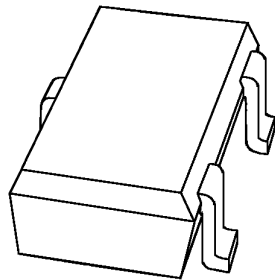


# DATA SHEET



## **1PS70SB40 series** Schottky barrier (double) diodes

Product specification  
Supersedes data of 1997 Oct 28

1999 Apr 26

# Schottky barrier (double) diodes

# 1PS70SB40 series

### FEATURES

- Low forward voltage
- Guard ring protected
- Very small SMD package
- Low diode capacitance.

### APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes.

### DESCRIPTION

Planar Schottky barrier diodes encapsulated in an SC-70 very small plastic SMD package. Single diodes and double diodes with different pinning are available.

### MARKING

TYPE NUMBER	MARKING CODE (1)
1PS70SB40	6*3
1PS70SB44	6*4
1PS70SB45	6*5
1PS70SB46	6*6

### Note

- \* = -: Made in Hong Kong.  
\* = t: Made in Malaysia.

### PINNING

PIN	1PS70SB..			
	40	44	45	46
1	a <sub>1</sub>	a <sub>1</sub>	a <sub>1</sub>	k <sub>1</sub>
2	n.c.	k <sub>2</sub>	a <sub>2</sub>	k <sub>2</sub>
3	k <sub>1</sub>	k <sub>1</sub> , a <sub>2</sub>	k <sub>1</sub> , k <sub>2</sub>	a <sub>1</sub> , a <sub>2</sub>

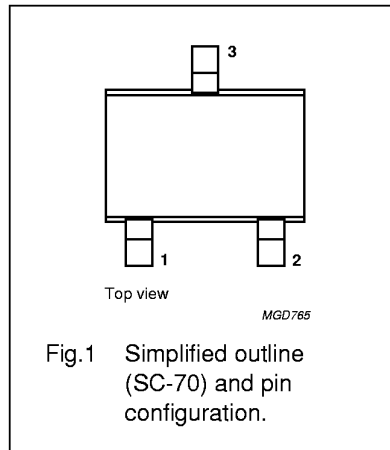


Fig.1 Simplified outline (SC-70) and pin configuration.

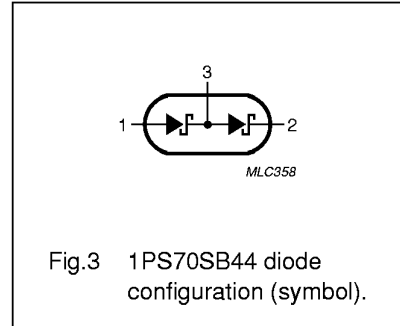


Fig.3 1PS70SB44 diode configuration (symbol).

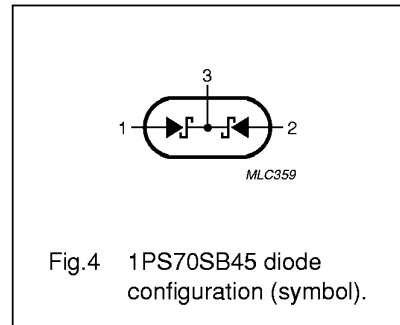


Fig.4 1PS70SB45 diode configuration (symbol).

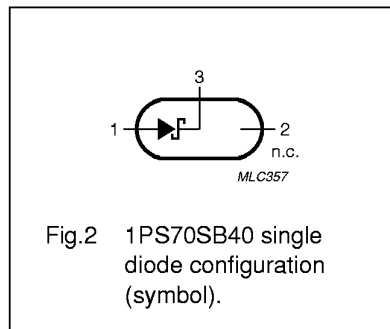


Fig.2 1PS70SB40 single diode configuration (symbol).

