

**BAS70 / BAS70-04 / BAS70-05 / BAS70-06**

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# BAS70 / BAS70-04 / BAS70-05 / BAS70-06

## 70mA Surface Mount Small Signal Schottky Diodes-70V

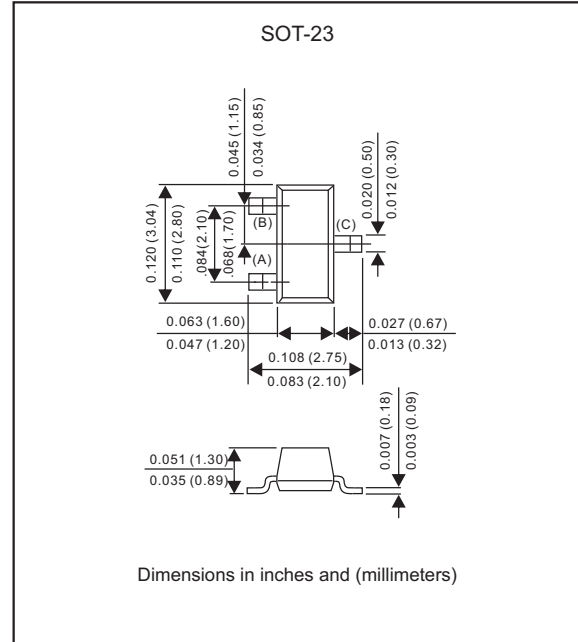
### Features

- Low forward current
- High breakdown voltage
- Guard ring protected
- Low diode capacitance
- High speed ( trr < 5 ns )
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free part, ex. BAS70-H.

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

### Package outline



### Maximum ratings and Electrical Characteristics (AT T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Continuous reverse voltage		V <sub>R</sub>			70	V
Forward current		I <sub>F</sub>			70	mA
Repetitive Peak forward surge current	t <sub>p</sub> <1s	I <sub>FSM</sub>			70	mA
Non-repetitive peak forward current	t <sub>p</sub> <10ms	I <sub>FSM</sub>			100	mA
Operating temperature		T <sub>J</sub>	-55		+125	°C
Storage temperature		T <sub>STG</sub>	-55		+125	°C
Forward voltage	I <sub>F</sub> = 1 mA	V <sub>F</sub>			0.41	V
	I <sub>F</sub> = 10 mA	V <sub>F</sub>			0.75	V
	I <sub>F</sub> = 15 mA	V <sub>F</sub>			1.00	V
Reverse current	V <sub>R</sub> = 50 V V <sub>R</sub> = 70 V	I <sub>R</sub>			0.1 10	uA
Diode capacitance	V <sub>R</sub> = 0 V, f = 1MHz	C <sub>T</sub>			2.0	pF
Reverse recovery time	I <sub>F</sub> =I <sub>R</sub> =10mA, I <sub>tr</sub> =0. 1xI <sub>R</sub> , R <sub>L</sub> =100Ω	trr			5.0	ns

Rating and characteristic curves for each diode (BAS70 / BAS70-04 / BAS70-05 / BAS70-06)

