

BAS16T/BAV70T/BAW56T/BAV99T**List**

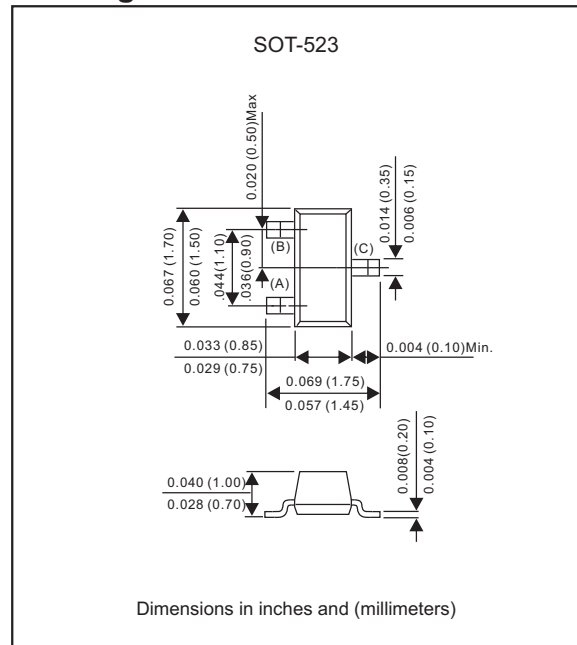
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BAS16T/BAV70T/BAW56T/BAV99T**150mW Surface Mount Small Signal Switching Diode- 85V****Features**

- Fast speed switching.
- For general purpose switching application.
- High conductance.
- Silicon epitaxial planar chip.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. BAS16T-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 $T_A=25^\circ\text{C}$ unless otherwise noted)

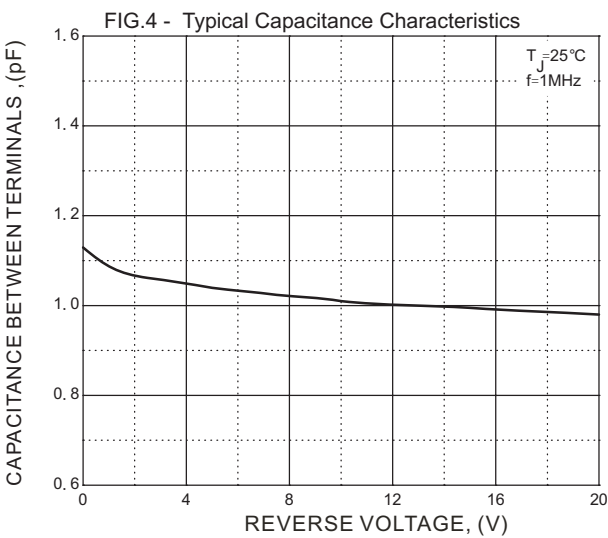
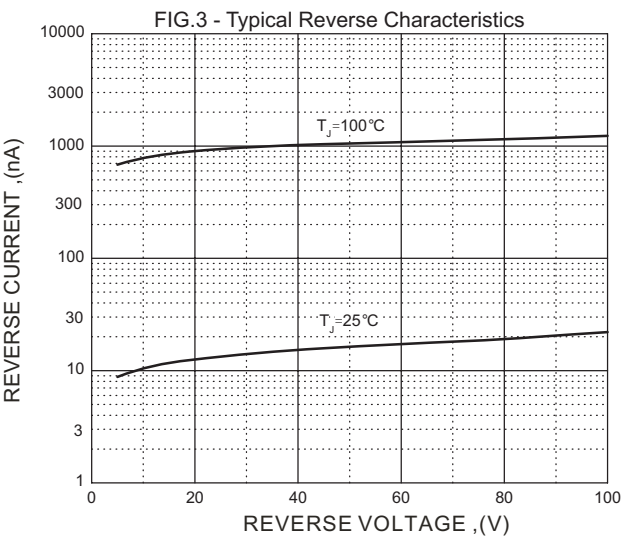
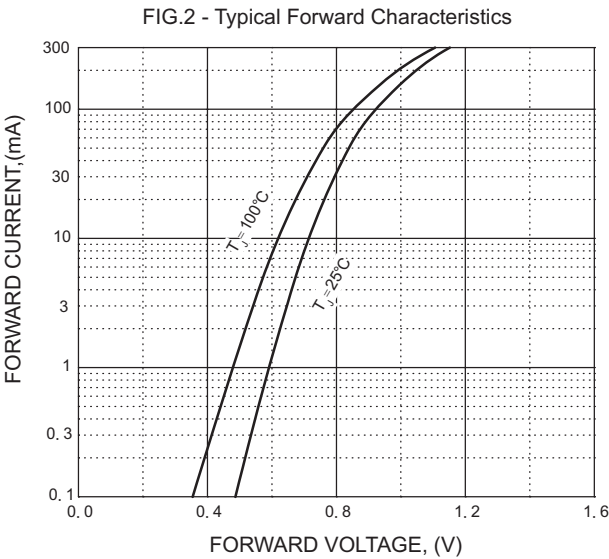
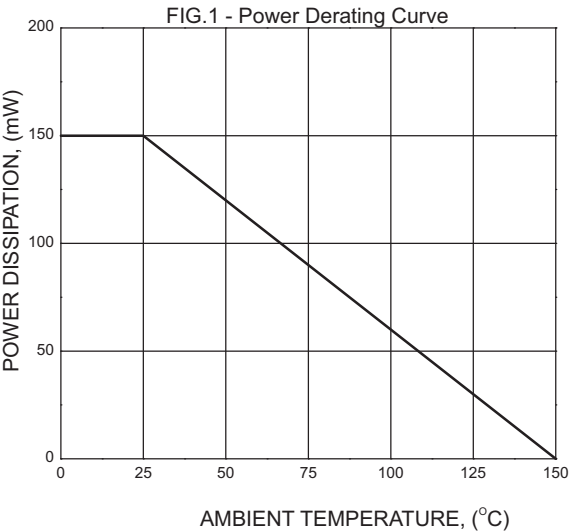
PARAMETER	Symbol	BAS16T	BAV70T	BAW56T	BAV99T	UNIT
Reverse Voltage	V _R	85				V
Forward Continuous Current(Note 1)	I _o	150	75			mA
Non-Repetitive Peak Forward Surge Current @t = 1.0us @t =1.0s	I _{FSM}	2.0 0.5				A
Power Dissipation(Note 1)	P _D	150				mW
Thermal Resistance Junction to Ambient(Note 1)	R _{θJA}	833				°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150				°C
Storage Temperature Range	T _{STG}	-55 ~ +150				°C

Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

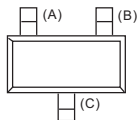
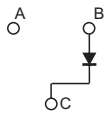
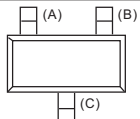
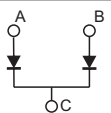
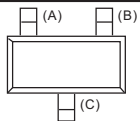
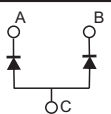
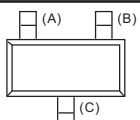
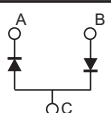
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse Breakdown Voltage at $I_R=100\mu\text{A}$	$V_{(BR)R}$	85			V
Forward Voltage at $I_F=1.0\text{mA}$ at $I_F=10\text{mA}$ at $I_F=50\text{mA}$ at $I_F=150\text{mA}$	V_F			0.715 0.855 1.0 1.25	V
Reverse Voltage Leakage Current at $V_R=75\text{V}$ at $V_R=25\text{V}$	I_R			2.0 0.03	μA
Total Capacitance at $V_R=0\text{V}$, $f=1.0\text{MHz}$	C_T			1.5	pF
Reverse Recover Time at $I_F=I_R=10\text{mA}$, $I_{rr}=0.1I_R$, $R_L=100\Omega$	t_{rr}			4.0	ns

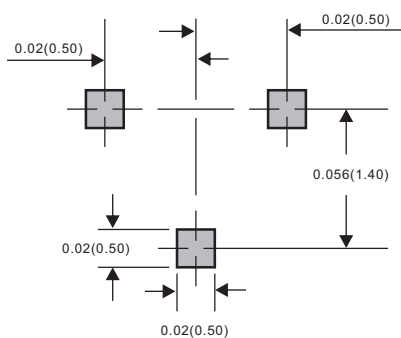
Note : 1. Device mounted on FR-4 PC board with recommended pad layout.

Rating and characteristic curves for each diode (BAS16T/BAV70T/BAW56T/BAV99T)

