ω$ ; measured at $I_R = 1\text{ mA}$ ; see Fig.10	–	4	ns	
$V_{fr}$	forward recovery voltage	switched to $I_F = 10\text{ mA}$ ; $t_r = 20\text{ ns}$ ; see Fig.11	–	1.75	V	

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT	
$R_{th\ j-s}$	thermal resistance from junction to soldering point	both diodes loaded			
			1PS89SS04	55	K/W
			1PS89SS05	70	K/W
	1PS89SS06	70	K/W		
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W	

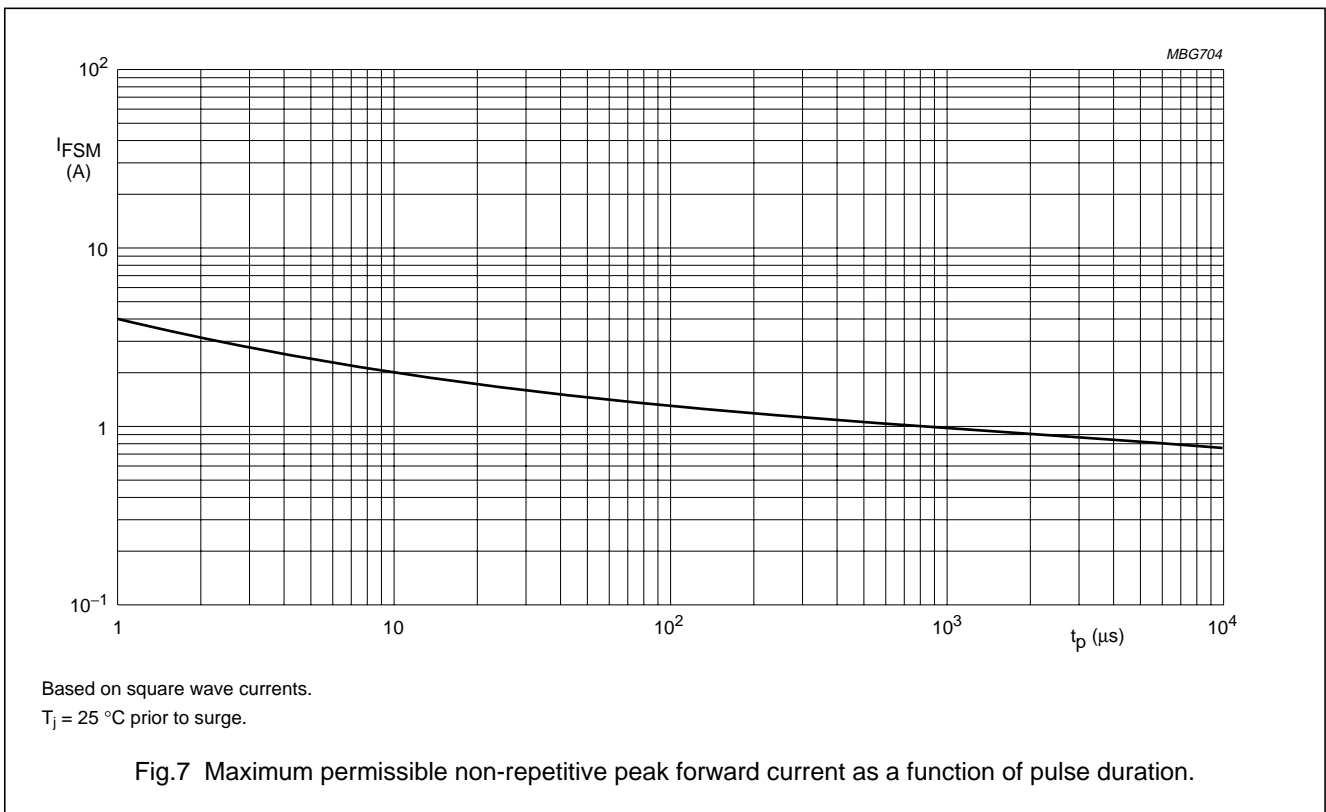
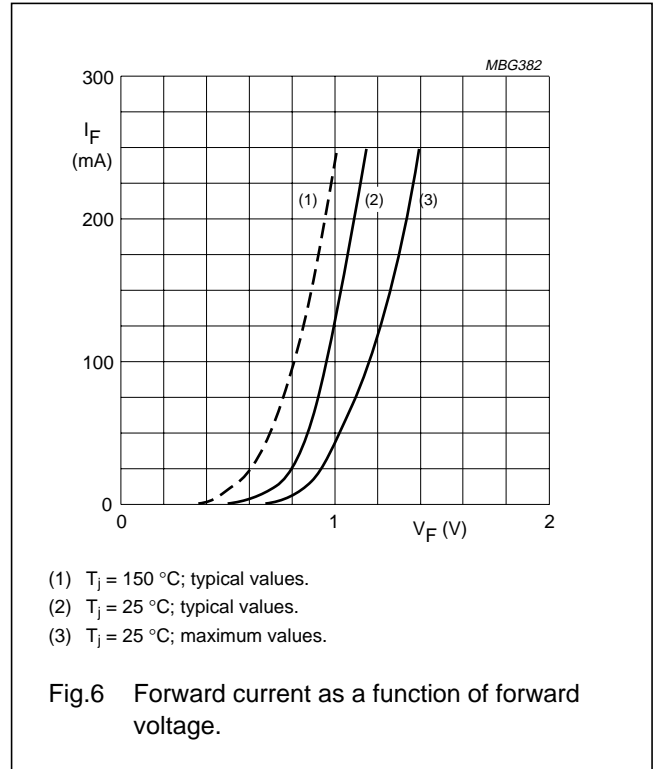
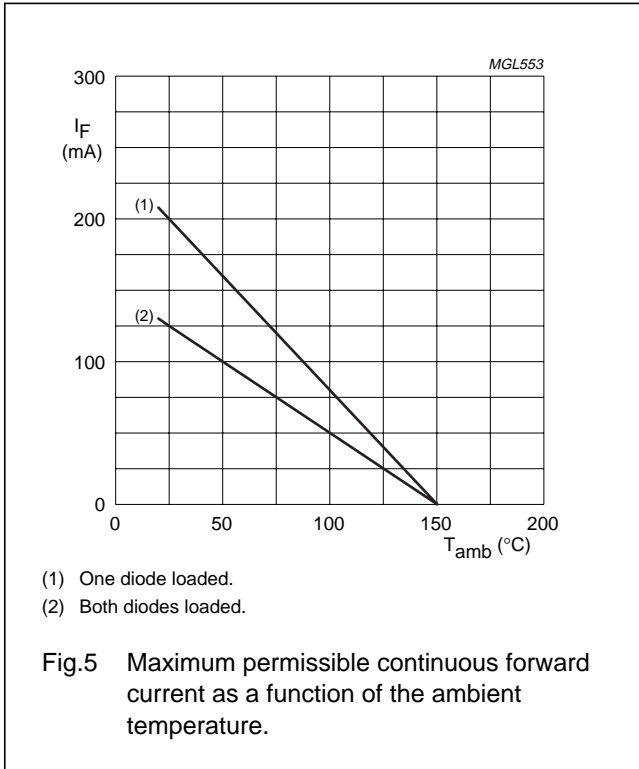
**Note**