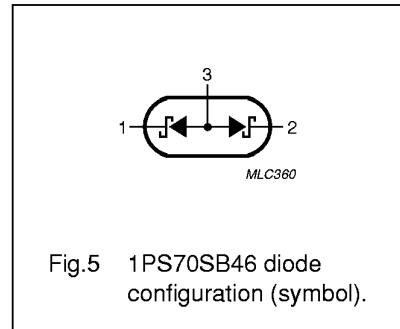


Fig.5 1PS70SB46 diode configuration (symbol).

## Schottky barrier (double) diodes

## 1PS70SB40 series

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_R$	continuous reverse voltage		–	40	V
$I_F$	continuous forward current		–	120	mA
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$	–	120	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p < 10$ ms	–	200	mA
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C

**ELECTRICAL CHARACTERISTICS**

$T_{amb} = 25$  °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
<b>Per diode</b>				
$V_F$	continuous forward voltage	see Fig.6 $I_F = 1$ mA $I_F = 10$ mA $I_F = 40$ mA	380 500 1	mV mV V
$I_R$	continuous reverse current	$V_R = 30$ V; note 1; see Fig.7	1	$\mu$ A
		$V_R = 40$ V; note 1; see Fig.7	10	$\mu$ A
$\tau$	charge carrier life time	$I_F = 5$ mA; Krakauer method	100	ps
$C_d$	diode capacitance	$V_R = 0$ ; $f = 1$ MHz; see Fig.9	5	pF