FIG.1-FORWARD CHARACTERISTICS

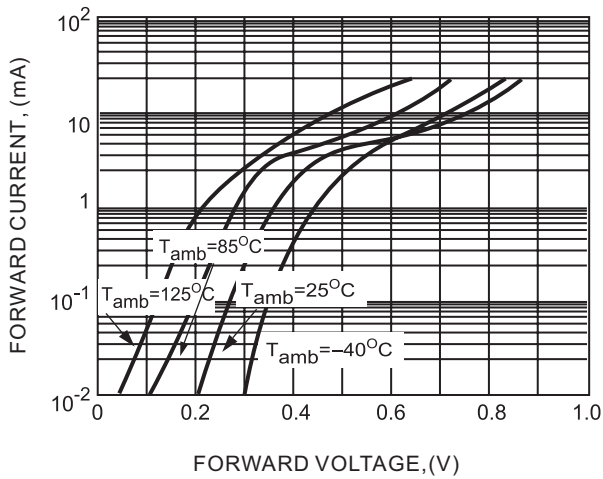


FIG.2-REVERSE CHARACTERISTICS

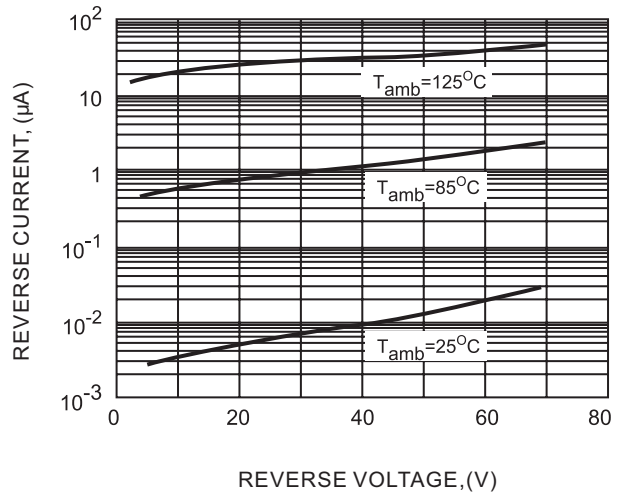


FIG.3 Differential forward resistance as a function of forward current; typical values.

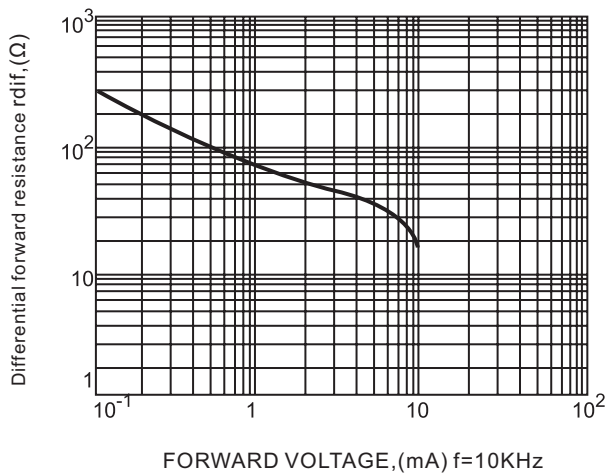
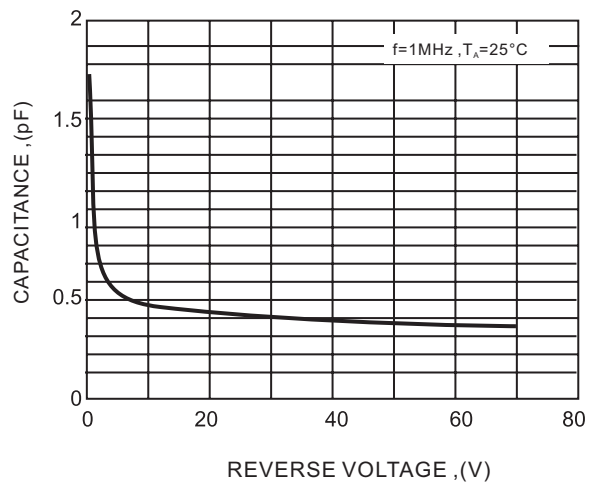
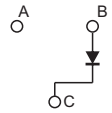
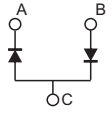
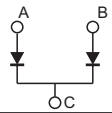
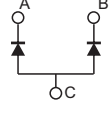


