

BAV19WS-FL THRU BAV21WS-FL**List**

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BAV19WS-FL THRU BAV21WS-FL

200mA Surface Mount Switching Diode-100V-200V

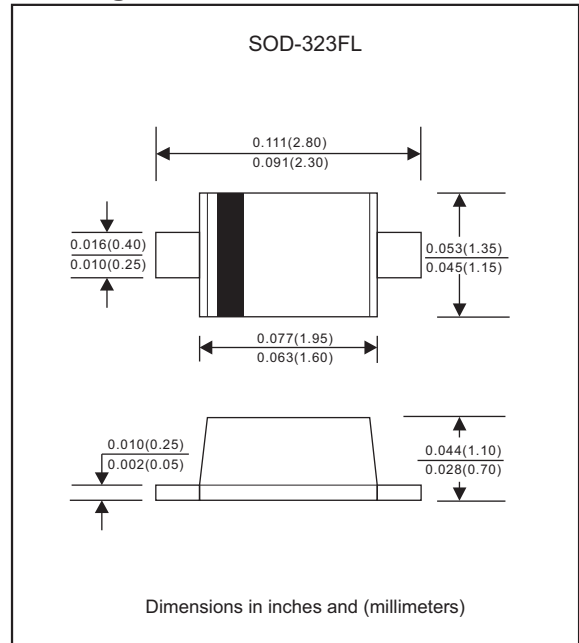
Features

- Flat Lead SOD-323FL Small Outline Plastic Package
- Surface Device Type Mounting.
- RoHS Compliant.
- Green EMC
- Matte Tin(Sn) Lead Finish
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. BAV19WS-FL-H

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323FL
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.004 gram

Package outline



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

PARAMETER	Symbol	BAV19WS-FL	BAV20WS-FL	BAV21WS-FL	UNIT
DC Blocking voltage	V_R	100	150	200	V
Maximum Repetitive Reverse Voltage	V_{RRM}	250			V
Average Rectified Forward Current	I_O	200			mA
Non-repetitive Peak Forward Current	I_{FSM}	1.0 4.0			A
Power Dissipation	P_D	200			mW
Operating junction temperature range	T_J	-65 ~ +150			$^\circ\text{C}$
Storage temperature range	T_{STG}	-65 ~ +150			$^\circ\text{C}$

These ratings are limiting values above which the serviceability of the diode may be impaired

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

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Reverse Breakdown Voltage	BAV19WS-FL, $I_R = 100 \mu\text{A}$ BAV20WS-FL, $I_R = 100 \mu\text{A}$ BAV21WS-FL, $I_R = 100 \mu\text{A}$	V_{BR}	120 200 250			V
Reverse Leakage Current	@rated DC blocking voltage, $T_J=25^\circ\text{C}$	I_R			100	nA
Forward Voltage	$I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$	V_F			1.00 1.25	V
Diode capacitance	$V_R = 0\text{V}$, $f = 1.0\text{MHz}$	C_J			5.0	pF
Reverse Recovery Time	$I_F = I_R = 30\text{mA}$, $I_{RR} = 3\text{mA}$, $R_L = 100\Omega$	t_{rr}			50	ns

Rating and characteristic curves(BAV19WS-FL THRU BAV21WS-FL)

