

BAS70T / BAS70-04T / BAS70-05T / BAS70-06T

List

List..... 1

Package outline..... 2

Features..... 2

Mechanical data..... 2

Maximum ratings and Electrical characteristics2

Rating and characteristic curves..... 3

Pinning information.....4

Marking..... 4

Suggested solder pad layout..... 4

Packing information..... 5

Reel packing..... 6

Suggested thermal profiles for soldering processes..... 6

High reliability test capabilities.....7

BAS70T / BAS70-04T / BAS70-05T / BAS70-06T

70mA Surface Mount Small Signal Schottky Diodes 70V

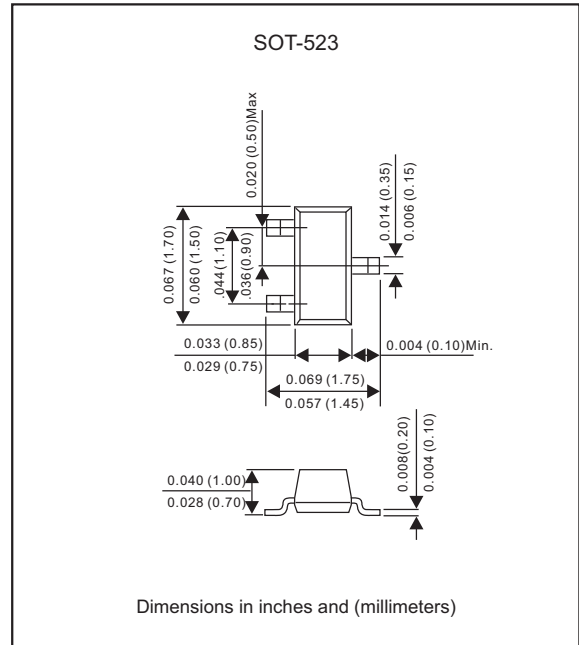
Features

- Low current rectification and high speed switching
- Small surface mount type
- Silicon epitaxial planar chip, metal silicon junction.
- High speed (trr < 5 ns)
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. BAS70T-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-523
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.003 gram

Package outline



Maximum ratings (AT T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Repetitive peak reverse voltage		V _{RRM}			70	V
Reverse voltage		V _R			70	V
Non-Repetitive peak forward surge current	t=1.0s	I _{FSM}			100	mA
Forward continuous current		I _{FM}			70	mA
Power dissipation		P _D			150	mW
Thermal Resistance	Junction to ambient	R _{θJA}		667		°C/W
Operating junction temperature range		T _J	-55		+125	°C
Storage temperature range		T _{STG}	-55		+125	°C

Electrical characteristics (AT T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Forward voltage	I _F =1mA	V _F			0.41	V
	I _F =15mA	V _F			1.0	V
Reverse current	V _R =50V	I _R			0.1	μA
Diode capacitance	V _R =0V, f=1MHz	C _T			2.0	pF
Reverse recovery time	I _F =I _F =10mA, I _{RR} =0.1 X I _R , R _L =100Ω	t _{rr}			5	ns

Rating and characteristic curves for each diode (BAS70T / BAS70-04T / BAS70-05T / BAS70-06T)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

