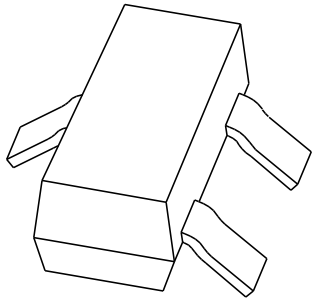


# DATA SHEET



## **BAS19; BAS20; BAS21** General purpose diodes

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

1996 Sep 10

# General purpose diodes

# BAS19; BAS20; BAS21

### FEATURES

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 100; 150; 200 V
- Repetitive peak reverse voltage: max. 120; 200; 250 V
- Repetitive peak forward current: max. 625 mA.

### APPLICATIONS

- General purpose switching in e.g. surface mounted circuits.

### DESCRIPTION

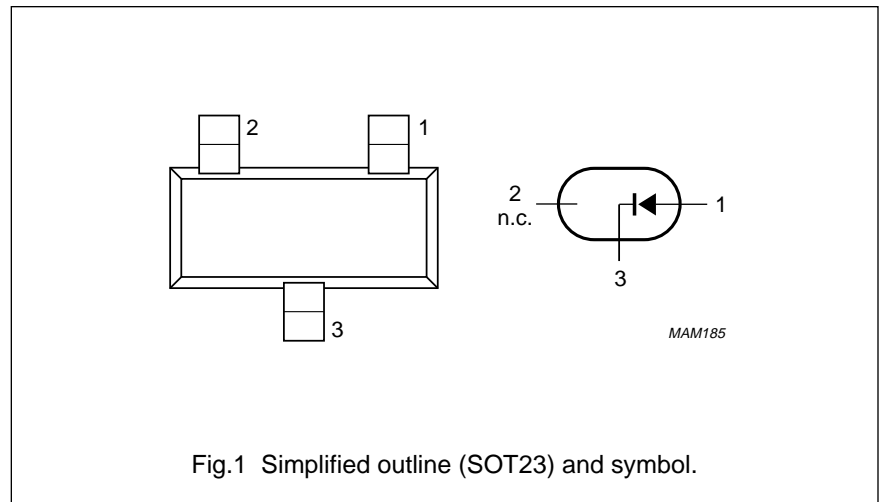
The BAS19, BAS20, BAS21 are general purpose diodes fabricated in planar technology, and encapsulated in small plastic SMD SOT23 packages.

### MARKING

TYPE NUMBER	MARKING CODE
BAS19	JPp
BAS20	JRp
BAS21	JSp

### PINNING

PIN	DESCRIPTION
1	anode
2	not connected
3	cathode



## General purpose diodes

## BAS19; BAS20; BAS21

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	repetitive peak reverse voltage				
	BAS19		–	120	V
	BAS20		–	200	V
	BAS21		–	250	V
$V_R$	continuous reverse voltage				
	BAS19		–	100	V
	BAS20		–	150	V
	BAS21		–	200	V
$I_F$	continuous forward current	see Fig.2; note 1	–	200	mA
$I_{FRM}$	repetitive peak forward current		–	625	mA
$I_{FSM}$	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4			
		$t = 1\ \mu\text{s}$	–	9	A
		$t = 100\ \mu\text{s}$	–	3	A
		$t = 10\ \text{ms}$	–	1.7	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.

## General purpose diodes

## BAS19; BAS20; BAS21

**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_F$	forward voltage	see Fig.3			
		$I_F = 100\text{ mA}$	–	1.0	V
		$I_F = 200\text{ mA}$	–	1.25	V
$I_R$	reverse current BAS19	see Fig.5			
		$V_R = 100\text{ V}$	–	100	nA
	$V_R = 100\text{ V}; T_j = 150\text{ °C}$	–	100	$\mu\text{A}$	
	BAS20	$V_R = 150\text{ V}$	–	100	nA
		$V_R = 150\text{ V}; T_j = 150\text{ °C}$	–	100	$\mu\text{A}$
BAS21	$V_R = 200\text{ V}$	–	100	nA	
	$V_R = 200\text{ V}; T_j = 150\text{ °C}$	–	100	$\mu\text{A}$	
$C_d$	diode capacitance	$f = 1\text{ MHz}; V_R = 0$ ; see Fig.6	–	5	pF
$t_{rr}$	reverse recovery time	when switched from $I_F = 30\text{ mA}$ to $I_R = 30\text{ mA}$ ; $R_L = 100\ \Omega$ ; measured at $I_R = 3\text{ mA}$ ; see Fig.8	–	50	ns

