

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number: BAP64-05W,115
Manufacturer: NXP USA Inc.
Package: SC-70, SOT-323
Availability: Please confirm with sales

Product Page:

<https://antrexco.com/product/details/nxp-usa-inc/bap64-05w-115.html>

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Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.



BAP64-05W

Silicon PIN diode

Rev. 3.2 — 1 February 2019

Product data sheet

1 Product profile

1.1 General description

Two planar PIN diodes in common cathode configuration in a SOT323 small plastic SMD 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

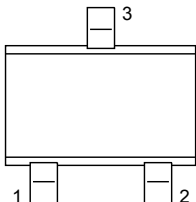
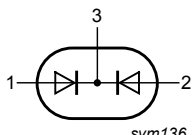
1.3 Applications

- RF attenuators and switches



2 Pinning information

Table 1. Discrete pinning

Pin	Description		Simplified outline	Symbol
1	anode (a1)		 top view	 sym136
2	anode (a2)			
3	common cathode			

3 Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BAP64-05W	-	plastic surface-mounted package; 3 leads	SOT323

4 Marking

Table 3. Marking

Type number	Marking	Description
BAP64-05W	5W%	% = t: made in Malaysia
		% = W: made in China

Table 4. Marking

Type number	Marking code
BAP64-05W	5W-

5 Limiting values

Table 5. 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		-	100	V
I_F	forward current		-	100	mA
P_{tot}	total power dissipation	$T_{sp} \leq 90\text{ }^{\circ}\text{C}$	-	240	mW
T_{stg}	storage temperature		-65	+150	$^{\circ}\text{C}$
T_j	junction temperature		-65	+150	$^{\circ}\text{C}$

6 Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Typ	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		250	K/W

7 Characteristics

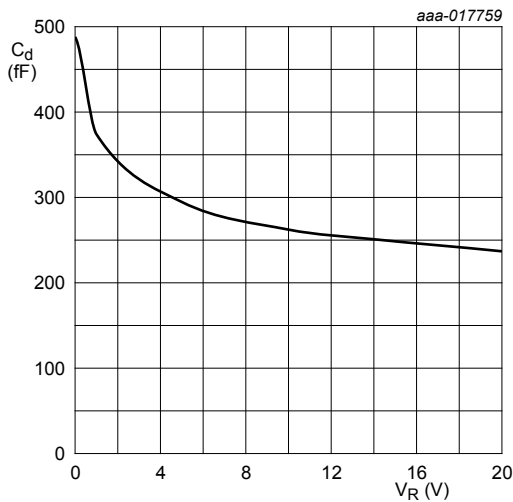
Table 7. Characteristics

Values are specified per diode; $T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 50\text{ mA}$		-	0.95	1.1	V
I_R	reverse current	$V_R = 60\text{ V}$		-	-	10	μA
		$V_R = 20\text{ V}$		-	-	1	μA
C_d	diode capacitance	see Figure 1 ; $f = 1\text{ MHz}$;					
		$V_R = 0\text{ V}$		-	0.52	-	pF
		$V_R = 1\text{ V}$		-	0.37	-	pF
		$V_R = 20\text{ V}$		-	0.23	0.35	pF
r_D	diode forward resistance	see Figure 2 ; $f = 100\text{ MHz}$;	[1]				
		$I_F = 0.5\text{ mA}$		-	20	40	Ω
		$I_F = 1\text{ mA}$		-	10	20	Ω
		$I_F = 10\text{ mA}$		-	2.0	3.8	Ω
		$I_F = 100\text{ mA}$		-	0.7	1.35	Ω
τ_L	charge carrier life time	when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 3\text{ mA}$		-	1.55	-	μs
L_S	series inductance			-	1.2	-	nH

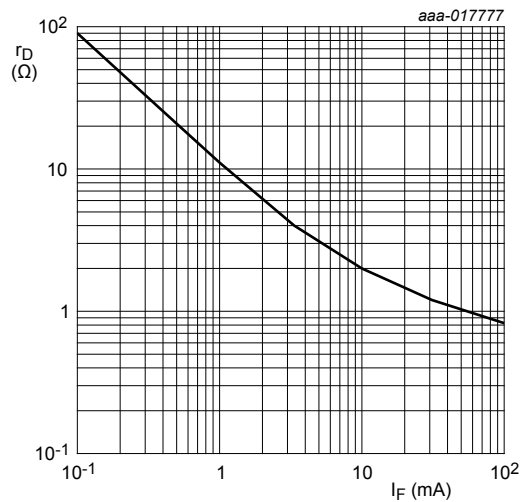
[1] Guaranteed on AQL basis: inspection level S4, AQL 1.0.