**Note**

1. Pulse test:  $t_p = 300$   $\mu$ s;  $\delta = 0.02$ .

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

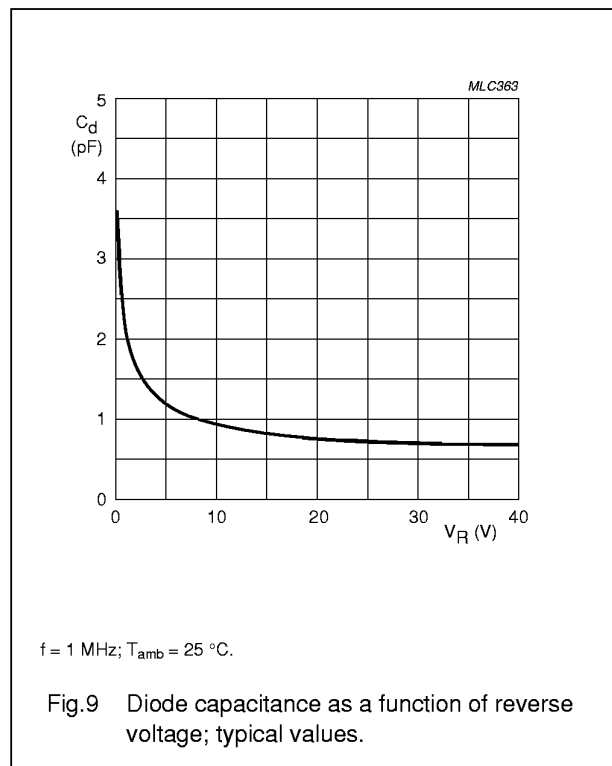
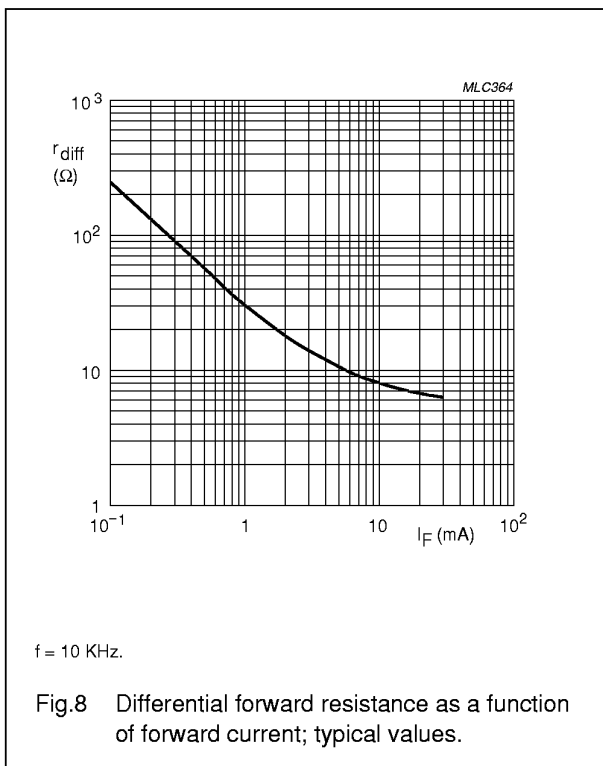
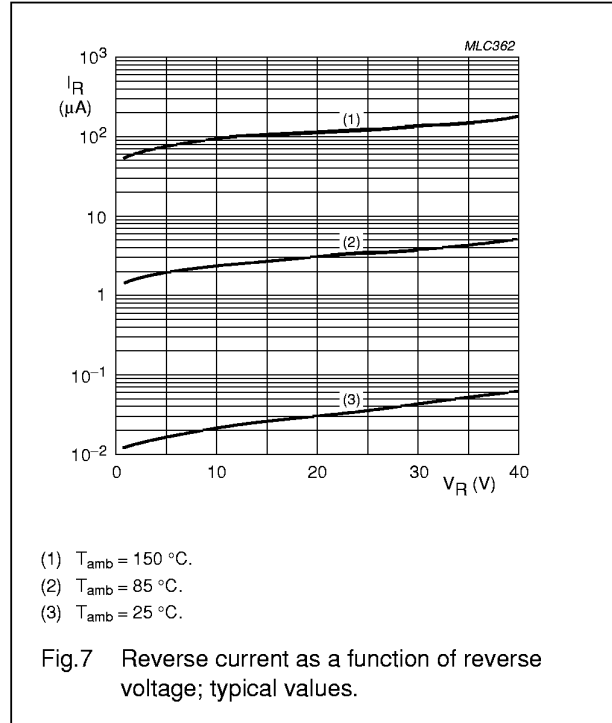
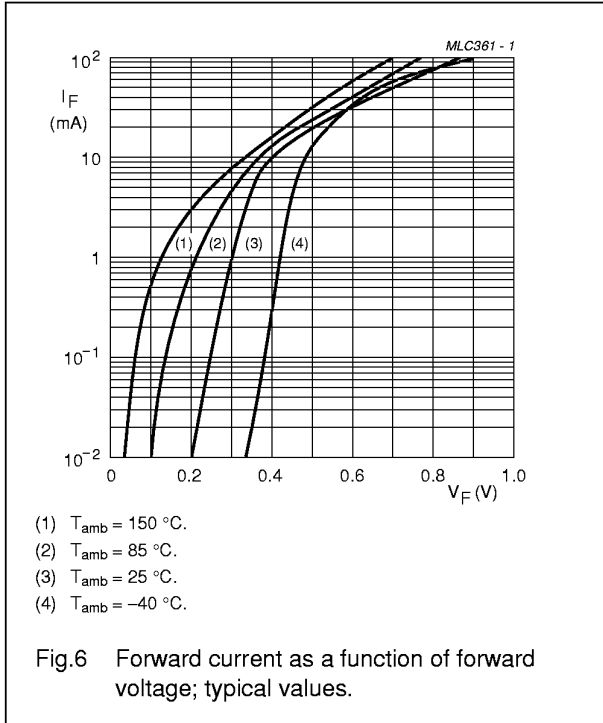
**Note**

