

BAS21T

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BAS21T

150mW Surface Mount Switching Diode Array - 200V

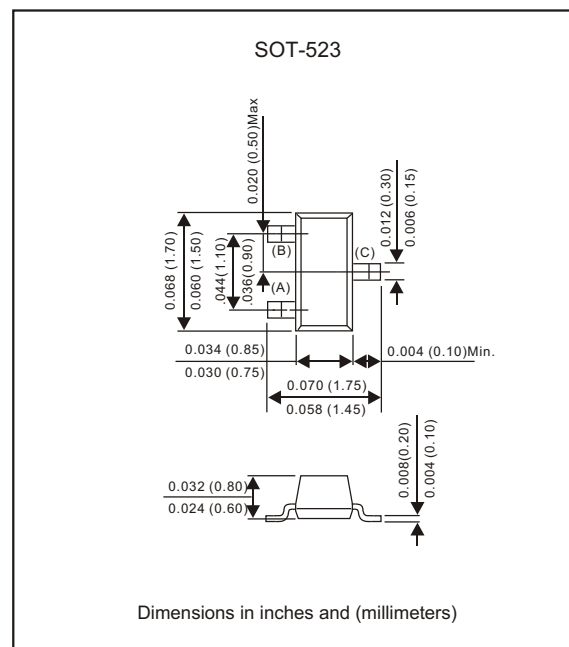
Features

- Fast speed switching.
- For general purposeswitching application.
- High conductance.
- Silicon epitaxial planarchip.
- Suffix "-H" indicates Halogen-free part, ex.BAS21T-H.
- Lead-free parts meetRoHS requirments.

Mechanical data

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

Package outline



Maximum ratings (ATT_A=25°C unless otherwise noted)

PARAMETER	Symbol	Value	UNIT
DC Reverse Voltage	V_R	200	V
Average Rectified Current	I_O	200	mA
Forward Continuous Current	I_{FM}	400	mA
Non-Repetitive Peak Forward Surge Current	I_{FSM}	2.5	A
		0.5	
Repetitive Peak Forward Surge Current	I_{FRM}	625	mA
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	°C/W
Total Device Dissipation	P_D	150	mW
Operating Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-65 ~ +175	°C
Reverse Breakdown Voltage, $I_{BR} = 100\mu A$	V_{BR}	250	V
Reverse Voltage Leakage Current	I_R	0.1	uA
		15	
Diode Capacitance, $V_R = 0V$, $f = 1.0MHz$	C_T	5.0	pF
Reverse Recovery Time $I_F = I_R = 10mA$, $R_L = 50\Omega$	T_{rr}	50	nS
Forward Voltage	V_F	1000	mV
		1250	

Rating and characteristic curves for each diode(BAS21T)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

