

BAS70 series; 1PS7xSB70 series

General-purpose Schottky diodes

Rev. 08 — 4 May 2006

Product data sheet

1. Product profile

1.1 General description

General-purpose Schottky diodes in small Surface-Mounted Device (SMD) plastic packages.

Table 1. Product overview

Type number	Package		Configuration
	Philips	JEITA	
1PS76SB70	SOD323	SC-76	single diode
1PS79SB70	SOD523	SC-79	single diode
BAS70	SOT23	-	single diode
BAS70H	SOD123F	-	single diode
BAS70L	SOD882	-	single diode
BAS70W	SOT323	SC-70	single diode
BAS70-04	SOT23	-	dual series
BAS70-04W	SOT323	SC-70	dual series
BAS70-05	SOT23	-	dual common cathode
BAS70-05W	SOT323	SC-70	dual common cathode
BAS70-06	SOT23	-	dual common anode
BAS70-06W	SOT323	SC-70	dual common anode
BAS70-07	SOT143B	-	dual isolated
BAS70-07S	SOT363	SC-88	dual isolated
BAS70-07V	SOT666	-	dual isolated
BAS70VV	SOT666	-	triple isolated
BAS70XY	SOT363	SC-88	quadruple; 2 series

1.2 Features

- High switching speed
- High breakdown voltage
- Low leakage current
- Low capacitance

1.3 Applications

- Ultra high-speed switching
- Voltage clamping

PHILIPS

1.4 Quick reference data

Table 2. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
I_F	forward current		-	-	70	mA
V_F	forward voltage	$I_F = 1 \text{ mA}$	[1]	-	410	mV
V_R	reverse voltage		-	-	70	V

[1] Pulse test: $t_p \leq 300 \mu\text{s}$; $\delta \leq 0.02$.

2. Pinning information

Table 3. Pinning

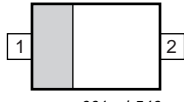



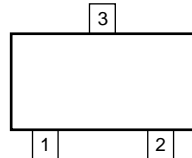
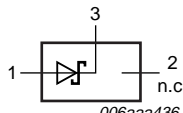
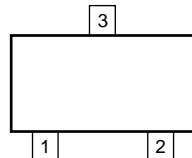
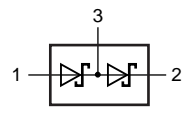
Pin	Description	Simplified outline	Symbol
BAS70H; 1PS76SB70; 1PS79SB70			
1	cathode	 <p>001aab540</p>	 <p>1 2</p> <p>sym001</p>
2	anode		
BAS70L			
1	cathode	 <p>Transparent top view</p>	 <p>1 2</p> <p>sym001</p>
2	anode		
BAS70; BAS70W			
1	anode	 <p>006aaa144</p>	 <p>1 2 n.c. 3</p> <p>006aaa436</p>
2	not connected		
3	cathode		
BAS70-04; BAS70-04W			
1	anode (diode 1)	 <p>006aaa144</p>	 <p>1 2 3</p> <p>006aaa437</p>
2	cathode (diode 2)		
3	cathode (diode 1), anode (diode 2)		

Table 3. Pinning ...continued

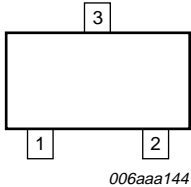
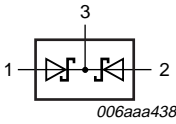
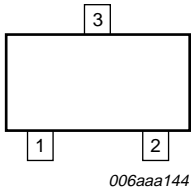
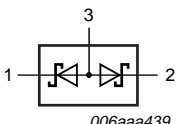
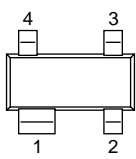
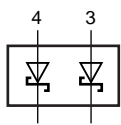
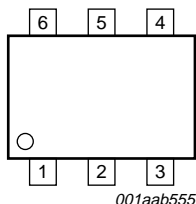
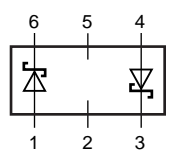
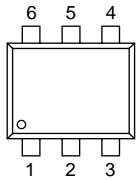
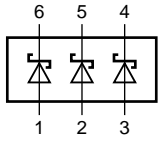
Pin	Description	Simplified outline	Symbol
BAS70-05; BAS70-05W			
1	anode (diode 1)	 <p>006aaa144</p>	 <p>006aaa438</p>
2	anode (diode 2)		
3	cathode (diode 1), cathode (diode 2)		
BAS70-06; BAS70-06W			
1	cathode (diode 1)	 <p>006aaa144</p>	 <p>006aaa439</p>
2	cathode (diode 2)		
3	anode (diode 1), anode (diode 2)		
BAS70-07			
1	cathode (diode 1)		 <p>006aaa434</p>
2	cathode (diode 2)		
3	anode (diode 2)		
4	anode (diode 1)		
BAS70-07S; BAS70-07V			
1	anode (diode 1)	 <p>001aab555</p>	 <p>006aaa440</p>
2	not connected		
3	cathode (diode 2)		
4	anode (diode 2)		
5	not connected		
6	cathode (diode 1)		
BAS70VV			
1	anode (diode 1)		 <p>sym046</p>
2	anode (diode 2)		
3	anode (diode 3)		
4	cathode (diode 3)		
5	cathode (diode 2)		
6	cathode (diode 1)		