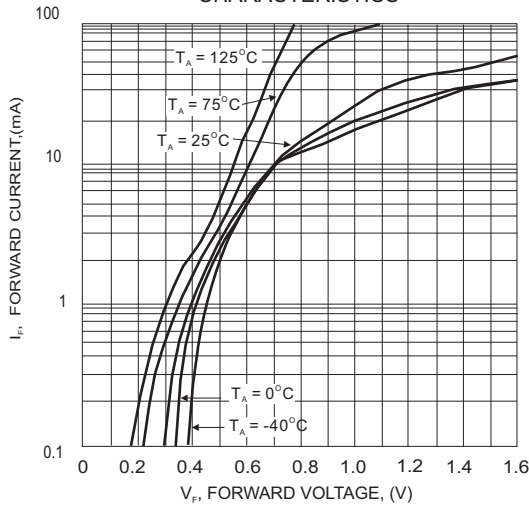


FIG.2 - TYPICAL REVERSE CHARACTERISTICS

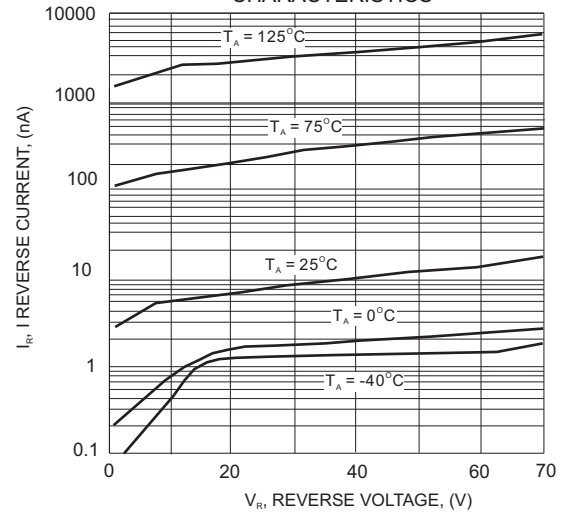


FIG.3-TYPICAL JUNCTION CAPACITANCE

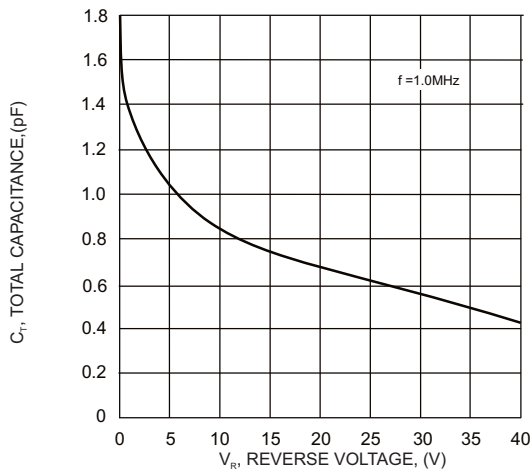
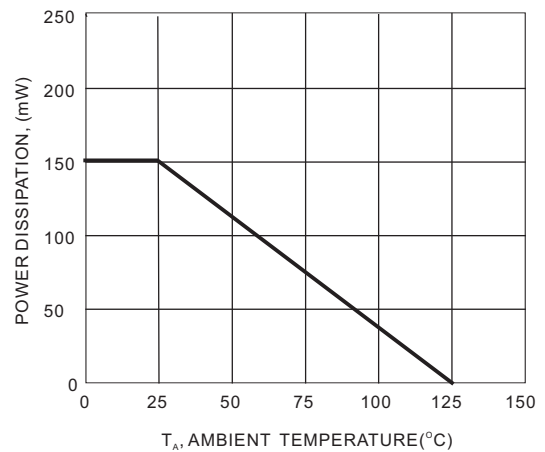
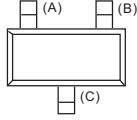
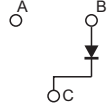
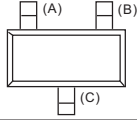
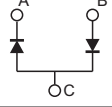
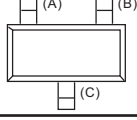
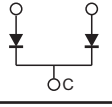
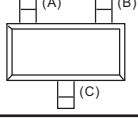
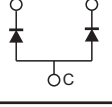


Fig. 4 POWER DERATING CURVE



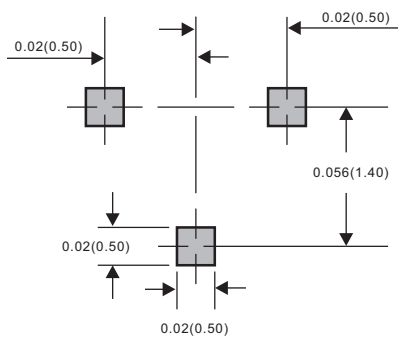
BAS70T / BAS70-04T / BAS70-05T / BAS70-06T

Pinning information

Type number	Marking code	Simplified outline	Symbol
BAS70T	7C		
BAS70-04T	7D		
BAS70-05T	7E		
BAS70-06T	7F		