1. Refer to SC-89 (SOT490) standard mounting conditions.

High-speed double diodes

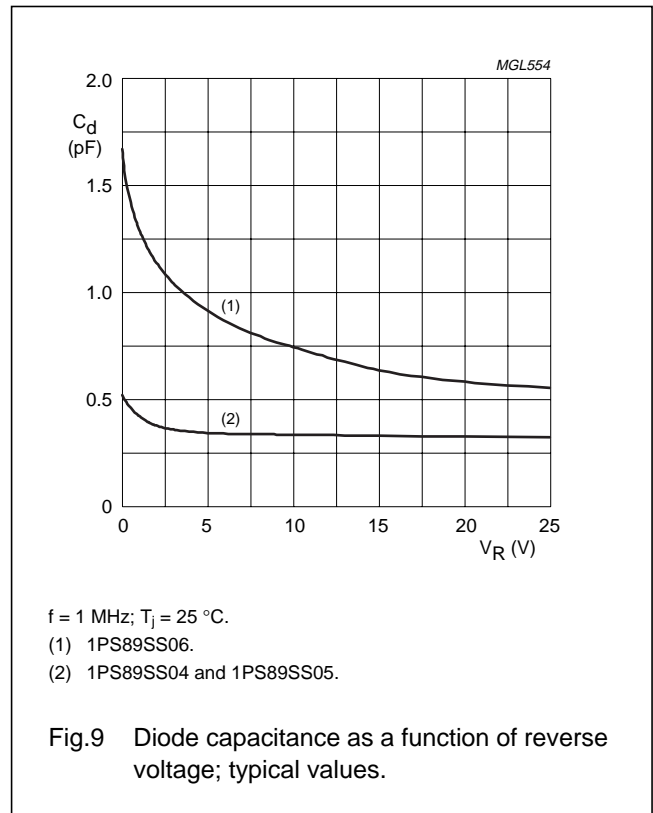
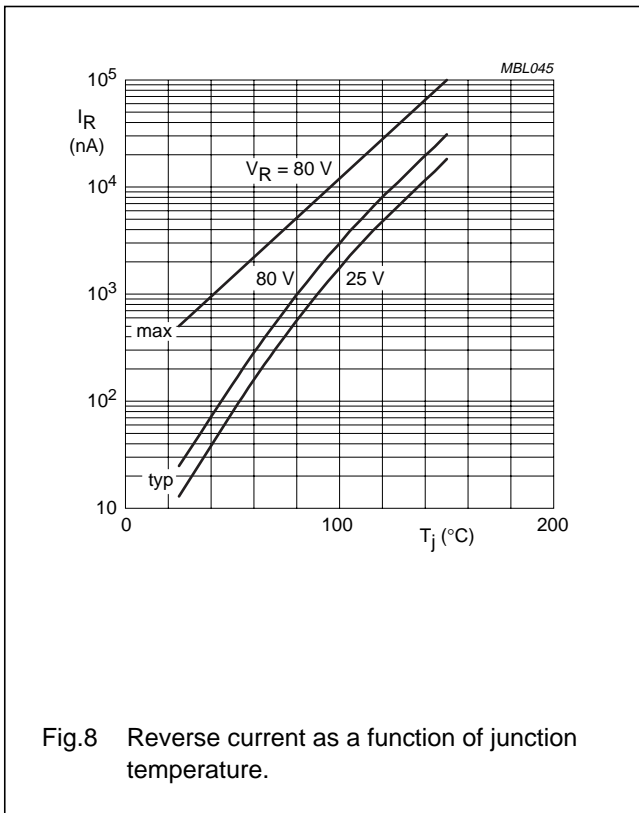
1PS89SS04; 1PS89SS05;  
1PS89SS06

