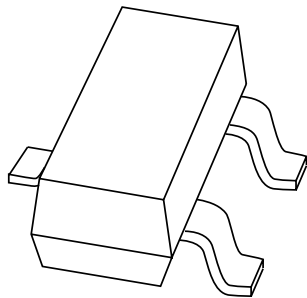


# DATA SHEET



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

Product data sheet  
Supersedes data of 1999 May 26

2003 Mar 20

# 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 and BAS21 are general purpose diodes fabricated in planar technology, and encapsulated in a small SOT23 plastic SMD package.

### MARKING

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

### Note

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

### PINNING

PIN	DESCRIPTION
1	anode
2	not connected
3	cathode

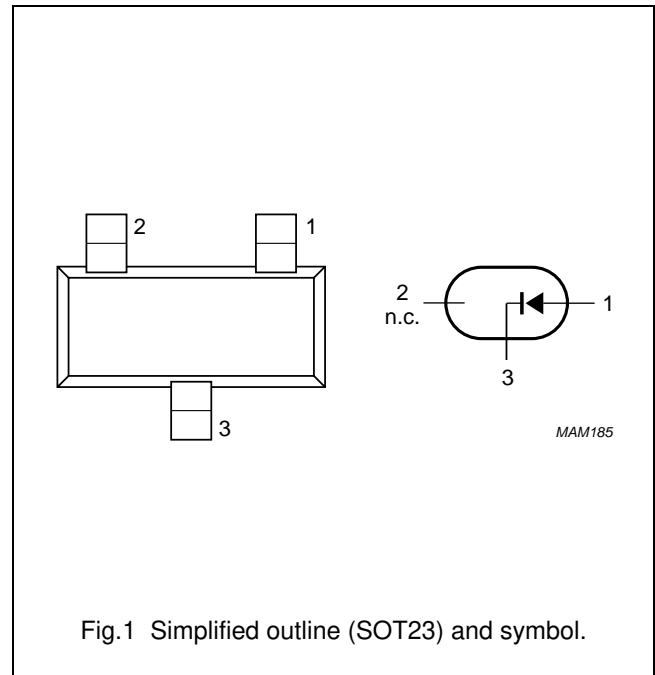


Fig.1 Simplified outline (SOT23) and symbol.

## General purpose diodes

## BAS19; BAS20; BAS21

**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>RRM</sub>	repetitive peak reverse voltage				
	BAS19		–	120	V
	BAS20		–	200	V
	BAS21		–	250	V
V <sub>R</sub>	continuous reverse voltage				
	BAS19		–	100	V
	BAS20		–	150	V
	BAS21		–	200	V
I <sub>F</sub>	continuous forward current	see Fig.2; note 1	–	200	mA
I <sub>FRM</sub>	repetitive peak forward current		–	625	mA
I <sub>FSM</sub>	non-repetitive peak forward current	square wave; T <sub>j</sub> = 25 °C prior to surge; see Fig.4			
		t = 1 μs	–	9	A
		t = 100 μs	–	3	A
		t = 10 ms	–	1.7	A
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> = 25 °C; note 1	–	250	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	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