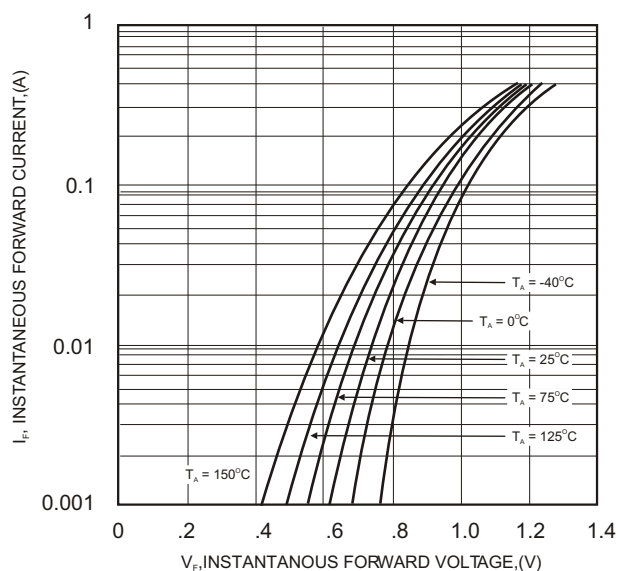


FIG.2-TYPICAL REVERSE CHARACTERISTICS

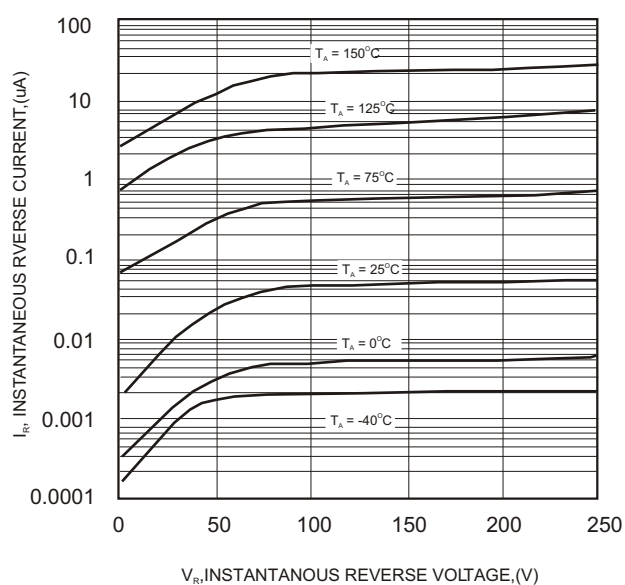


FIG.3-TYPICAL CAPACITANCE VS REVERSE VOLTAGE

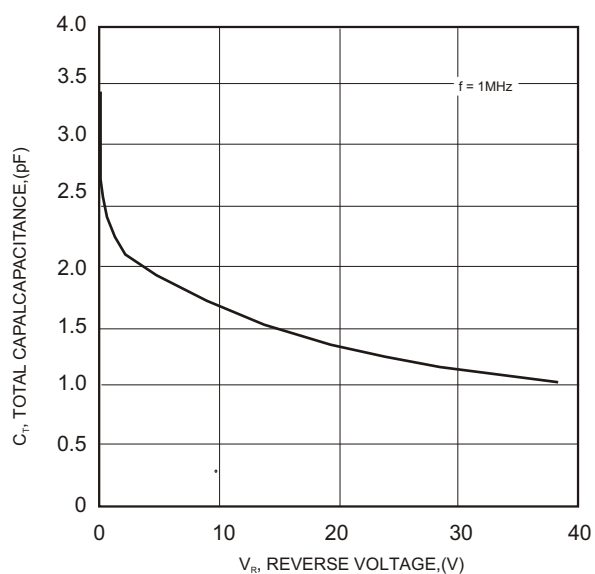
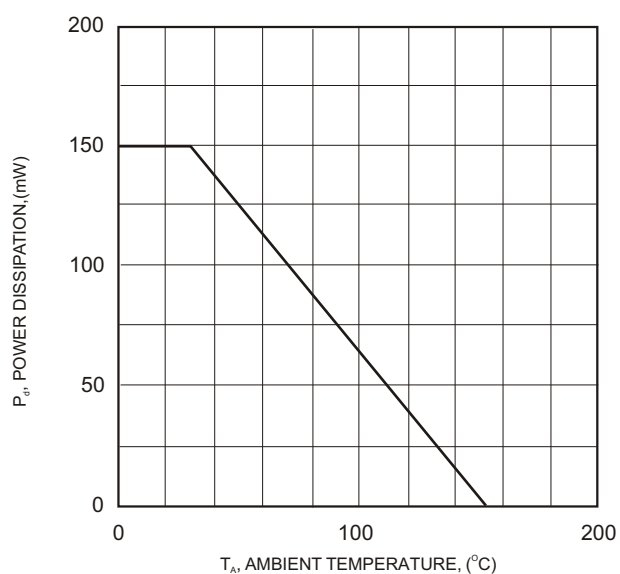
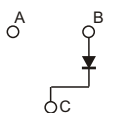


FIG.4-POWER DERATING CURVE, TOTAL PACKAGE



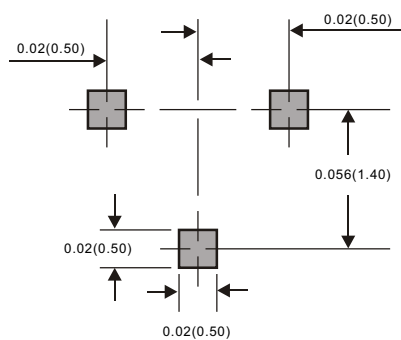
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Pinning information