FIG.4-CAPACITANCE CHARACTERISTICS



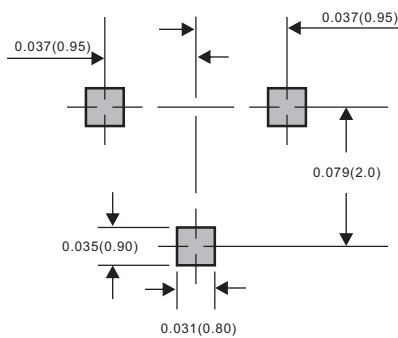
**BAS70 / BAS70-04 / BAS70-05 / BAS70-06**

**Pinning information**

Type number	Marking code	Symbol
BAS70	73, BE	
BAS70-04	74, CG	
BAS70-05	75, EH	
BAS70-06	76, GK	

**Suggested solder pad layout**

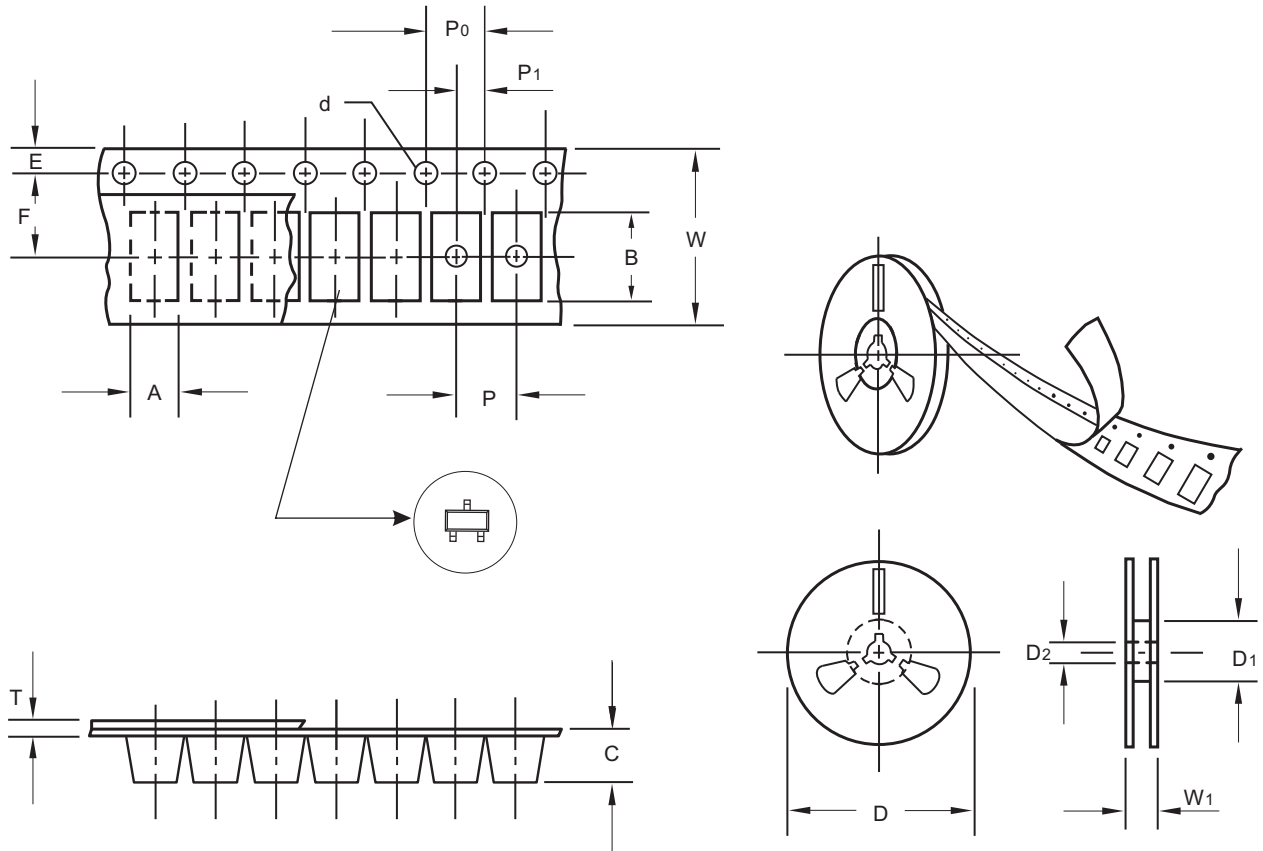
SOT-23



Dimensions in inches and (millimeters)

