

BAS16W/BAV70W/BAW56W/BAV99W**List**

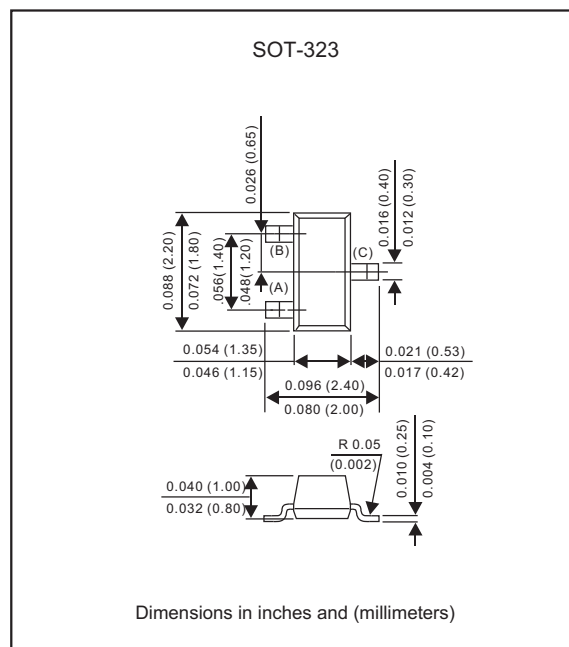
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BAS16W/BAV70W/BAW56W/BAV99W**200mW Surface Mount
Switching Diode-70-75V****Features**

- Fast speed switching.
- For general purposeswitching application.
- High conductance.
- Silicon epitaxial planarchip.
- Lead-free parts meetRoHS requirments.

Mechanical data

- Epoxy:UL94-V0 rated flameretardant
- Case : Molded plastic, SOT-323
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.006gram

Package outline**Maximum ratings** (AT $T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	Symbol	BAS16W	BAV70W	BAW56W	BAV99W	UNIT
Reverse Voltage	V_R	75	70			V
Forward Current	I_F	200			215	mA
Peak Forward Surge Current	I_{FM}	500				mA
Total Device Dissipation FR-5 Board* ¹ , $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	200				mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	625				$^\circ\text{C/W}$
Total Device Dissipation Substrate* ² , $T_A = 25^\circ\text{C}$ Derate Above 25°C	P_D	300				mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417				$^\circ\text{C/W}$
Operating Temperature Range	T_J	$-55 \sim +150$				$^\circ\text{C}$
Storage Temperature Range	T_{STG}	$-65 \sim +175$				$^\circ\text{C}$
Reverse Breakdown Voltage($I_{BR} = 100\mu\text{Adc}$)	V_{BR}	75	70			V
Reverse Voltage Leakage Current at $V_R = 75\text{V}$ at $V_R = 70\text{V}$ at $V_R = 25\text{V}$, $T_J = 150^\circ\text{C}$ at $V_R = 75\text{V}$, $T_J = 150^\circ\text{C}$ at $V_R = 70\text{V}$, $T_J = 150^\circ\text{C}$	I_R	1.0 - 30.0 50.0 -	- 2.5 60.0 - 100.0	- 2.5 30.0 - 50.0	- 2.5 30.0 - 50.0	μAdc
Diode Capacitance($V_R = 0\text{V}$, $f = 1.0\text{MHz}$)	C_D	2.0	1.5	2.0	1.5	pF
Reverse Recovery Time($I_F = I_R = 10\text{mA}$, $V_R = 5.0\text{Vdc}$, $I_R(\text{REC}) = 1.0\text{mAdc}$, $R_L = 100_{\Omega}$)	T_{rr}	6.0				nS
Forward Voltage at $I_F = 1.0\text{mAdc}$ at $I_F = 10\text{mAdc}$ at $I_F = 50\text{mAdc}$ at $I_F = 150\text{mAdc}$	V_F	715 855 1000 1250				mV

Rating and characteristic curves for each diode (BAS16W/BAV70W/BAW56W/BAV99W)