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		330	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

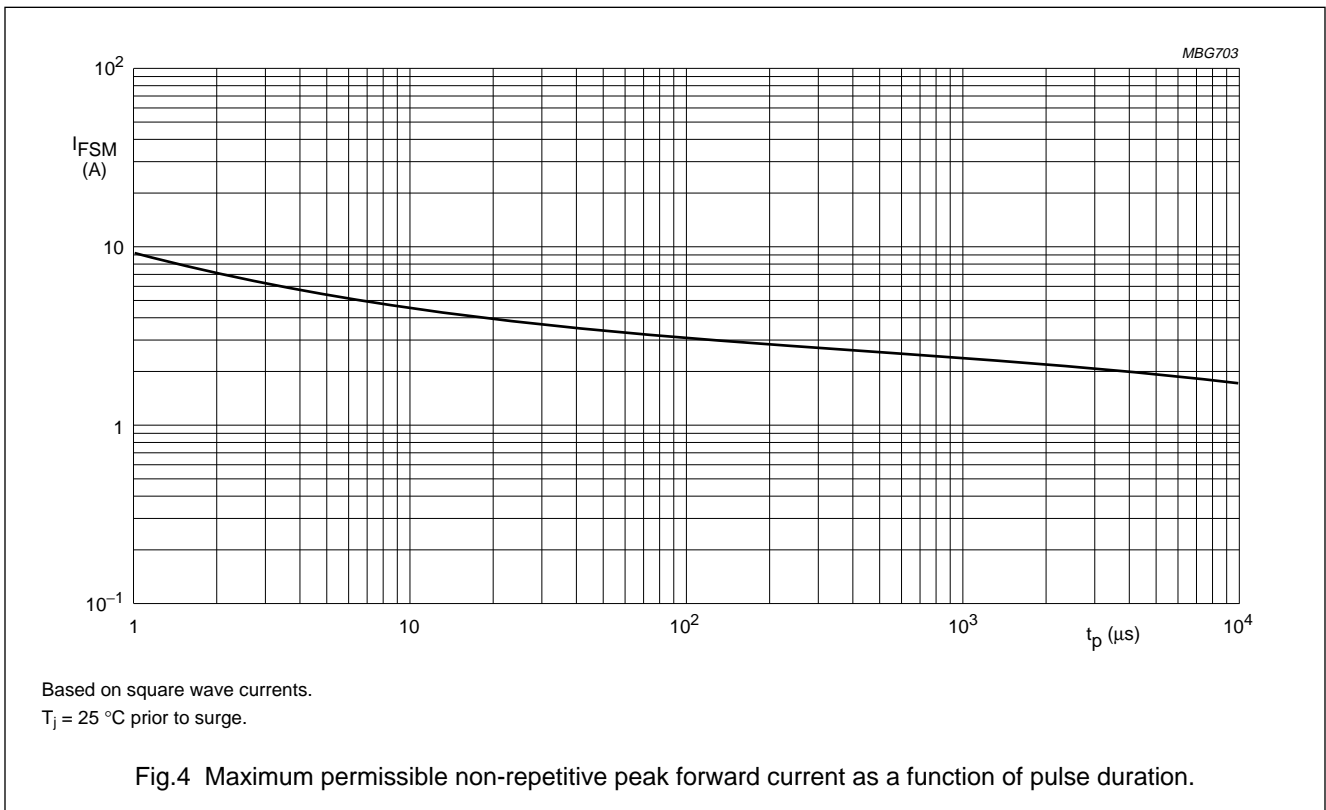
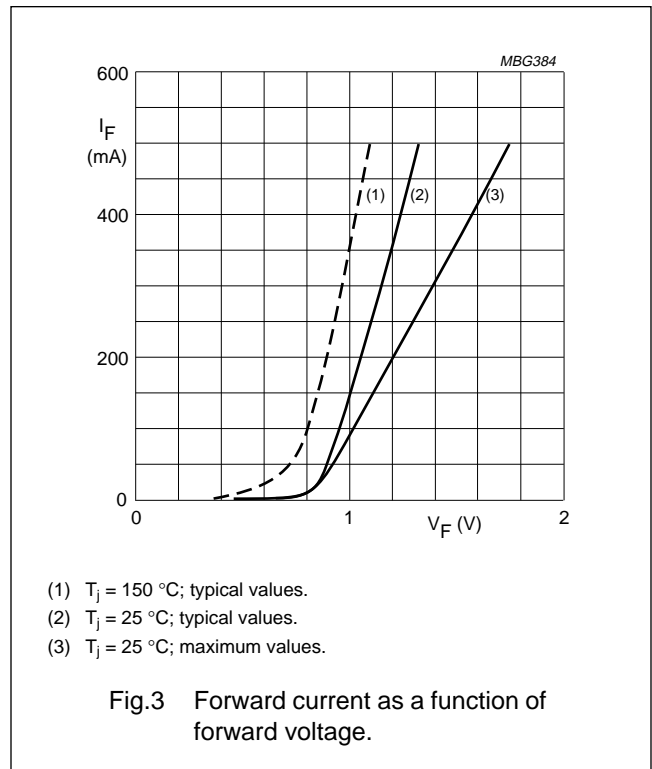
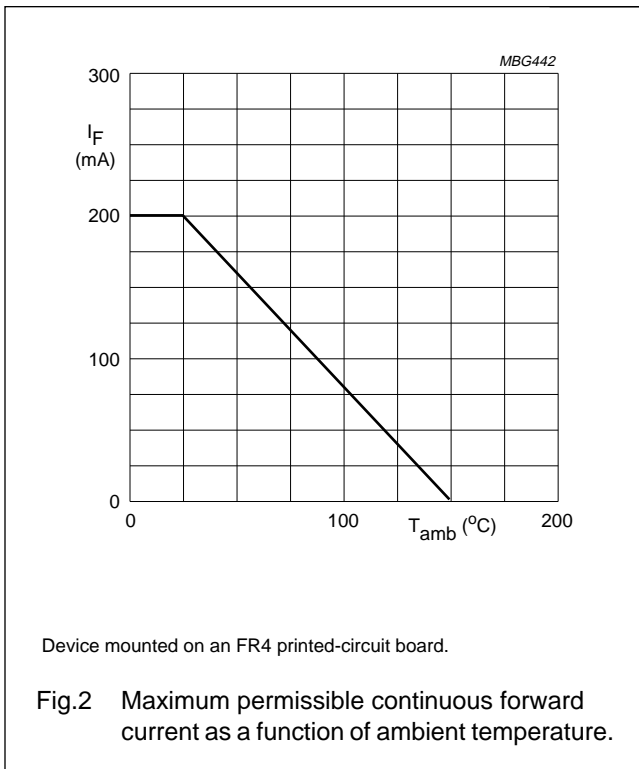
**Note**