7.1 Graphical data



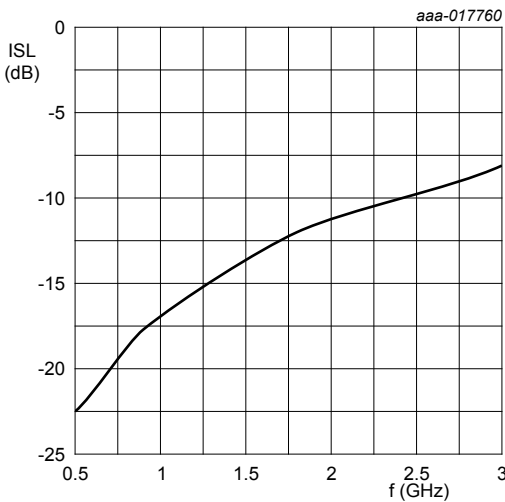
f = 1 MHz; T_j = 25 °C.

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



f = 100 MHz; T_j = 25 °C.

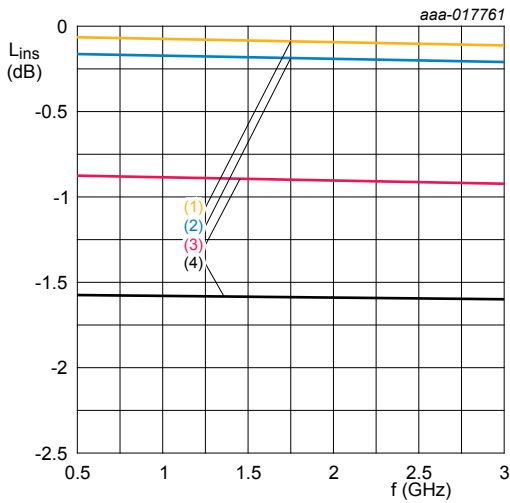
Figure 2. Forward resistance as a function of forward current; typical values