Table 3. Pinning ...continued

Pin	Description	Simplified outline	Symbol
BAS70XY			
1	anode (diode 1)		
2	cathode (diode 2)		
3	anode (diode 3), cathode (diode 4)		
4	anode (diode 4)		
5	cathode (diode 3)		
6	cathode (diode 1), anode (diode 2)		

[1] The marking bar indicates the cathode.

3. Ordering information

Table 4. Ordering information

Type number	Package		Version
	Name	Description	
1PS76SB70	SC-76	plastic surface-mounted package; 2 leads	SOD323
1PS79SB70	SC-79	plastic surface-mounted package; 2 leads	SOD523
BAS70	-	plastic surface-mounted package; 3 leads	SOT23
BAS70H	-	plastic surface-mounted package; 2 leads	SOD123F
BAS70L	-	leadless ultra small plastic package; 2 terminals; body 1.0 × 0.6 × 0.5 mm	SOD882
BAS70W	SC-70	plastic surface-mounted package; 3 leads	SOT323
BAS70-04	-	plastic surface-mounted package; 3 leads	SOT23
BAS70-04W	SC-70	plastic surface-mounted package; 3 leads	SOT323
BAS70-05	-	plastic surface-mounted package; 3 leads	SOT23
BAS70-05W	SC-70	plastic surface-mounted package; 3 leads	SOT323
BAS70-06	-	plastic surface-mounted package; 3 leads	SOT23
BAS70-06W	SC-70	plastic surface-mounted package; 3 leads	SOT323
BAS70-07	-	plastic surface-mounted package; 4 leads	SOT143B
BAS70-07S	SC-88	plastic surface-mounted package; 6 leads	SOT363
BAS70-07V	-	plastic surface-mounted package; 6 leads	SOT666
BAS70VV	-	plastic surface-mounted package; 6 leads	SOT666
BAS70XY	SC-88	plastic surface-mounted package; 6 leads	SOT363

4. Marking

Table 5. Marking codes

Type number	Marking code ^[1]	Type number	Marking code ^[1]
1PS76SB70	S2	BAS70-05W	75*
1PS79SB70	G	BAS70-06	76*
BAS70	73*	BAS70-06W	76*
BAS70H	AH	BAS70-07	77*
BAS70L	S8	BAS70-07S	77*
BAS70W	73*	BAS70-07V	77
BAS70-04	74*	BAS70VV	N1
BAS70-04W	74*	BAS70XY	70*
BAS70-05	75*	-	-

- [1] * = -: made in Hong Kong
 * = p: made in Hong Kong
 * = t: made in Malaysia
 * = W: made in China

5. Limiting values

Table 6. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
V_R	reverse voltage		-	70	V
I_F	forward current		-	70	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1 \text{ s}; \delta \leq 0.5$	-	70	mA
I_{FSM}	non-repetitive peak forward current	$t_p \leq 10 \text{ ms}$	^[1] -	100	mA
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-65	+150	°C
T_{stg}	storage temperature		-65	+150	°C

- [1] $T_j = 25 \text{ °C}$ prior to surge.