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**Packing information**



unit:mm

Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.1	3.15
Carrier length	B	0.1	2.77
Carrier depth	C	0.1	1.22
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

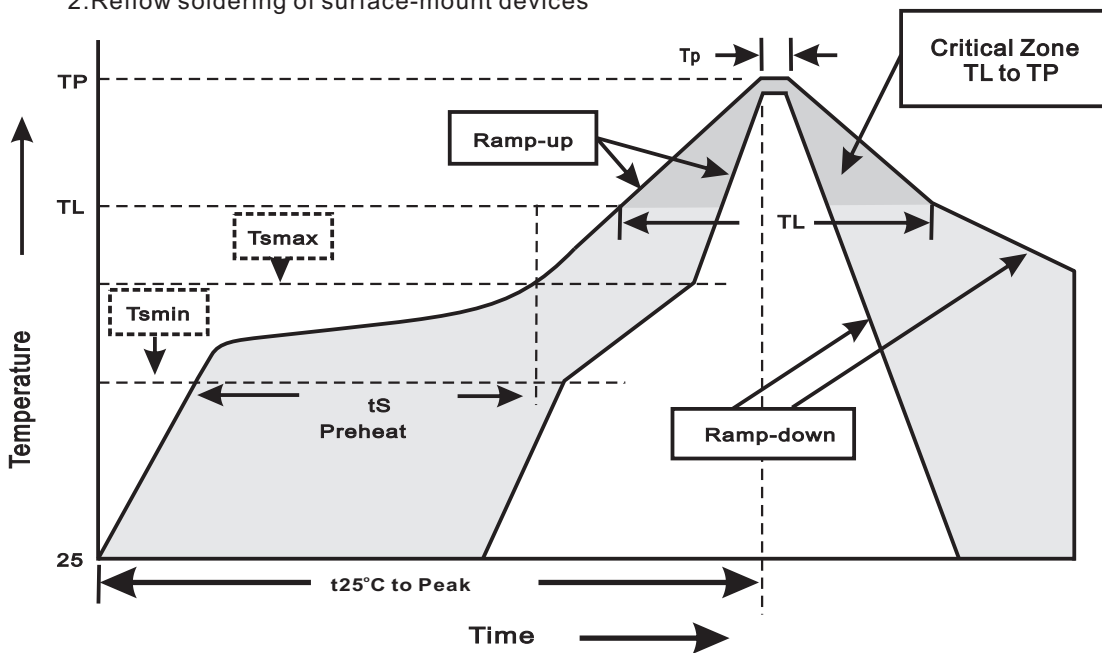
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## Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-23	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000	11.6

## Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



### 3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T <sub>L</sub> to T <sub>P</sub> )	<3°C/sec
Preheat -Temperature Min(T <sub>smín</sub> ) -Temperature Max(T <sub>smáx</sub> ) -Time(min to max)(t <sub>s</sub> )	150°C 200°C 60~120sec
T <sub>smáx</sub> to T <sub>L</sub> -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T <sub>L</sub> ) -Time(t <sub>L</sub> )	217°C 60~260sec
Peak Temperature(T <sub>P</sub> )	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t <sub>P</sub> )	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

**BAS70 / BAS70-04 / BAS70-05 / BAS70-06****High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R=80\%$ rate at $T_J=125^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A=25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$ , $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A=121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
9. Forward Surge	Peak forward surge current at $t_p < 1s$	MIL-STD-750D METHOD-4066-2
10. Humidity	at $T_A=85^\circ\text{C}$ , RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
11. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031