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

General purpose diodes

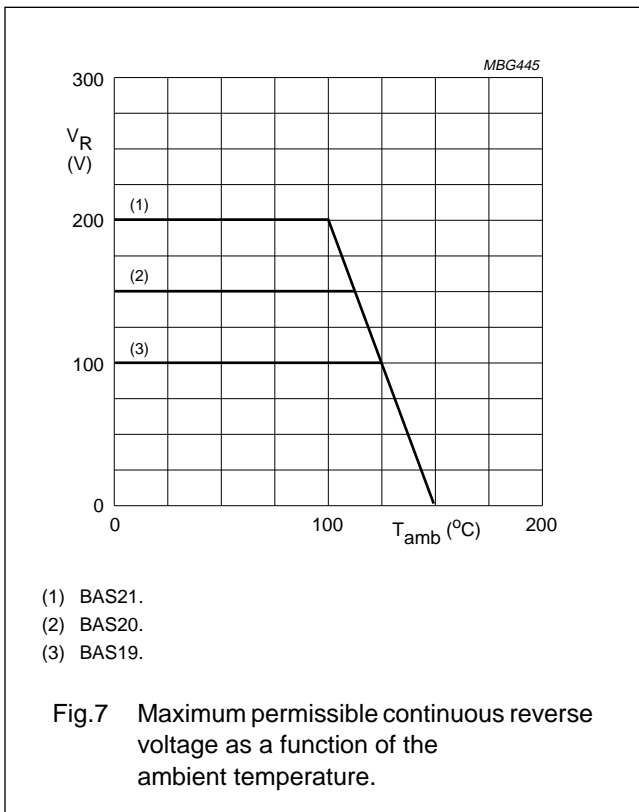
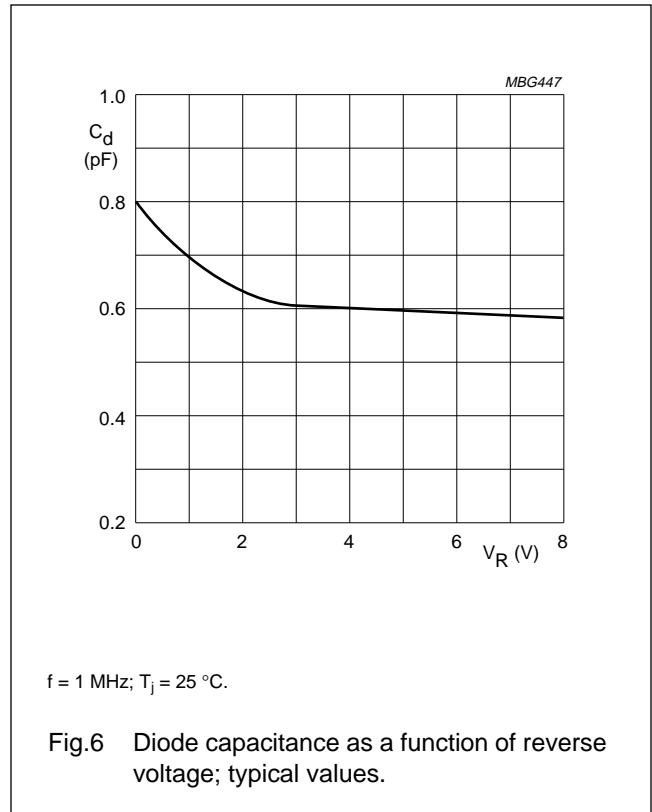
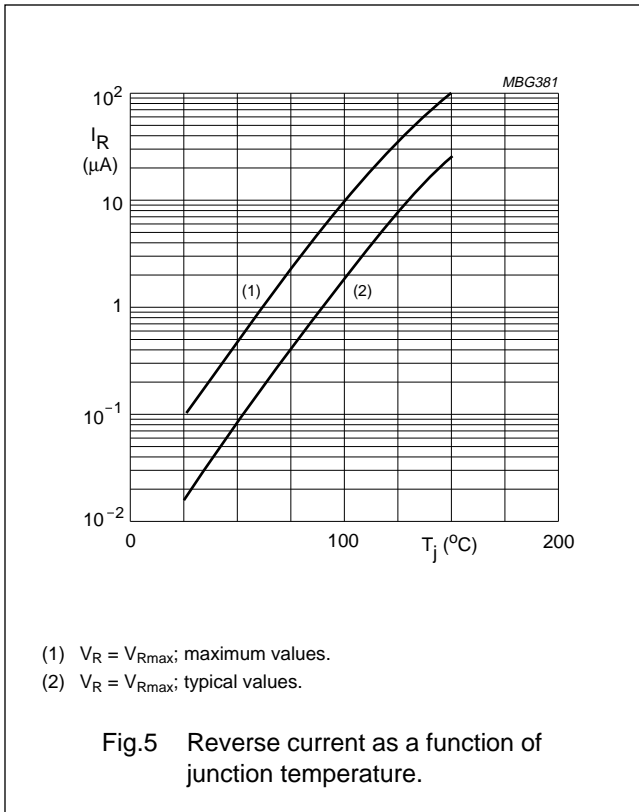
BAS19; BAS20; BAS21

