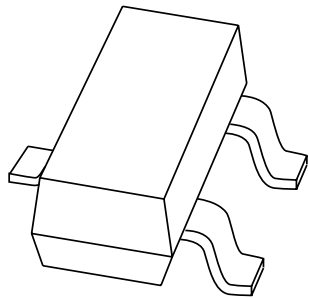


# DATA SHEET



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

Product specification  
Supersedes data of 1996 Sep 10

1999 May 26

# General purpose diodes

# BAS19; BAS20; BAS21

### FEATURES

- Small plastic SMD package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 100 V; 150 V; 200 V
- Repetitive peak reverse voltage: max. 120 V; 200 V; 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 SOT23 plastic SMD packages.

### MARKING

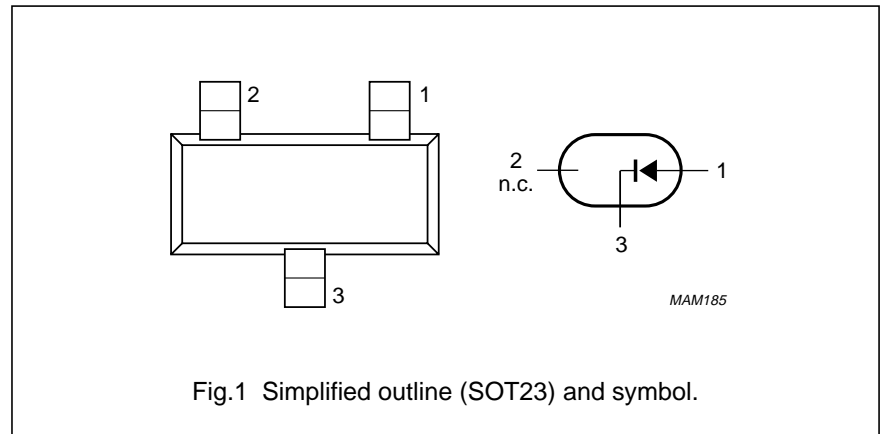
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BAS19	JP*
BAS20	JR*
BAS21	JS*

### Note

1. \* = p: Made in Hong Kong.  
\* = t: Made in Malaysia.

### 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	MAX.	UNIT
$V_F$	forward voltage	see Fig.3		
		$I_F = 100\text{ mA}$	1	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

