Product data sheet



1.1 General description

Two planar PIN diodes in common anode configuration in a SOT23 small SMD plastic package.

1.2 Features and benefits

- High voltage, current controlled
- RF resistor for RF attenuators and switches
- Low diode capacitance
- · Low diode forward resistance
- · Low series inductance
- For applications up to 3 GHz
- · AEC-Q101 qualified

1.3 Applications

RF attenuators and switches

2 Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	cathode 1		_
2	cathode 2		3
3	common connection	top view	1 2 aaa-017781



Silicon PIN diode

3 Ordering information

Table 2. Ordering information

Type number	Package						
	Name	Description	Version				
BAP64-06	-	plastic surface-mounted package; 3 leads	SOT23				

4 Marking

Table 3. Marking

Table of Marking		
Type number	Marking	Description
BAP64-06	6K*	* = t : made in Malaysia
		* = W : made in China

5 Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134). Values are specified per diode.

Symbol	Parameter	Conditions	Min	Max	Unit
V_R	reverse voltage		-	175	V
I _F	forward current		-	100	mA
P _{tot}	total power dissipation	T _{sp} = 90 °C	-	250	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-65	+150	°C

6 Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions	Тур	Unit
R _{th(j-sp)}	thermal resistance from junction to solder point		220	K/W

7 Characteristics

Table 6. Characteristics

Values are specified per diode; T_i = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _F	forward voltage	I _F = 50 mA	-	0.95	1.1	V
I _R	reverse current	V _R = 60 V	-	-	10	μA
		V _R = 20 V	-	-	1	μA
C _d	diode capacitance	see Figure 1; f = 1 MHz;				
		V _R = 0 V	-	0.52	-	pF

BAP64-06

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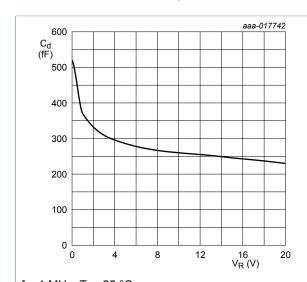
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Symbol	Parameter	Conditions		Min	Тур	Max	Unit
		V _R = 1 V		-	0.37	-	pF
		V _R = 20 V		-	0.23	0.35	pF
r _D	diode forward resistance	see Figure 2; f = 100 MHz;	[1]				
		I _F = 0.5 mA		-	20	40	Ω
		I _F = 1 mA		-	10	20	Ω
		I _F = 10 mA		-	2.0	3.8	Ω
		I _F = 100 mA		-	0.7	1.35	Ω
ΤL	charge carrier life time	when switched from I _F = 10 mA to I _R = 6 mA; R _L = 100 Ω ; measured at I _R = 3 mA		-	1.55	-	μs
Ls	series inductance			-	1.4	-	nH

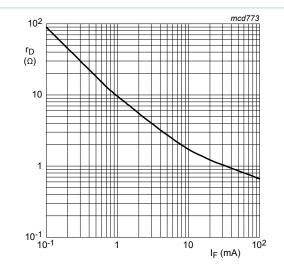
^[1] Guaranteed on AQL basis: inspection level S4, AQL 1.0.

7.1 Graphical data



 $f = 1 \text{ MHz}; T_j = 25 ^{\circ}\text{C}.$

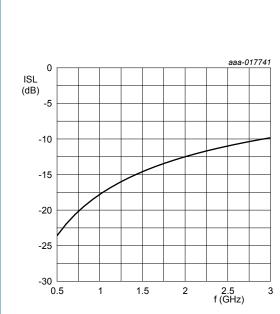
Figure 1. Diode capacitance as a function of reverse voltage; typical values



f = 100 MHz; $T_i = 25 \,^{\circ}\text{C}$.

Figure 2. Forward resistance as a function of forward current; typical values

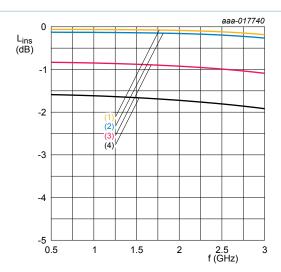
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 $T_{amb} = 25 \, ^{\circ}C$

Diode zero biased and inserted in series with a 50 Ω stripline circuit

Figure 3. Isolation of the diode as a function of frequency; typical values



T_{amb} = 25 °C

1. I_F = 100 mA

2. $I_F = 10 \text{ mA}$

3. $I_F = 1 \text{ mA}$

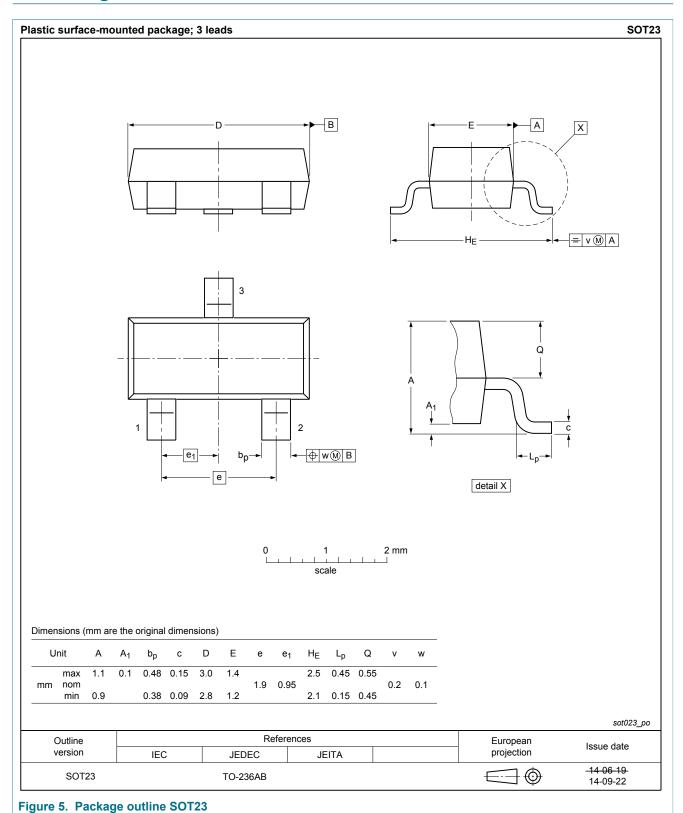
4. $I_F = 0.5 \text{ mA}$

Diode inserted in series with a 50 Ω stripline circuit and biased via the analyzer Tee network

Figure 4. Insertion loss of the diode as a function of frequency; typical values

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8 Package outline



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9 Abbreviations

Table 7. Abbreviations

Acronym	Description
AQL	acceptable quality level
PIN	P-type, intrinsic, N-type
SMD	surface mounted device
S4	special inspection level 4

10 Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes	
BAP64-06 v.5	20190311	Product data sheet	-	BAP64-06 v.4	
Modifications:	• changed V _R cond	dition of I _R from 175 V to 60 V			
BAP64-06 v.4	20150428	Product data sheet	-	BAP64-06 v.3.1	
Modifications:	 The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. Legal texts have been adapted to the new company name where appropriate. AEC-Q101 gualified 				
BAP64-06_v.3 (9397 750 06664)	20010217	Product specification	-	BAP64-06 v.2	
BAP64-06 v.2 (9397 750 06911)	20000322	Product specification	-	BAP64-06_N v.1	
BAP64-06_N v.1 (9397 750 08033)	19991217	Preliminary specification	-	-	

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11 Legal information

11.1 Data sheet status

Document status ^{[1][2]}	Product status ^[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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