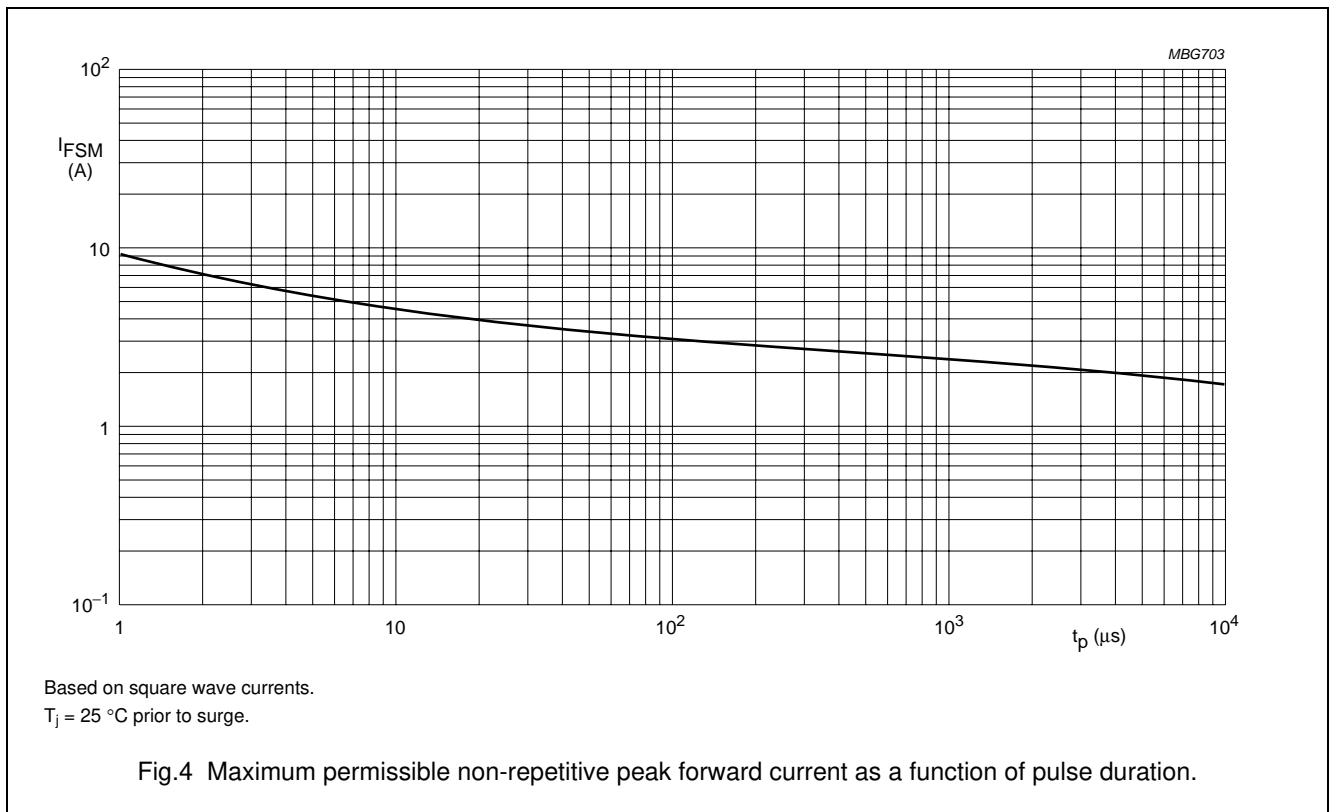
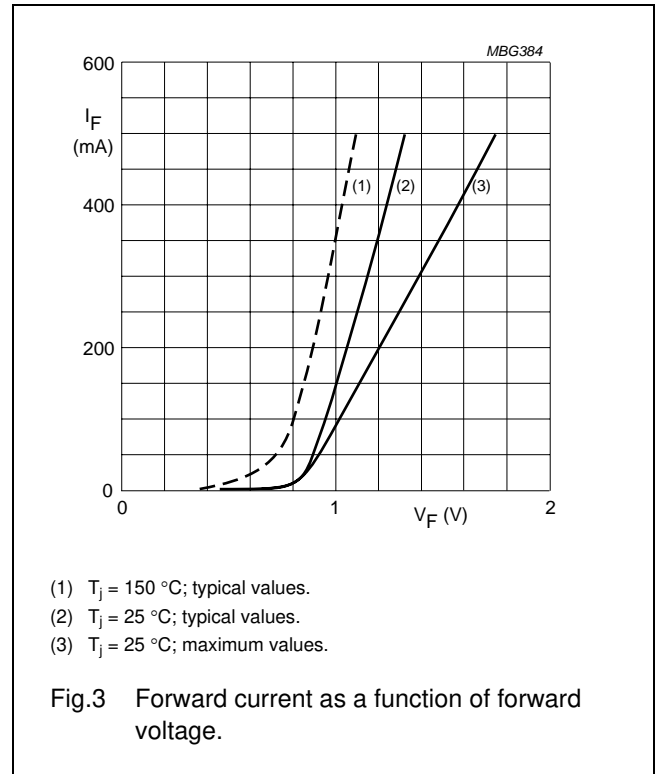