GRAPHICAL DATA



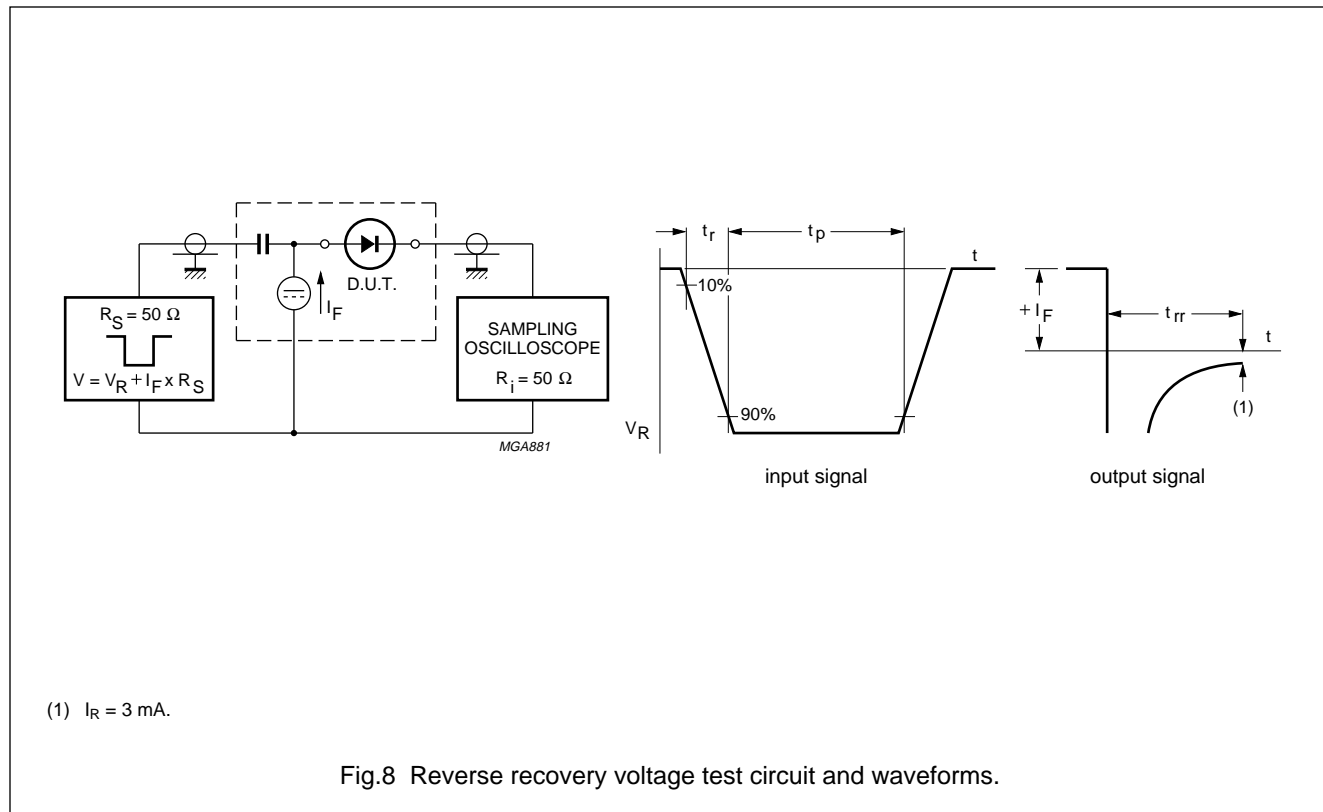
General purpose diodes

BAS19; BAS20; BAS21



General purpose diodes

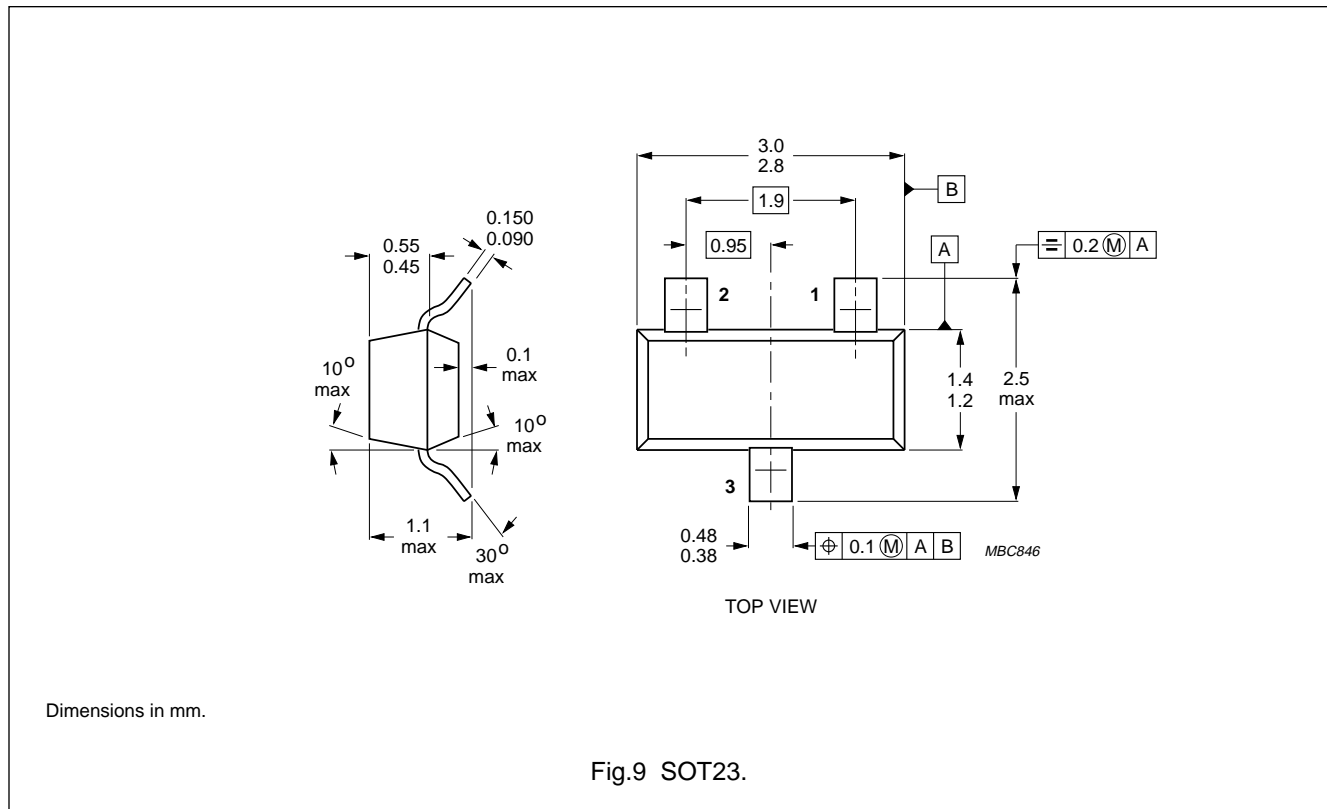
BAS19; BAS20; BAS21



General purpose diodes

BAS19; BAS20; BAS21

PACKAGE OUTLINE



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.	

LIFE SUPPORT APPLICATIONS

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.