GRAPHICAL DATA



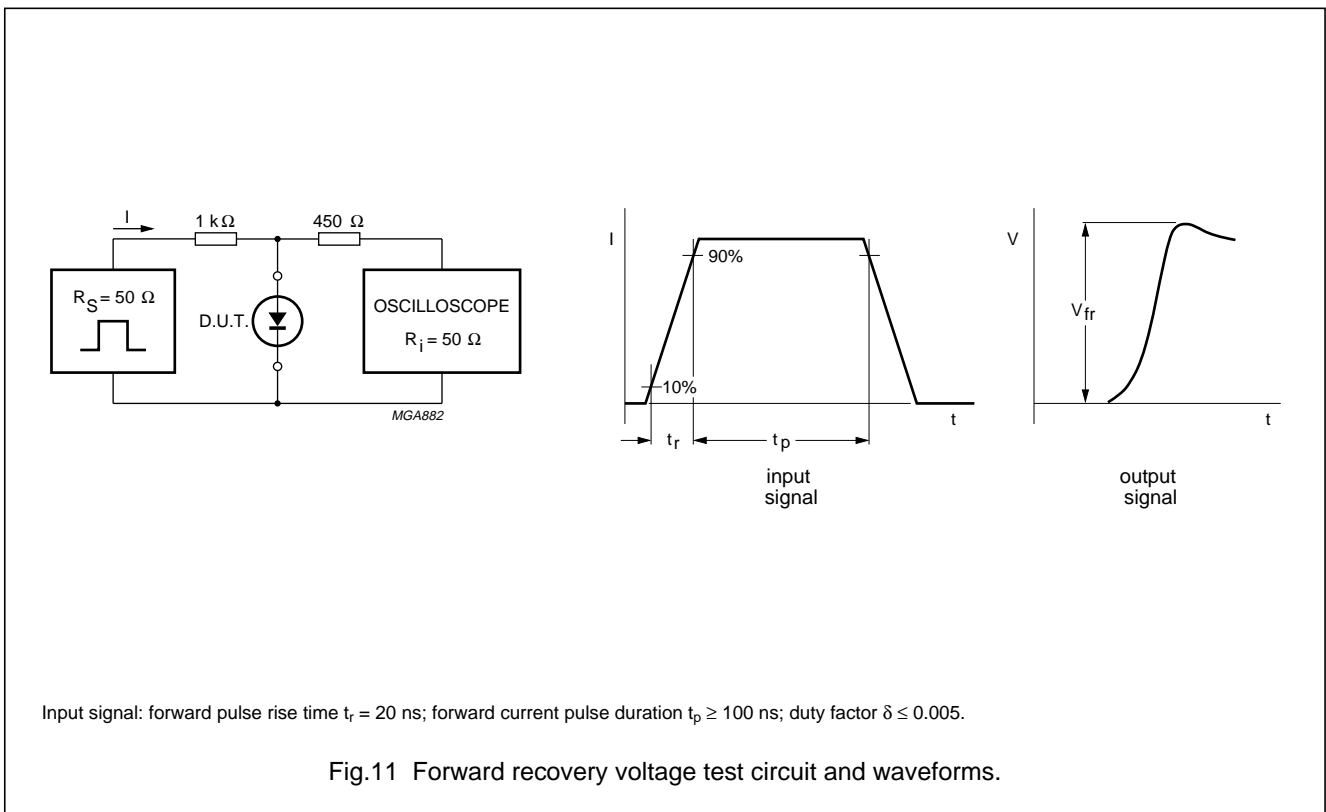
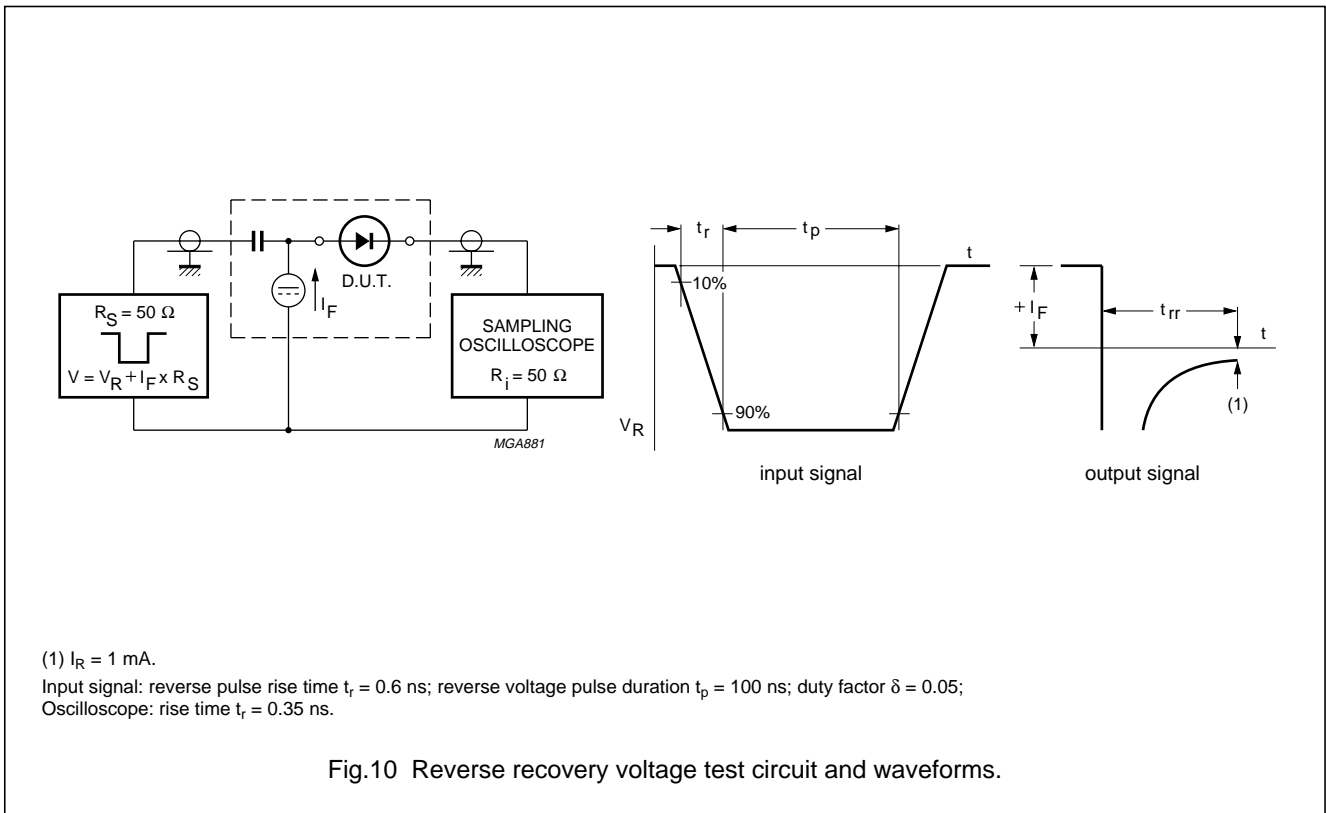
High-speed double diodes