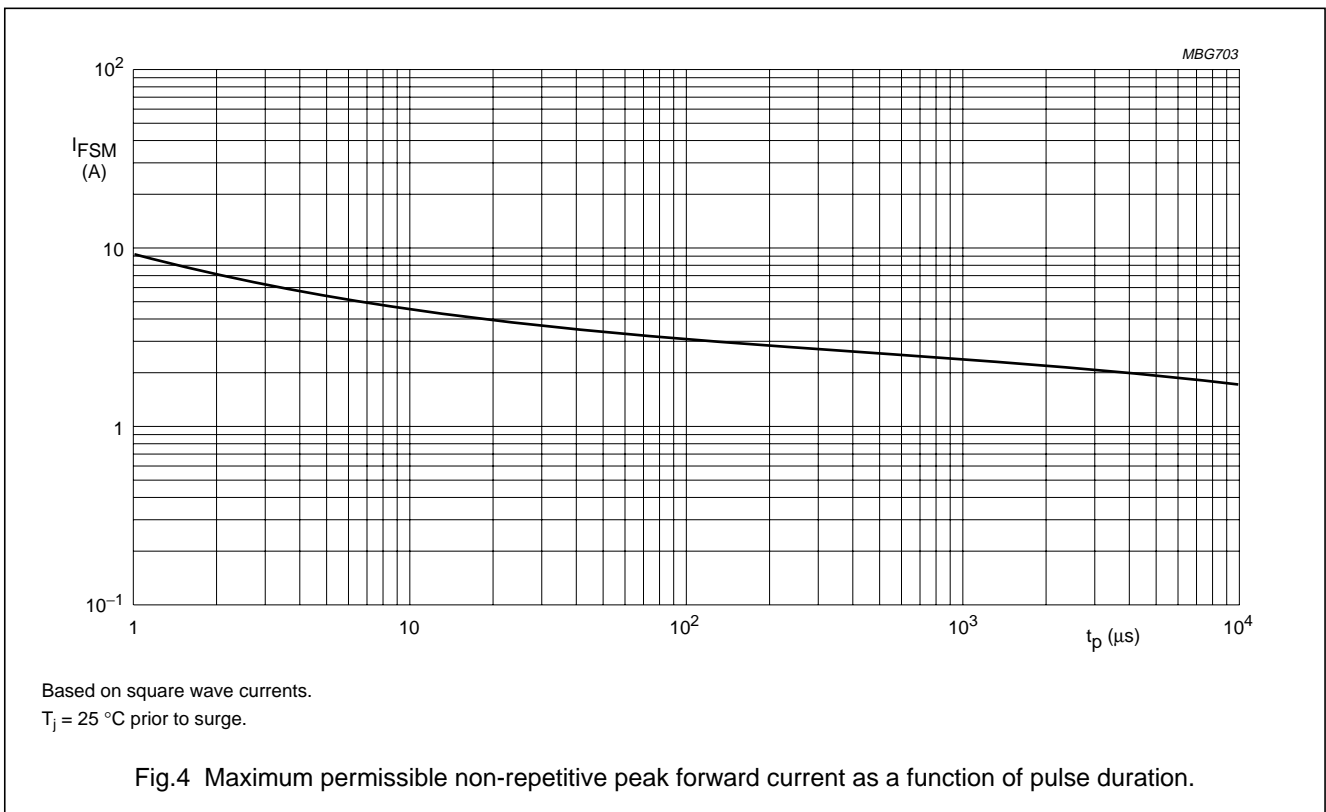
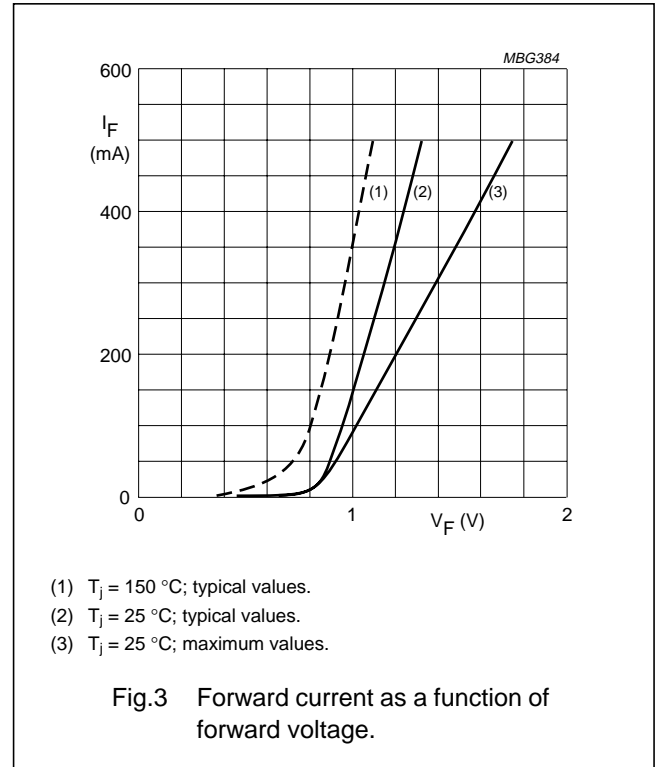