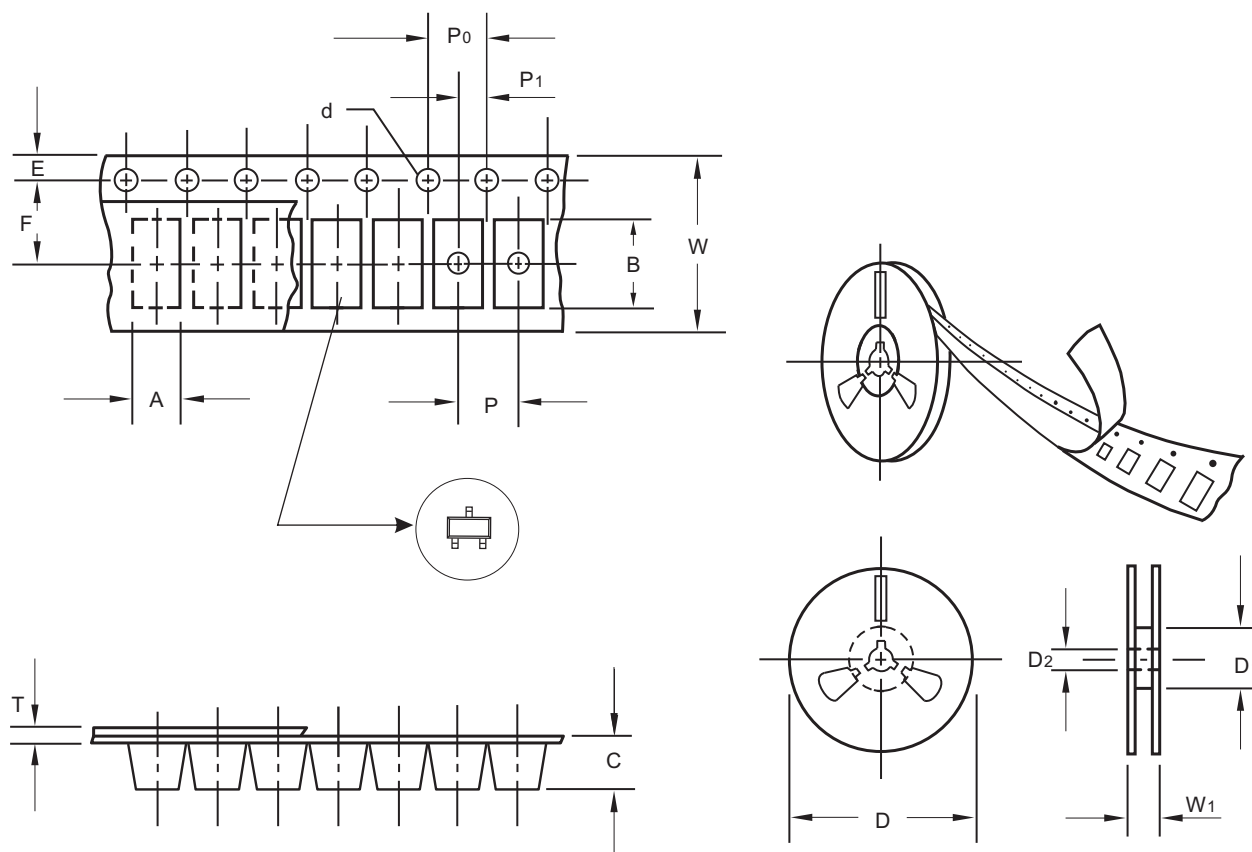


BAS16T/BAV70T/BAW56T/BAV99T**Pinning information**

Type number	Marking code	Simplified outline	Symbol
BAS16T	A2		
BAV70T	JJ		
BAW56T	JD		
BAV99T	JE		

Suggested solder pad layout**SOT-523**

Dimensions in inches and (millimeters)

BAS16T/BAV70T/BAW56T/BAV99T**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

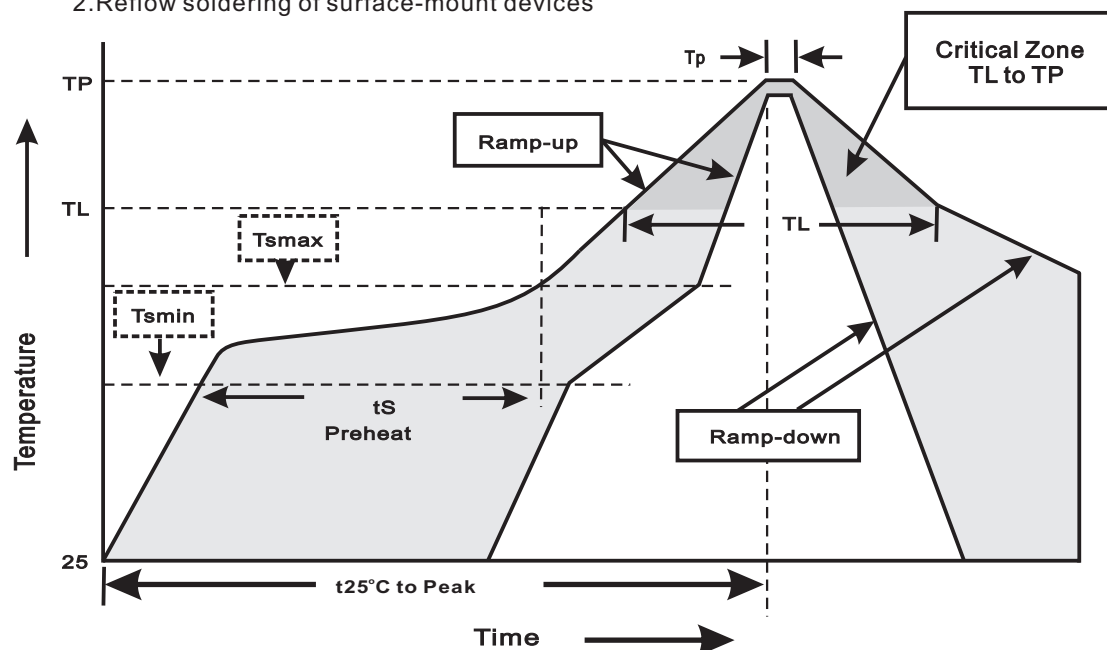
Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

BAS16T/BAV70T/BAW56T/BAV99T**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	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 _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
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°C/sec
Time 25°C to Peak Temperature	<6minutes

BAS16T/BAV70T/BAW56T/BAV99T**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 $T_J = 150^\circ\text{C}$ 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 $+125^\circ\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	Non-Repetitive Peak Forward Surge Current	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