1PS89SS04; 1PS89SS05;  
1PS89SS06



High-speed double diodes

1PS89SS04; 1PS89SS05;  
1PS89SS06



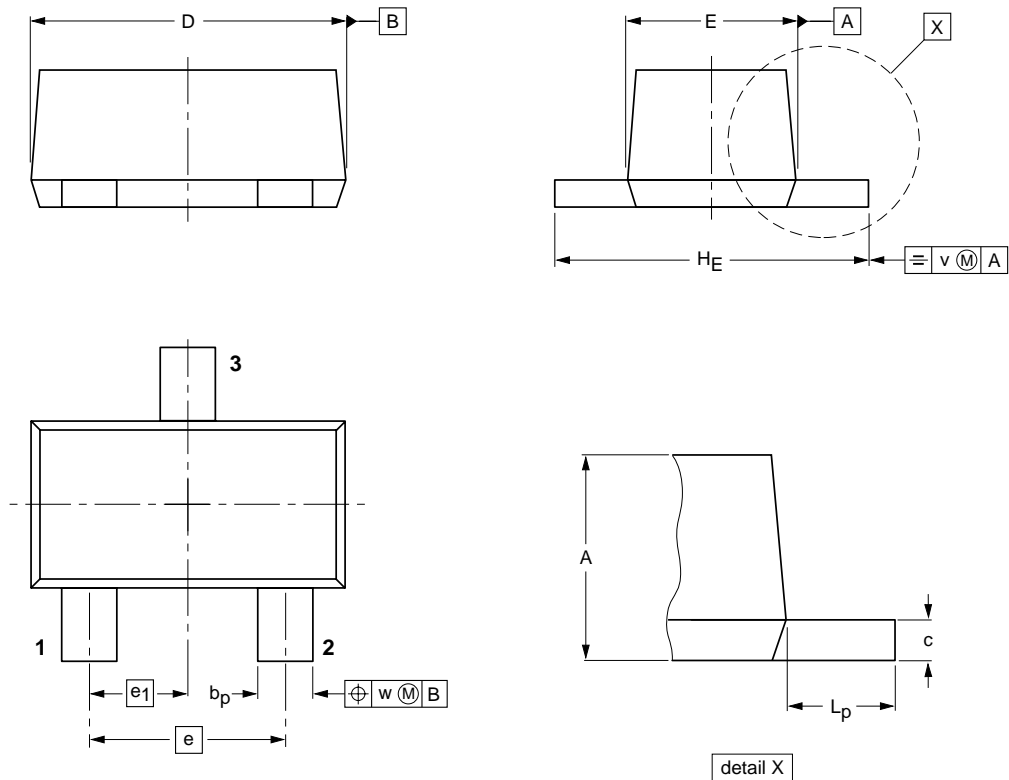
High-speed double diodes

1PS89SS04; 1PS89SS05;  
1PS89SS06

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT490



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	v	w
mm	0.8 0.6	0.33 0.23	0.2 0.1	1.7 1.5	0.95 0.75	1.0	0.5	1.7 1.5	0.5 0.3	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT490			SC-89			98-10-23

High-speed double diodes

1PS89SS04; 1PS89SS05;  
1PS89SS06

**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>	
Where application information is given, it is advisory and does not form part of the specification.	

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High-speed double diodes

1PS89SS04; 1PS89SS05;  
1PS89SS06

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**NOTES**

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High-speed double diodes

1PS89SS04; 1PS89SS05;  
1PS89SS06

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**NOTES**

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High-speed double diodes

1PS89SS04; 1PS89SS05;  
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**NOTES**

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