Suggested solder pad layout

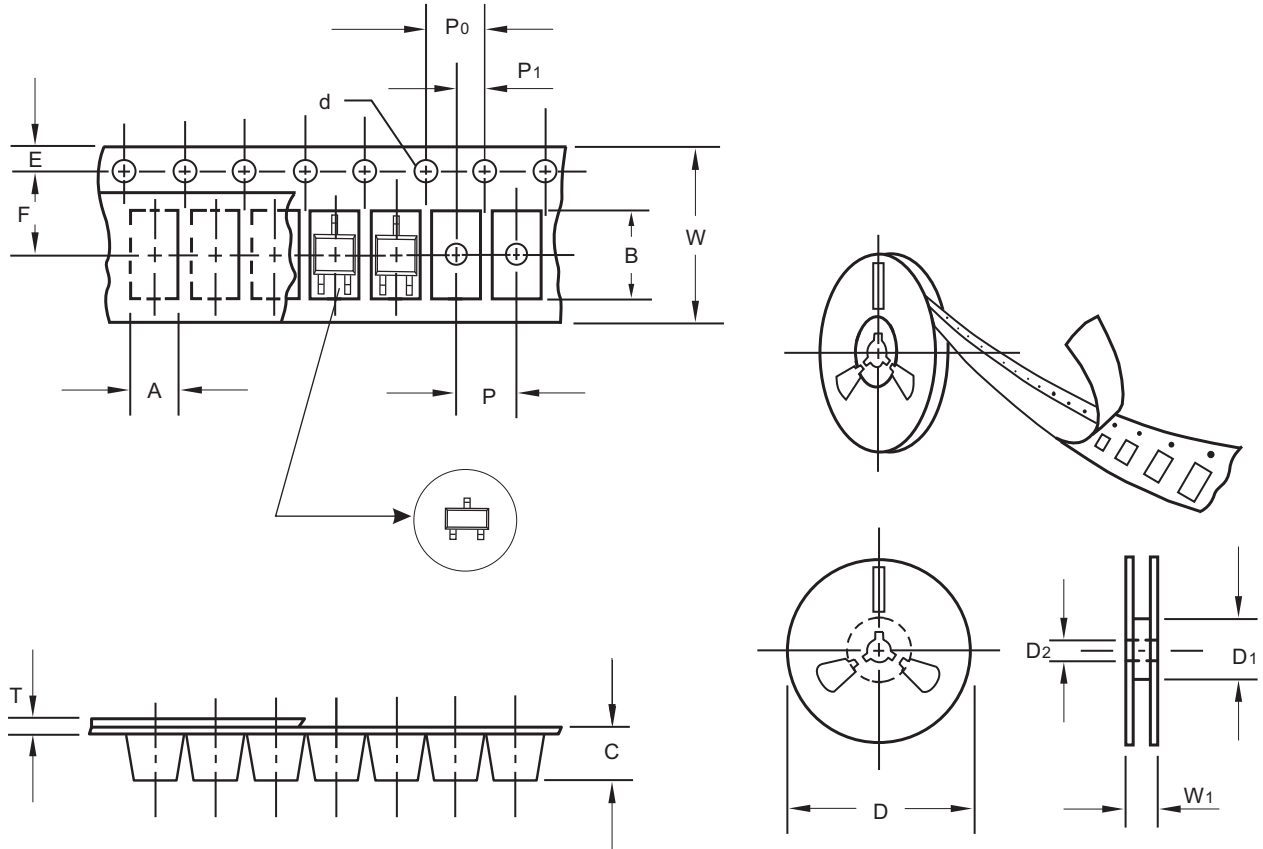
SOT-523



Dimensions in inches and (millimeters)

BAS70T / BAS70-04T / BAS70-05T / BAS70-06T

Packing information



unit:mm

Item	Symbol	Tolerance	SOT-523
Carrier width	A	0.1	1.73
Carrier length	B	0.1	1.85
Carrier depth	C	0.1	0.90
Sprocket hole	d	0.1	1.5
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	60.00
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.

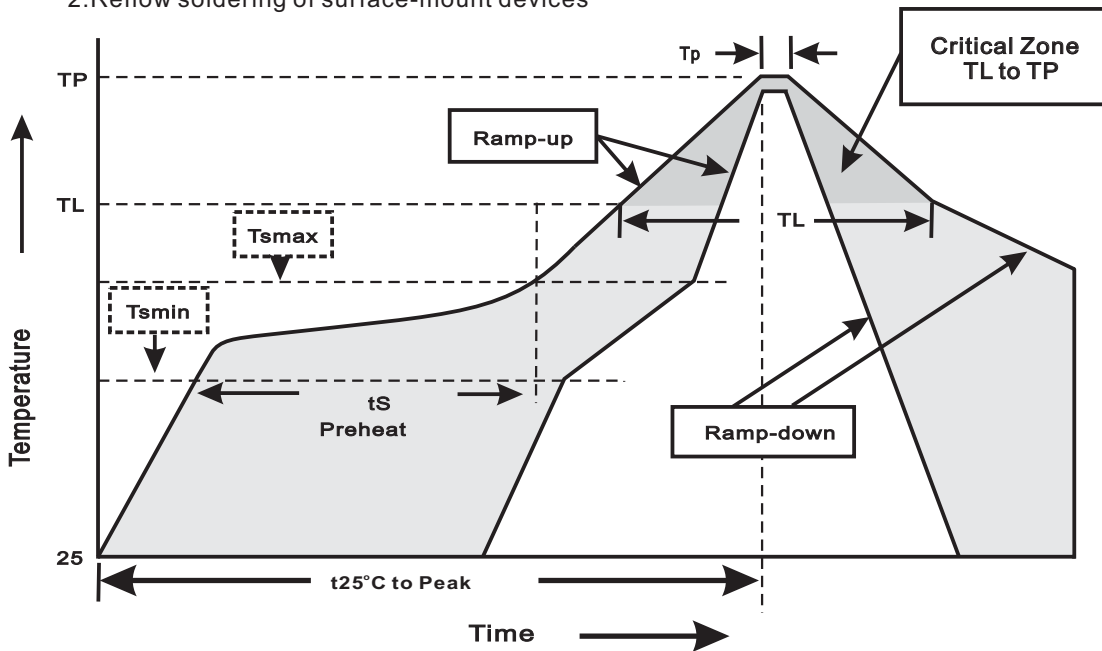
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Reel packing

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-523	7"	3,000	4.0	30,000	183*123*183	178	382*257*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(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	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. Forward Surge	Forward surge current $t_p=1\text{s}$	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A=85^\circ\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031