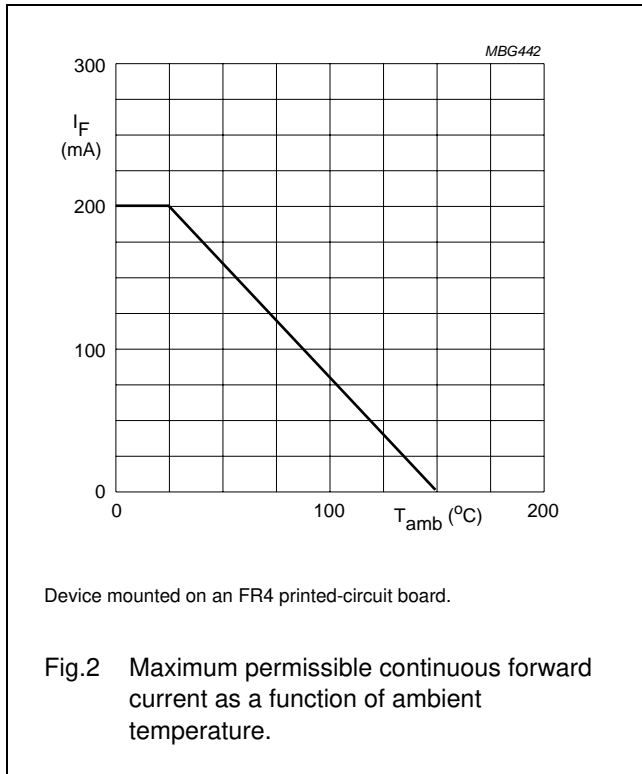
**Note**