T_{amb} = 25 °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

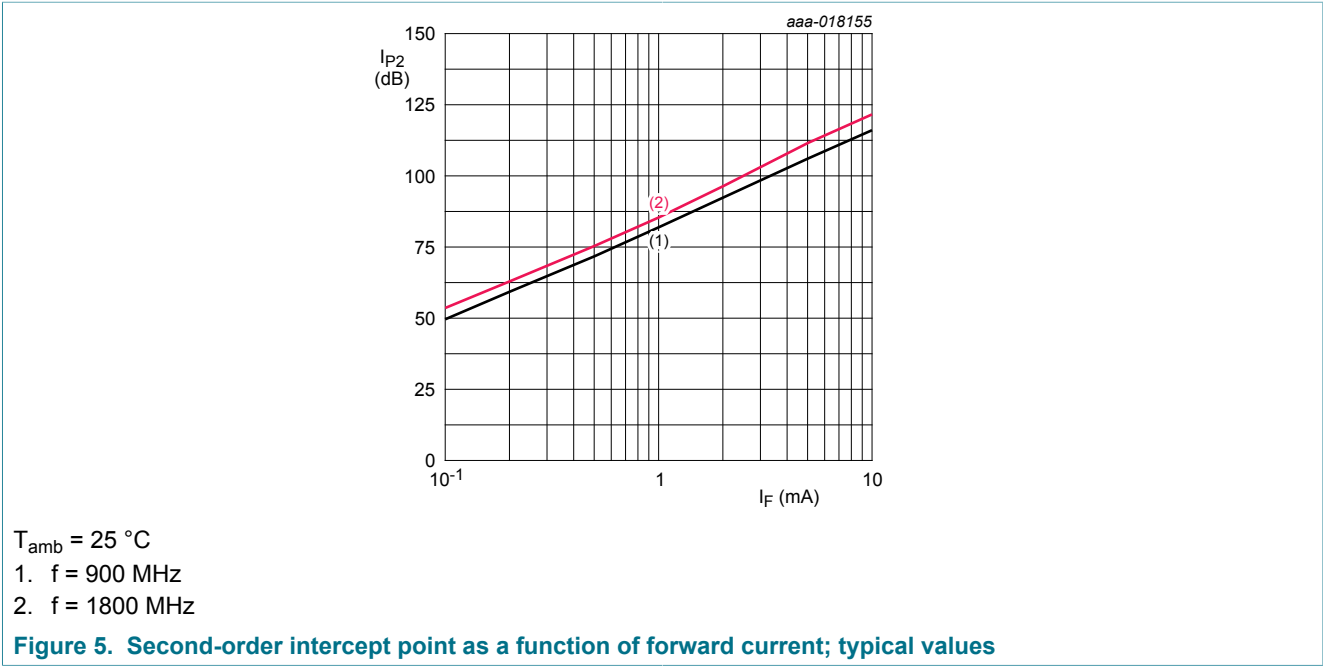


T_{amb} = 25 °C

- 1. I_F = 100 mA
- 2. I_F = 10 mA
- 3. I_F = 1 mA
- 4. I_F = 0.5 mA

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

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



8 Package outline

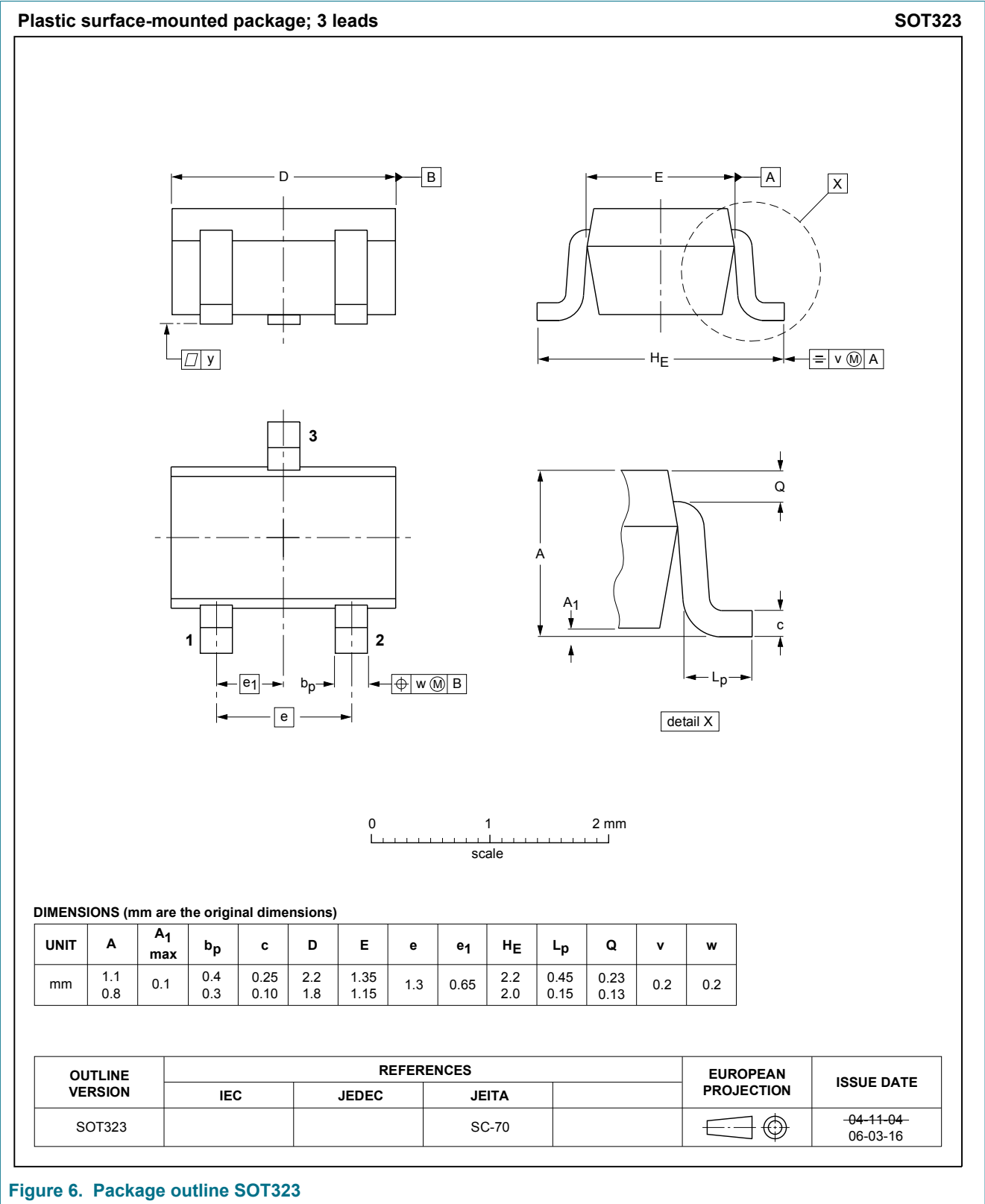


Figure 6. Package outline SOT323

9 Abbreviations

Table 8. 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 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAP64-05W v.3.2	20190201	Product data sheet	-	BAP64-05W v.3.1
Modifications	changed condition for reverse current for V_R from 100 V to 60 V			
BAP64-05W v.3.1	20181211	Product data sheet	-	BAP64-05W v.3
Modifications	adapted marking code			
BAP64-05W v.3	20180713	Product data sheet	-	BAP64-05W v.2
Modifications	- changed I_R conditions at characteristics - adapted the layout of the data sheet			
BAP64-05W v.2	20150428	Product data sheet	-	BAP64-05W v.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 qualified			
BAP64-05W v.1 (9397 750 07192)	20000713	Product specification	-	-

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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