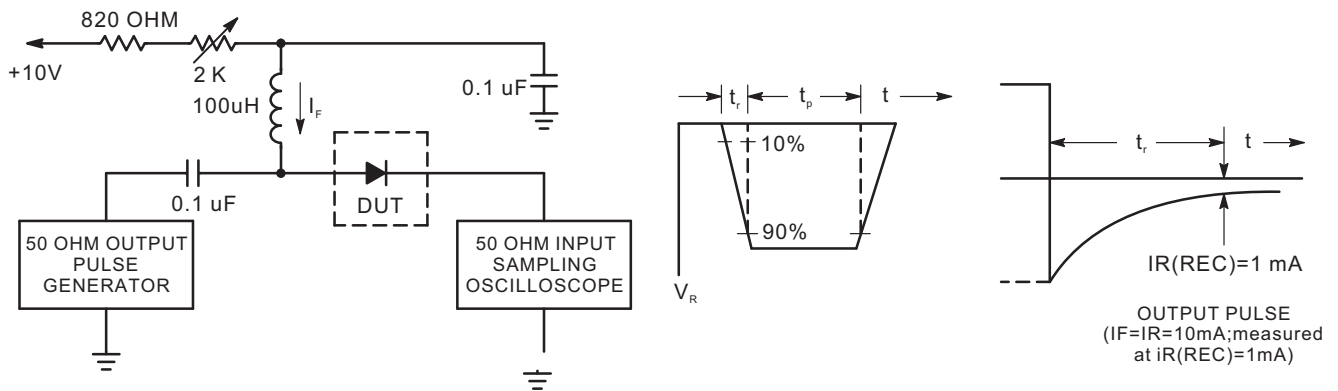


FIG.1-TYPICAL FORWARD CHARACTERISTICS

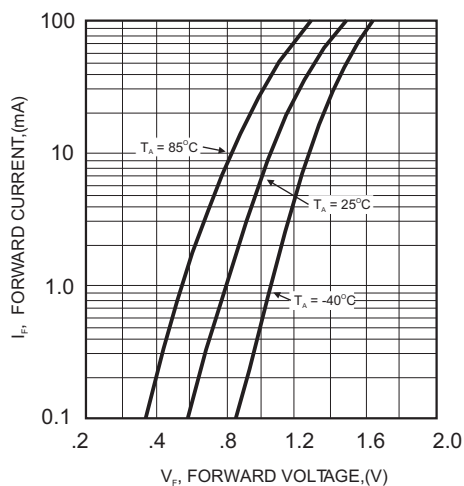
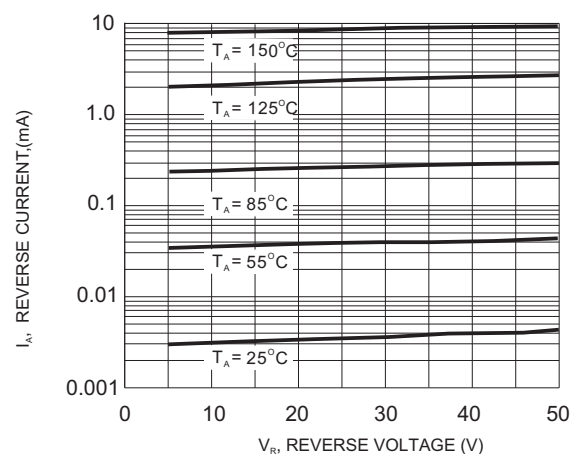


FIG.2 - LEAKAGE CURRENT



Rating and characteristic curves for each diode (BAS16W/BAV70W/BAW56W/BAV99W)

FIG.3 - DIODE CAPACITANCE (BAS16W)

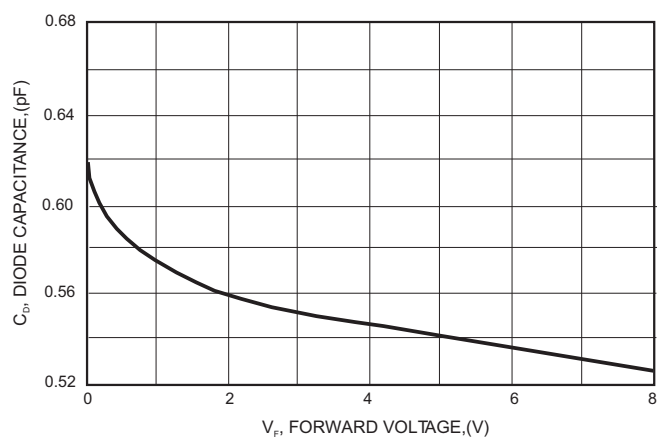


FIG.4 - DIODE CAPACITANCE (BAV70W)

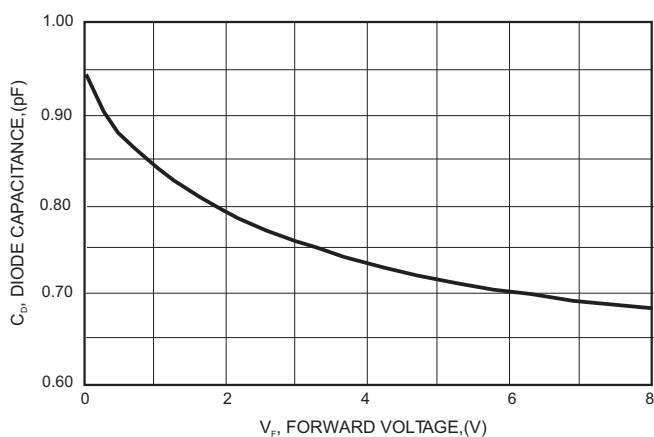


FIG.5 - DIODE CAPACITANCE (BAW56W)