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

General purpose diodes

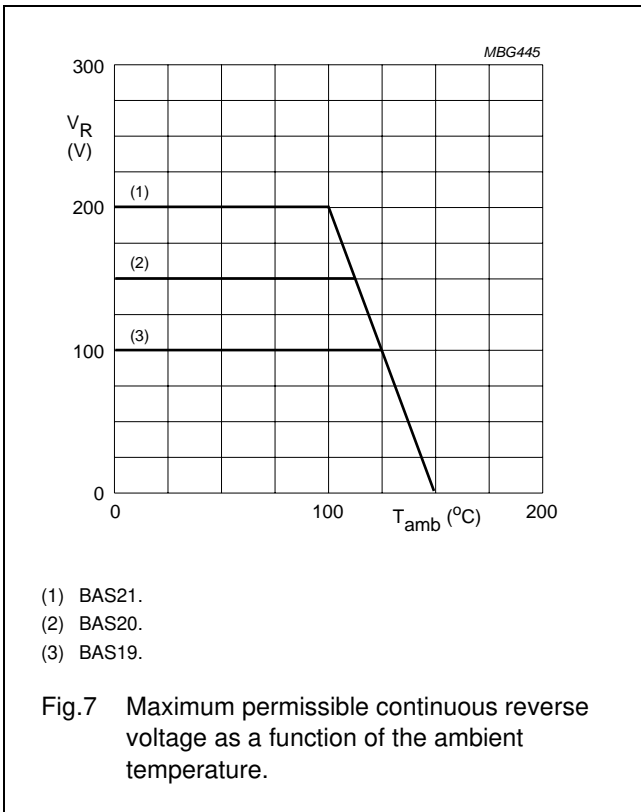
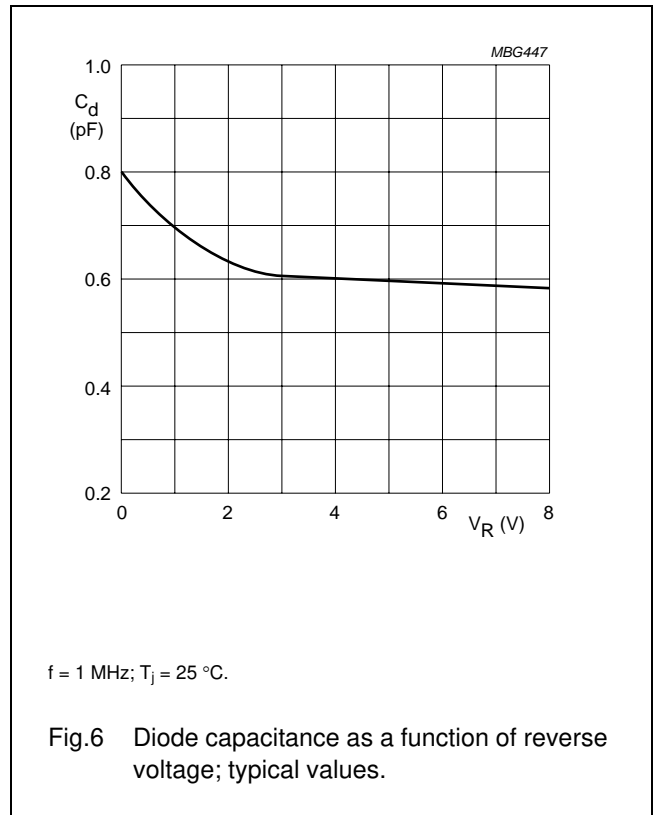
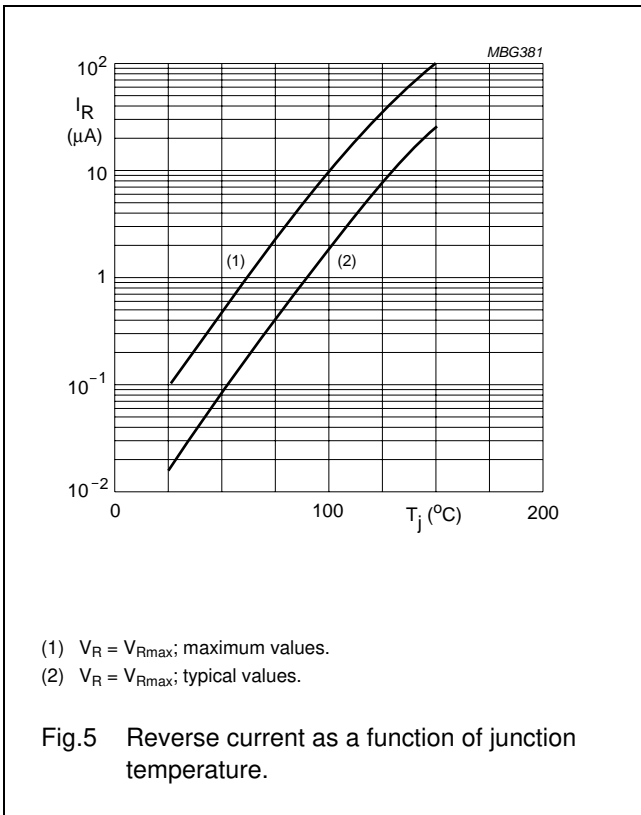
BAS19; BAS20; BAS21