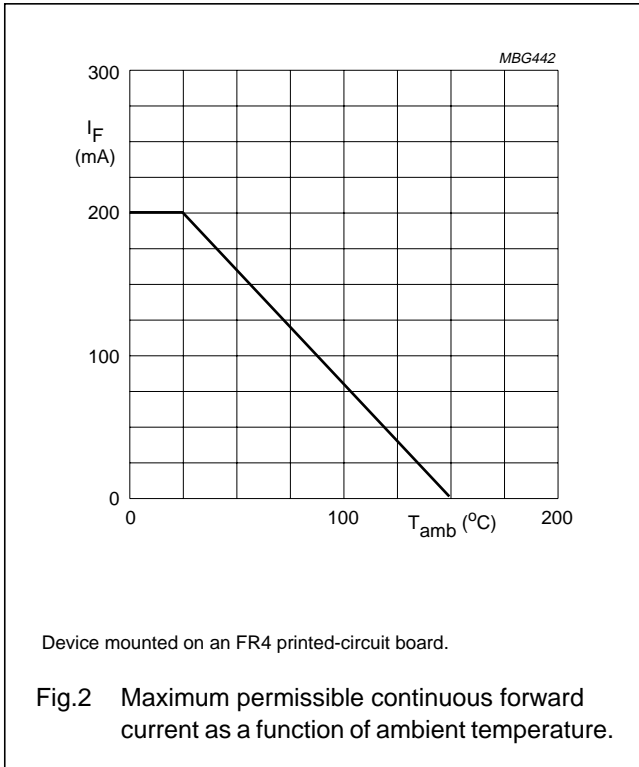
**Note**