Fig.1 TYPICAL FORWARD CHARACTERISTICS

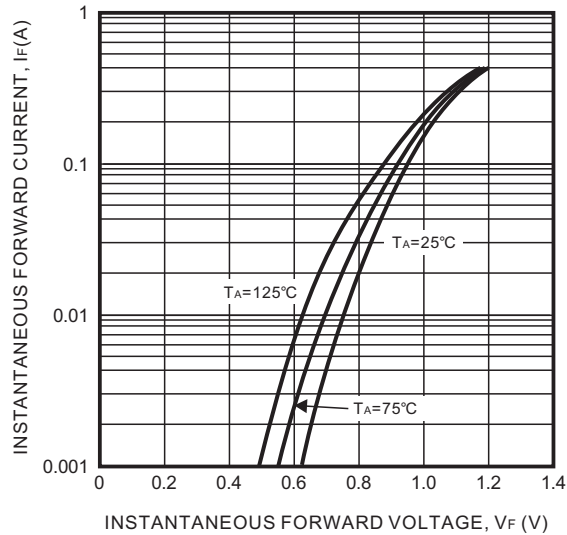


Fig.2 TYPICAL REVERSE CHARACTERISTICS

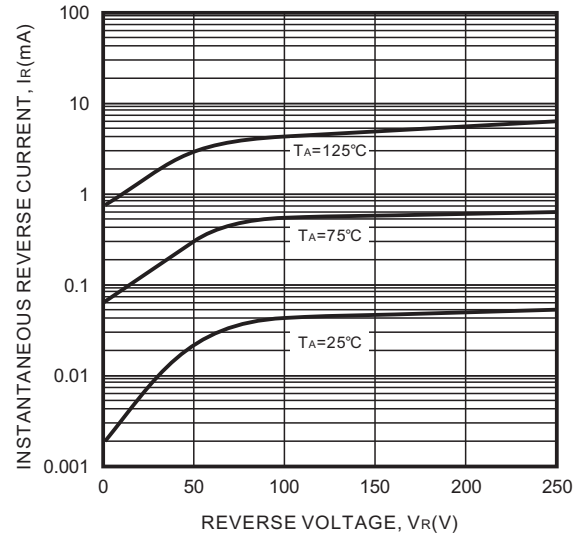


Fig.3 TYPICAL JUNCTION CAPACITANCE CHARACTERISTICS

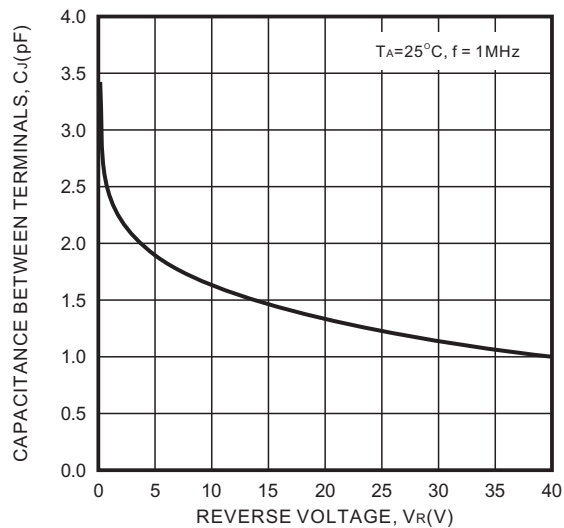
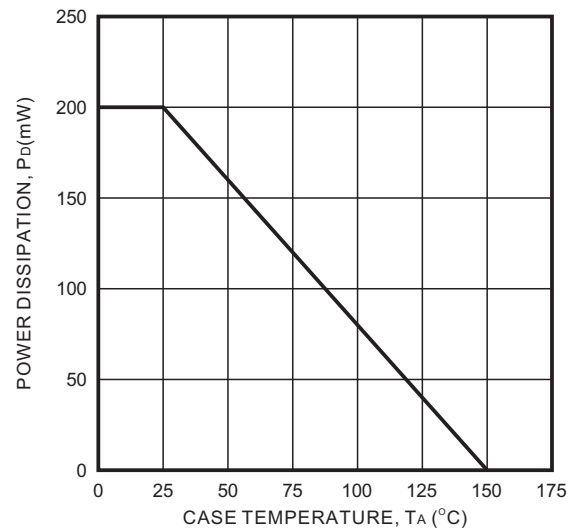