1. Refer to SC70 standard mounting conditions.

Schottky barrier (double) diodes

1PS70SB40 series

GRAPHICAL DATA



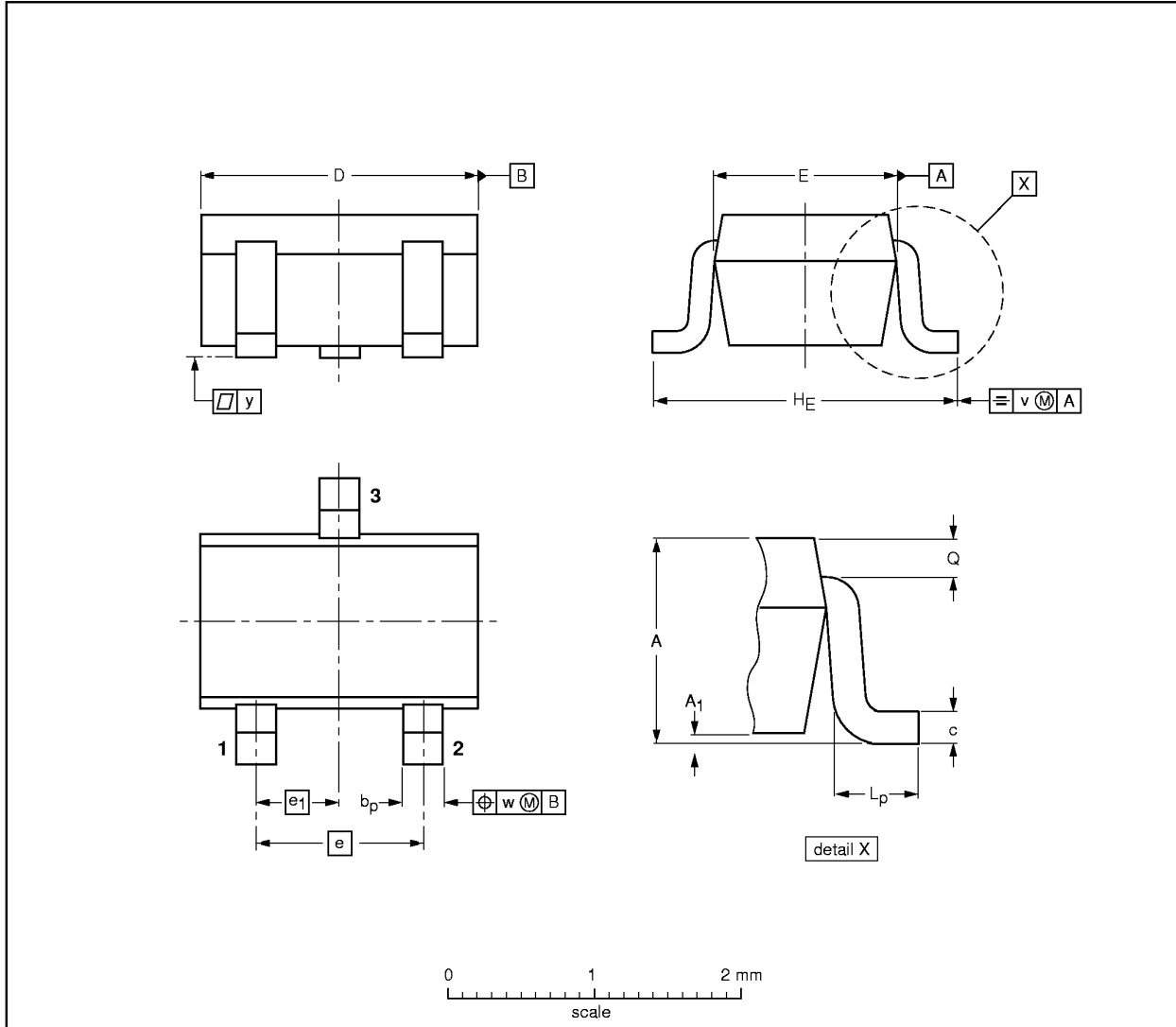
Schottky barrier (double) diodes

1PS70SB40 series

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

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**Schottky barrier (double) diodes****1PS70SB40 series**

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

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These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

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Schottky barrier (double) diodes

1PS70SB40 series

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**NOTES**

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