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

General purpose diodes

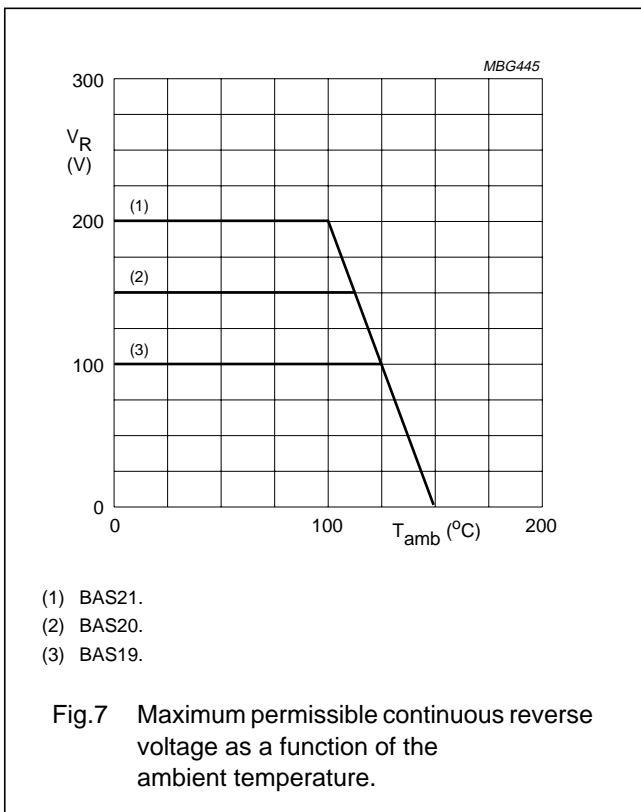
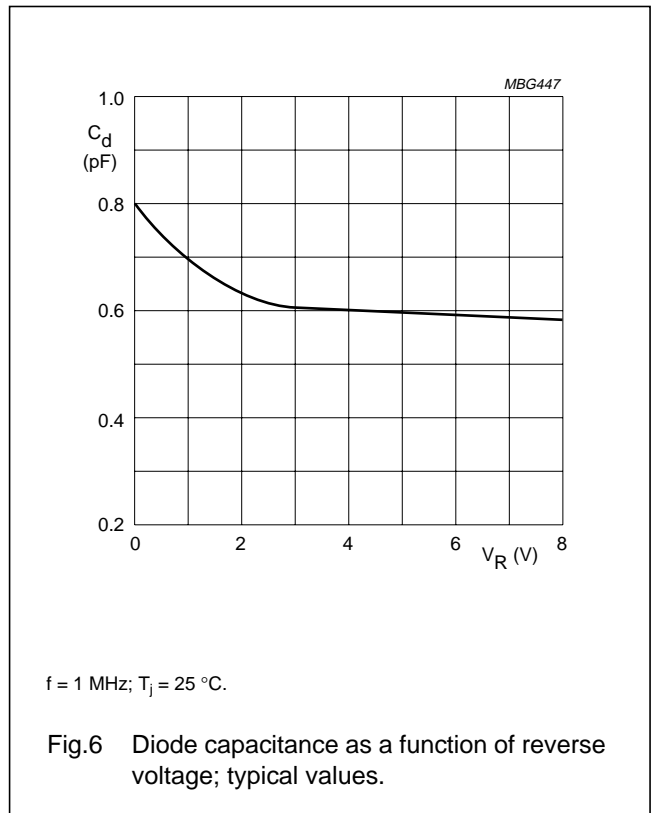
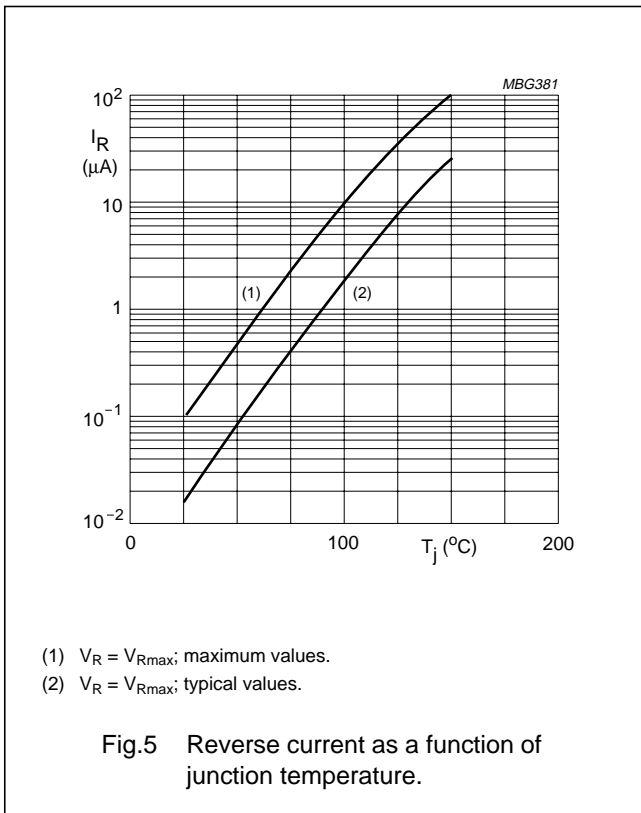
BAS19; BAS20; BAS21