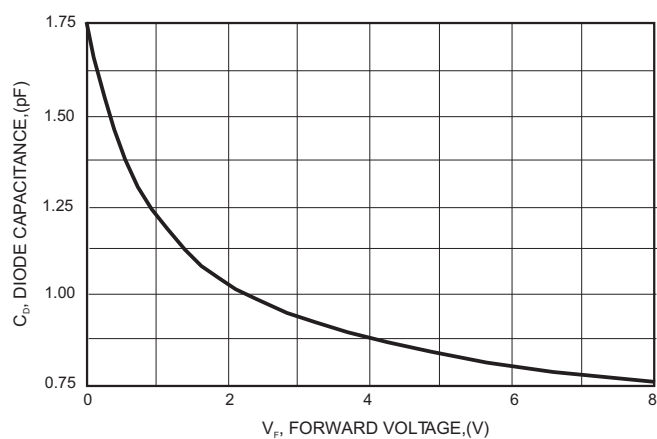
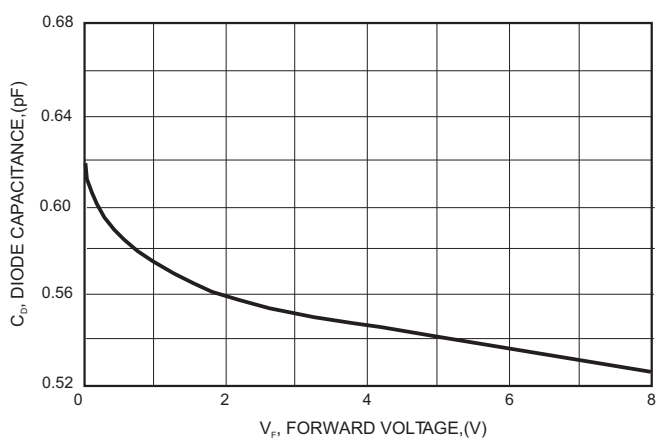
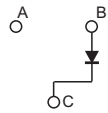
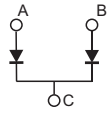
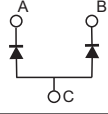
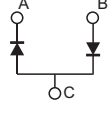


FIG.6 - DIODE CAPACITANCE (BAV99W)

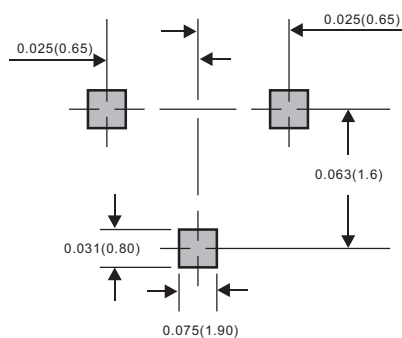


BAS16W/BAV70W/BAW56W/BAV99W**Pinning information**

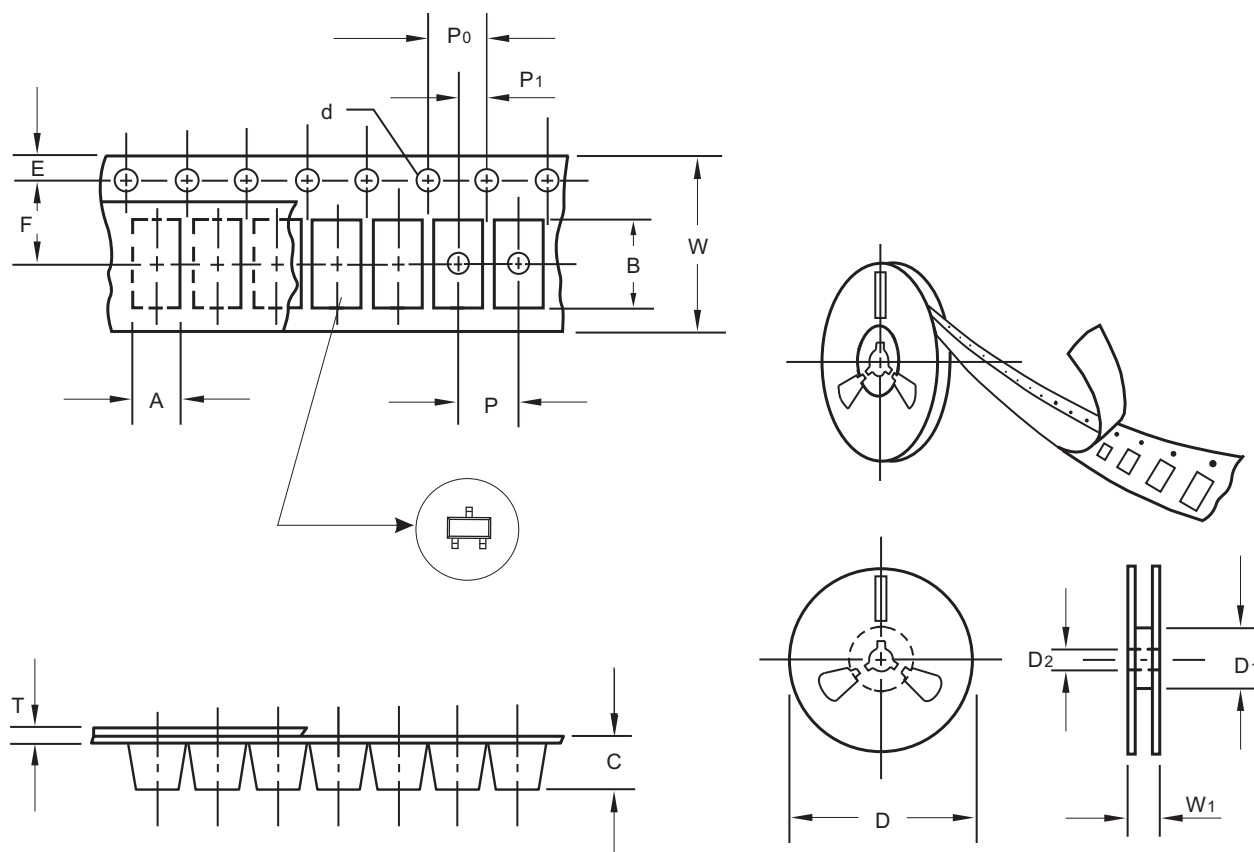
Type number	Marking code	Symbol
BAS16W	A6	
BAV70W	A4, JA	
BAW56W	A1, JC	
BAV99W	A7, JG	