6. Thermal characteristics

Table 7. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per device						
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]			
	SOT23		-	-	500	K/W
	SOT143B		-	-	500	K/W
	SOT363 (BAS70-07S)		-	-	416	K/W
	SOT666 (BAS70VV)		[2]	-	700	K/W
	SOT666 (BAS70-07V)		[2]	-	416	K/W
	SOD123F		[2]	-	330	K/W
	SOD323		-	-	450	K/W
	SOD523		[2]	-	450	K/W
	SOD882		[2]	-	500	K/W
SOT323		-	-	625	K/W	
$R_{th(j-sp)}$	thermal resistance from junction to solder point					
	SOT363 (BAS70XY)		[3]	-	260	K/W

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

[2] Reflow soldering is the only recommended soldering method.

[3] Soldering point at pins 2, 3, 5 and 6.

7. Characteristics

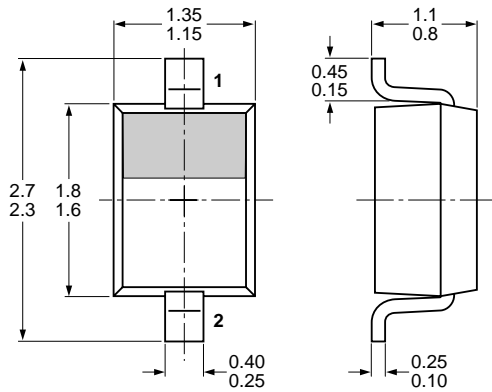
Table 8. Characteristics

$T_{amb} = 25^\circ\text{C}$ unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
V_F	forward voltage		[1]			
		$I_F = 1\text{ mA}$	-	-	410	mV
		$I_F = 10\text{ mA}$	-	-	750	mV
		$I_F = 15\text{ mA}$	-	-	1	V
I_R	reverse current	$V_R = 50\text{ V}$	-	-	100	nA
		$V_R = 70\text{ V}$	-	-	10	μA
C_d	diode capacitance	$V_R = 0\text{ V}; f = 1\text{ MHz}$	-	-	2	pF

[1] Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

8. Package outline



Dimensions in mm

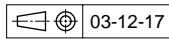
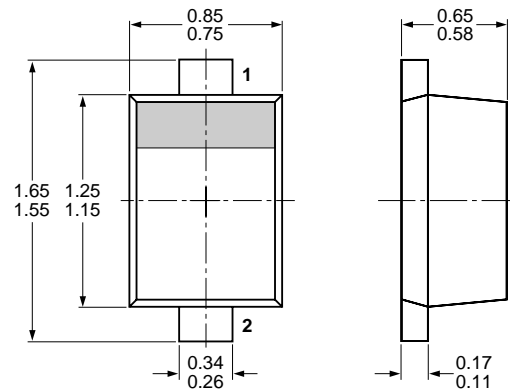


Fig 5. Package outline SOD323 (SC-76)



Dimensions in mm

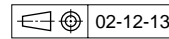
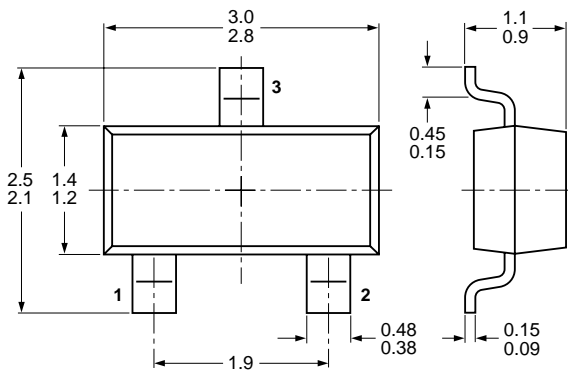


Fig 6. Package outline SOD523 (SC-79)



Dimensions in mm

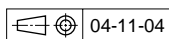
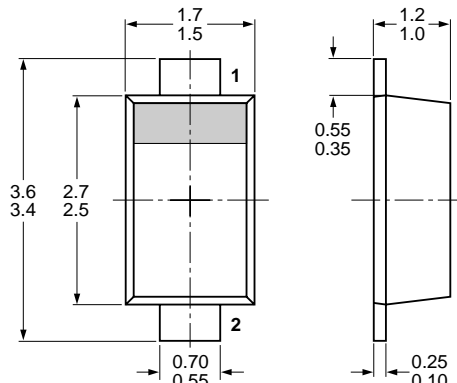