GRAPHICAL DATA



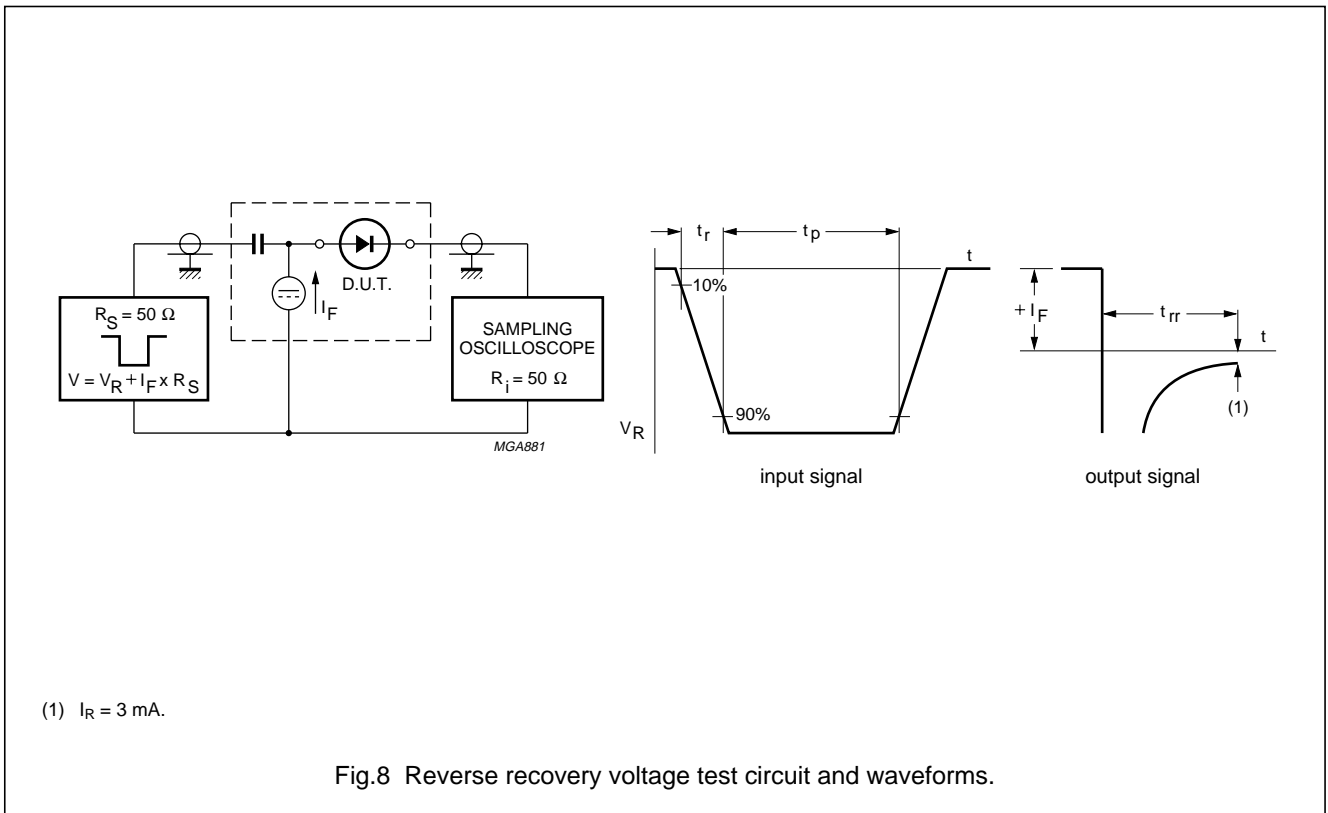
General purpose diodes

BAS19; BAS20; BAS21



General purpose diodes

BAS19; BAS20; BAS21



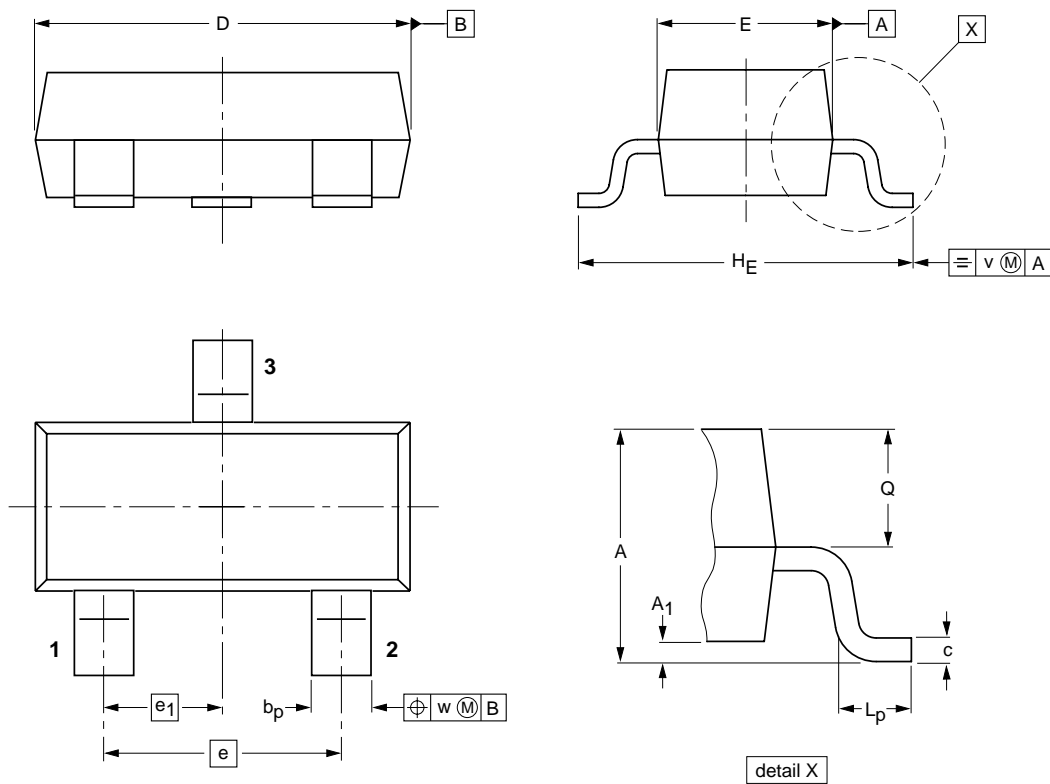
General purpose diodes

BAS19; BAS20; BAS21

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



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 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23						97-02-28



## General purpose diodes

## BAS19; BAS20; BAS21

**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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General purpose diodes

BAS19; BAS20; BAS21

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**NOTES**

General purpose diodes

BAS19; BAS20; BAS21

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**NOTES**

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