Fig.4 POWER DERATING CURVE

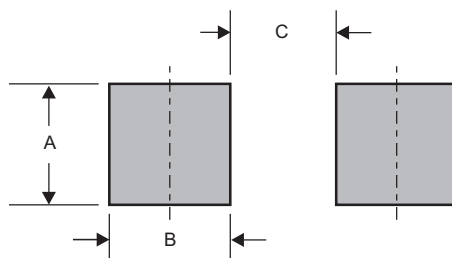


BAV19WS-FL THRU BAV21WS-FL**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
BAV19WS-FL	S5,JX
BAV20WS-FL	S6,T2
BAV21WS-FL	S7,T3

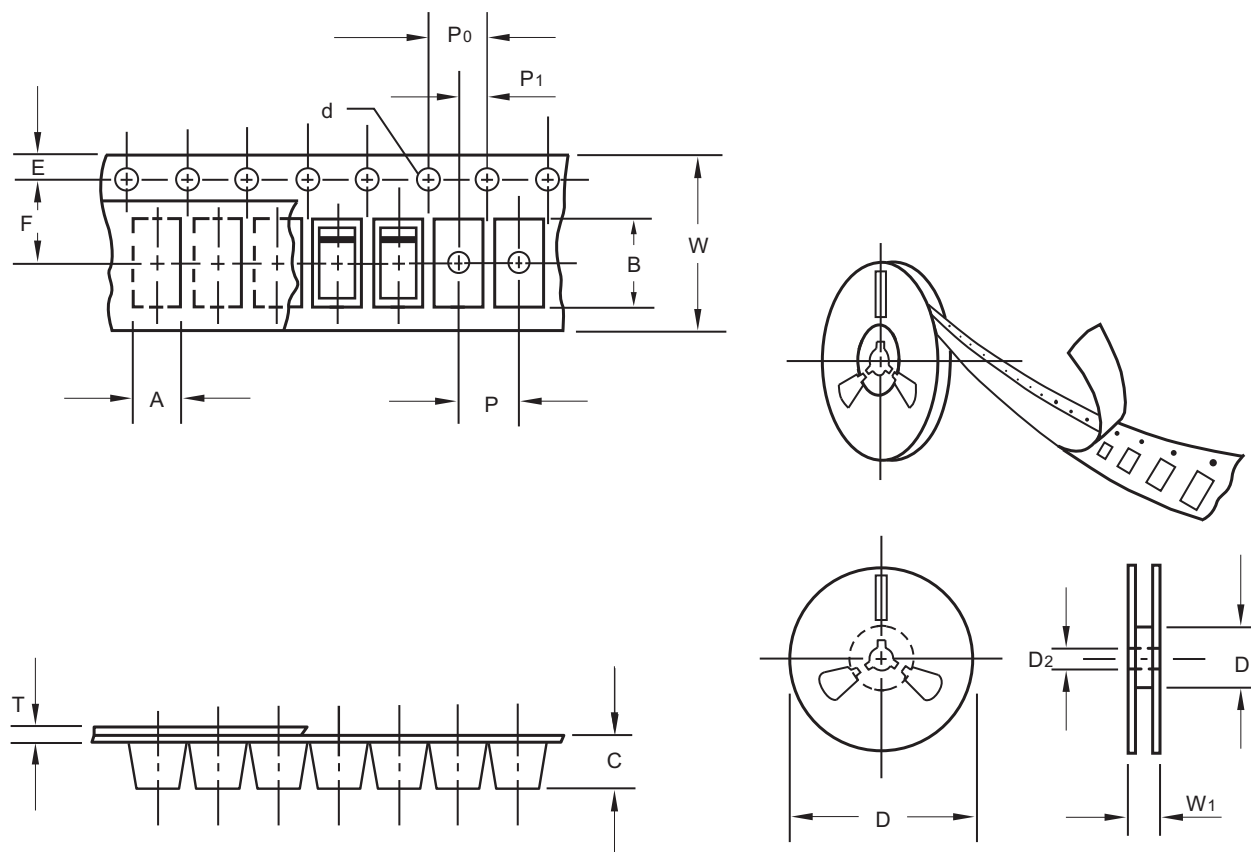
Suggested solder pad layout

Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323FL	0.032 (0.82)	0.022 (0.56)	0.069 (1.75)

BAV19WS-FL THRU BAV21WS-FL

Packing information



unit:mm

Item	Symbol	Tolerance	SOD-323FL
Carrier width	A	0.1	1.46
Carrier length	B	0.1	2.95
Carrier depth	C	0.1	1.25
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.