GRAPHICAL DATA



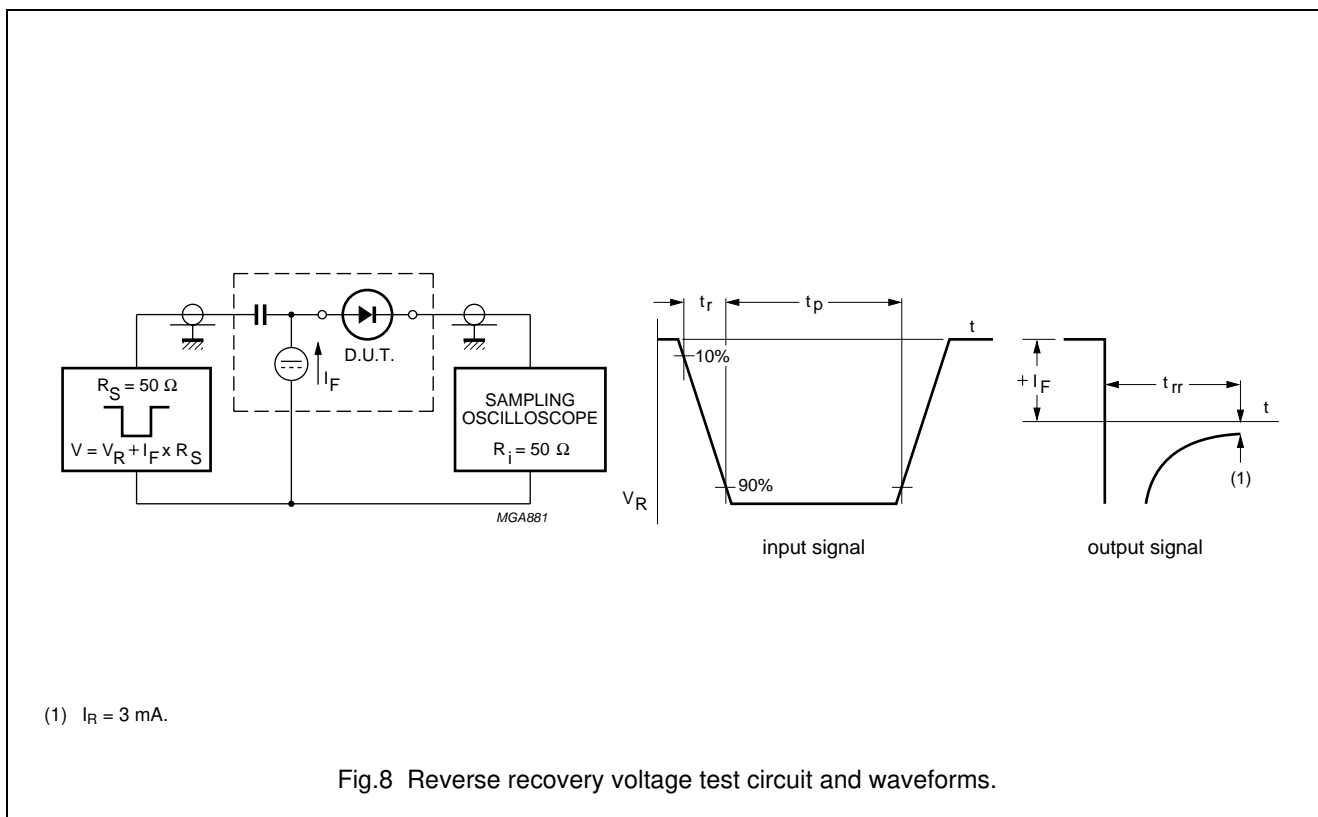
General purpose diodes

BAS19; BAS20; BAS21



General purpose diodes

BAS19; BAS20; BAS21



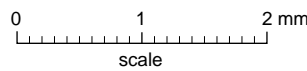
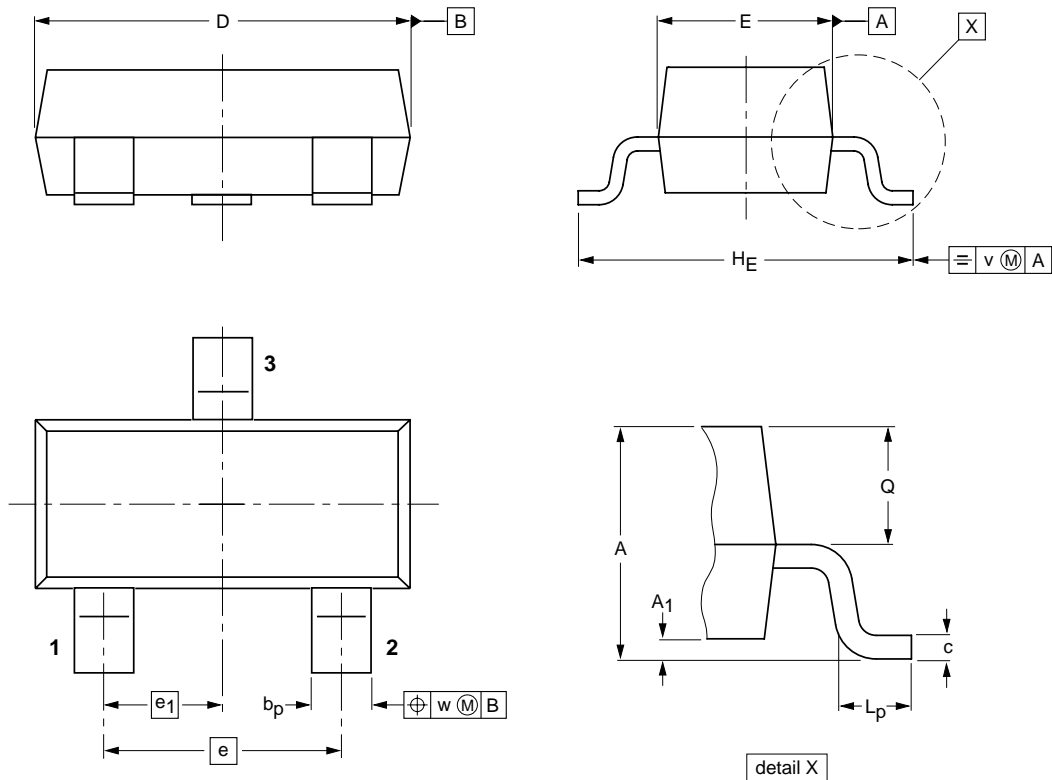
General purpose diodes

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		TO-236AB				<del>97-02-28</del> 99-09-13



# General purpose diodes

# BAS19; BAS20; BAS21

## 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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