Suggested solder pad layout

SOT-323



Dimensions in inches and (millimeters)

BAS16W/BAV70W/BAW56W/BAV99W**Packing information**

unit:mm

Item	Symbol	Tolerance	SOT-323
Carrier width	A	0.1	2.36
Carrier length	B	0.1	2.40
Carrier depth	C	0.1	1.20
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

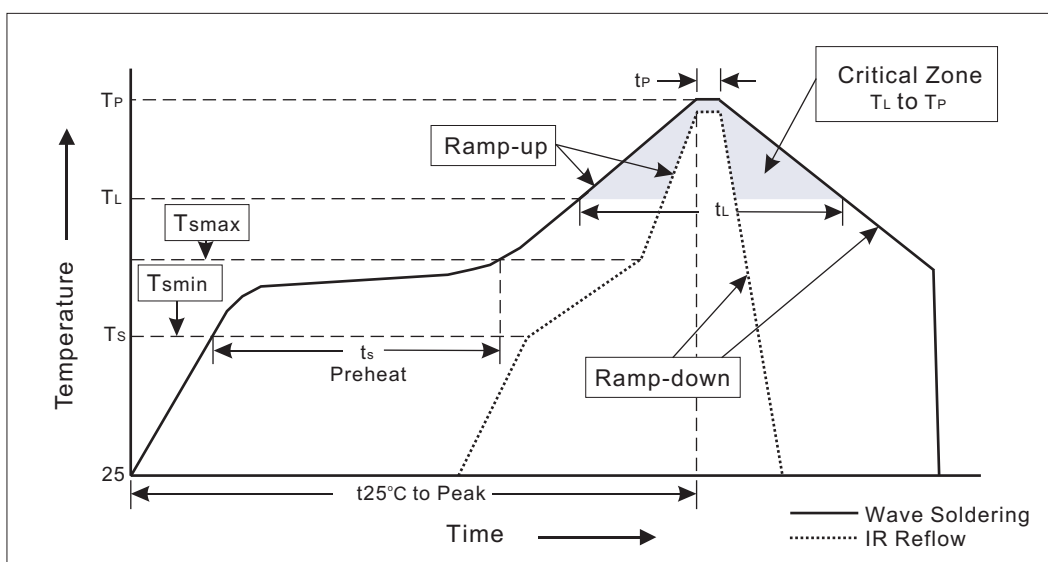
Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

BAS16W/BAV70W/BAW56W/BAV99W**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-323	7"	3000	4.0	30,000	195*195*150	178	460*400*420	360,000	15.0

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)	$<3^{\circ}\text{C}/\text{sec}$
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	$<3^{\circ}\text{C}/\text{sec}$
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	$<6^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$

BAS16W/BAV70W/BAW56W/BAV99W**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$ 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 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.	
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 1000hrs.	MIL-STD-750D METHOD-1038
11. High Temperature Storage Life	at 175°C for 1000hrs.	MIL-STD-750D METHOD-1031
12. Solvent Resistance	Dip into Freon at 25°C for 1 min.	MIL-STD-202F METHOD-215