Type number	Marking code	Symbol
BAS21T	T3	

Suggested solder pad layout

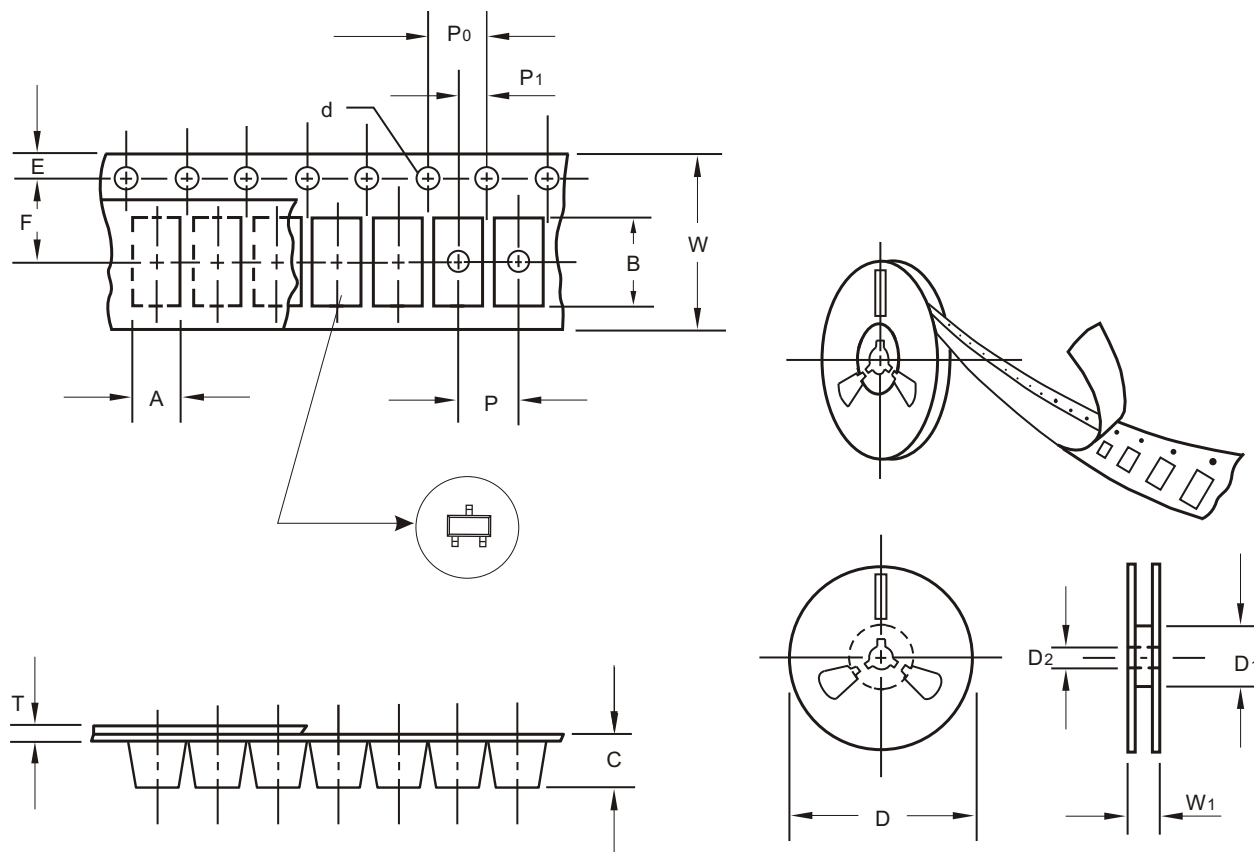
SOT-523



Dimensions in inches and (millimeters)

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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.

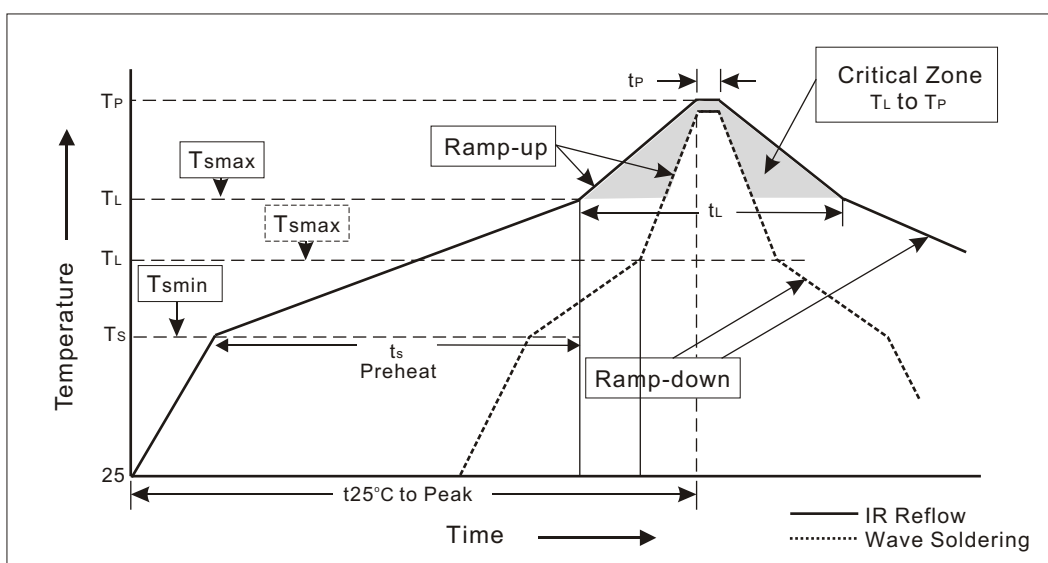
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Reel packing

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*183*123	178	382*262*387	240,000	9.5

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=10°C~35°C Humidity=65%±15%
- 2.Reflow soldering of surface-mount devices



3.Flow (wave)soldering (solder dipping)

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	$<3^\circ\text{C/sec}$
Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(min to max)(t_s)	100°C 150°C 60~120sec
T_{smax} to T_L -Ramp-upRate	$<3^\circ\text{C/sec}$
Time maintained above: -Temperature(T_L) -Time(t_L)	183°C 60~150sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	$<6^\circ\text{C/sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for 10 ± 2 sec. immerse body into solder $1/16" \pm 1/32"$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^\circ\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_A = 150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1026
4. Forward Operation Life	Rated average rectifier current at $T = 25^\circ\text{C}$ for 500 hrs.	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.	
7. Temperature Cycling	-55°C to $+125^\circ\text{C}$ dwelled for 30 min. and transferred for 5 min. 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	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
10. Humidity	at $T_A = 65^\circ\text{C}$, RH=98% for 1000 hrs.	MIL-STD-750D METHOD-1038
11. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031
12. Solvent Resistance	Dip into Freon at 25°C for 1 min.	MIL-STD-202F METHOD-215