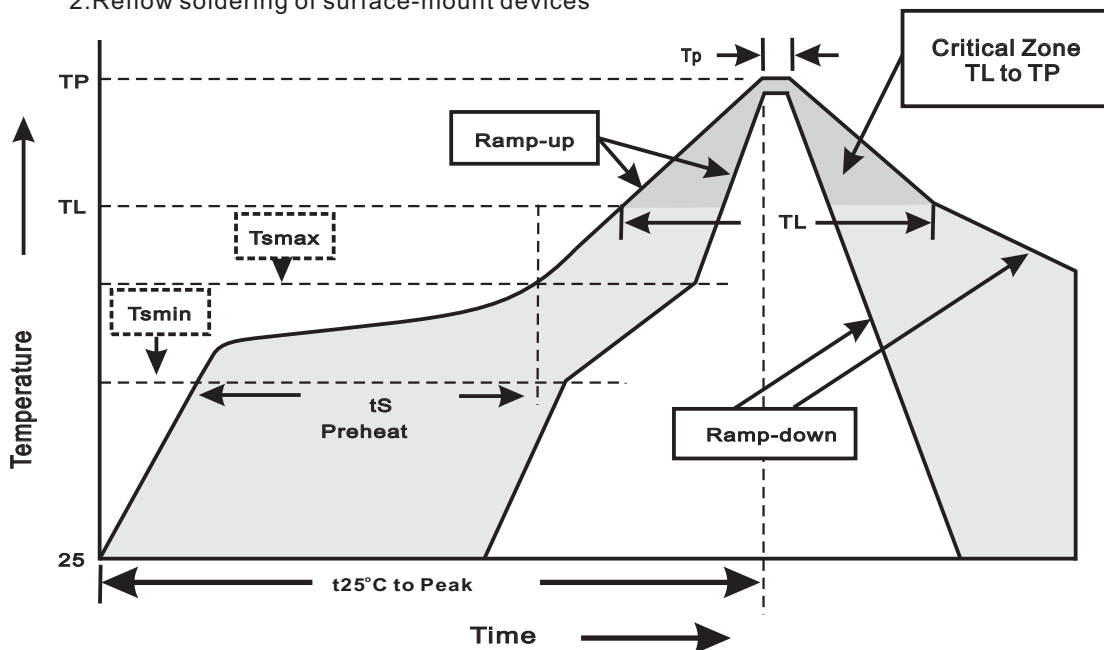
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Reel packing

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)
SOD-323FL	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=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)	$<3^{\circ}\text{C}/\text{sec}$
Preheat -Temperature Min(T_{smmin}) -Temperature Max(T_{smmax}) -Time(min to max)(t_s)	150°C 200°C $60\sim 120\text{sec}$
T_{smmax} to T_L -Ramp-upRate	$<3^{\circ}\text{C}/\text{sec}$
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C $60\sim 260\text{sec}$
Peak Temperature(T_P)	$255^{\circ}\text{C}-0/+5^{\circ}\text{C}$
Time within 5°C of actual Peak Temperature(t_P)	$10\sim 30\text{sec}$
Ramp-down Rate	$<6^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$

BAV19WS-FL THRU BAV21WS-FL**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm5^{\circ}\text{C}$ for $10\pm2\text{sec.}$ immerse body into solder $1/16''\pm1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm5^{\circ}\text{C}$ 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	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