Fig 7. Package outline SOT23 (TO-236AB)



Dimensions in mm

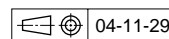
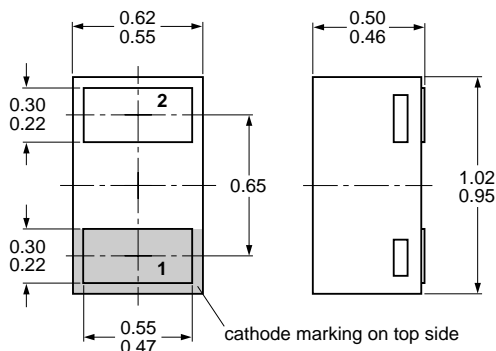


Fig 8. Package outline SOD123F



Dimensions in mm

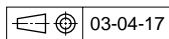
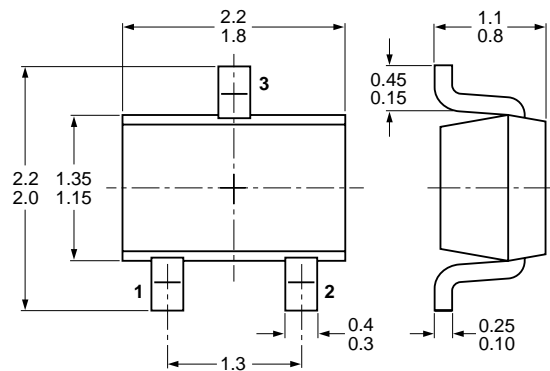


Fig 9. Package outline SOD882



Dimensions in mm

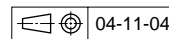


Fig 10. Package outline SOT323 (SC-70)

9. Packing information

Table 9. Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code.^[1]

Type number	Package	Description	Packing quantity			
			3000	4000	8000	10000
1PS76SB70	SOD323	4 mm pitch, 8 mm tape and reel	-115	-	-	-135
1PS79SB70	SOD523	2 mm pitch, 8 mm tape and reel	-	-	-315	-
		4 mm pitch, 8 mm tape and reel	-115	-	-	-135
BAS70	SOT23	4 mm pitch, 8 mm tape and reel	-215	-	-	-235
BAS70H	SOD123F	4 mm pitch, 8 mm tape and reel	-115	-	-	-135
BAS70L	SOD882	2 mm pitch, 8 mm tape and reel	-	-	-	-315
BAS70W	SOT323	4 mm pitch, 8 mm tape and reel	-115	-	-	-135
BAS70-04	SOT23	4 mm pitch, 8 mm tape and reel	-215	-	-	-235
BAS70-04W	SOT323	4 mm pitch, 8 mm tape and reel	-115	-	-	-135
BAS70-05	SOT23	4 mm pitch, 8 mm tape and reel	-215	-	-	-235
BAS70-05W	SOT323	4 mm pitch, 8 mm tape and reel	-115	-	-	-135
BAS70-06	SOT23	4 mm pitch, 8 mm tape and reel	-215	-	-	-235
BAS70-06W	SOT323	4 mm pitch, 8 mm tape and reel	-115	-	-	-135
BAS70-07	SOT143B	4 mm pitch, 8 mm tape and reel	-215	-	-	-235
BAS70-07S	SOT363	4 mm pitch, 8 mm tape and reel; T1 ^[2]	-115	-	-	-135
		4 mm pitch, 8 mm tape and reel; T2 ^[3]	-125	-	-	-165
BAS70-07V	SOT666	2 mm pitch, 8 mm tape and reel	-	-	-315	-
		4 mm pitch, 8 mm tape and reel	-	-115	-	-
BAS70VV	SOT666	2 mm pitch, 8 mm tape and reel	-	-	-315	-
		4 mm pitch, 8 mm tape and reel	-	-115	-	-
BAS70XY	SOT363	4 mm pitch, 8 mm tape and reel; T1 ^[2]	-115	-	-	-135
		4 mm pitch, 8 mm tape and reel; T2 ^[3]	-125	-	-	-165

[1] For further information and the availability of packing methods, see [Section 13](#).

[2] T1: normal taping

[3] T2: reverse taping