

BAV19W-FL THRU BAV21W-FL**List**

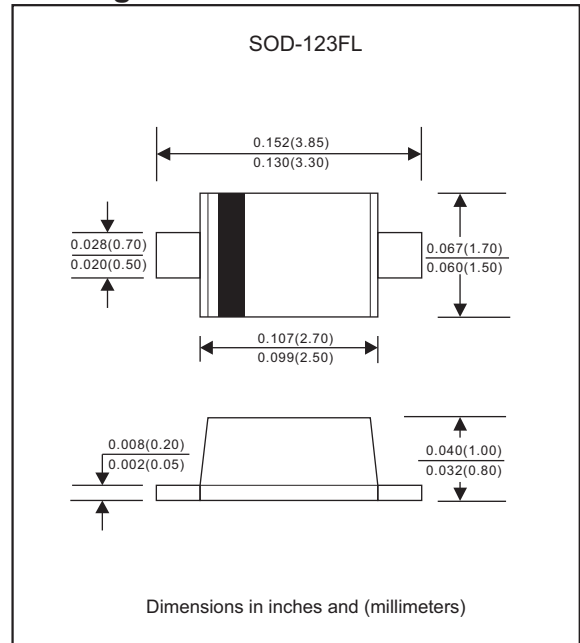
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BAV19W-FL THRU BAV21W-FL**200mA Surface Mount
Switching Diode 100V-200V****Features**

- Fast switching diode
- General purpose diodes high voltage application diodes
- Flat lead SOD-123FL small outline plastic package
- Surface device type mounting
- Silicon epitaxial planar chip
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. BAV19W-FL-H

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123FL
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.009 gram

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

Parameter	Conditions	Symbol	BAV19W-FL	BAV20W-FL	BAV21W-FL	Unit
DC blocking voltage		V_R	100	150	200	V
Repetitive peak reverse voltage		V_{RRM}	250			V
Repetitive peak forward current		I_O	200			mA
Non-repetitive peak forward surge current	@ $t=1.0\text{ms}$ @ $t=1.0\text{s}$	I_{FSM}	2.5 0.5			A
Power dissipation		P_D	400			mW
Operating junction temperature range		T_J	-65 to +150			$^\circ\text{C}$
Storage temperature range		T_{STG}	-65 to +150			$^\circ\text{C}$

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

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Reverse breakdown voltage	BAV19W-FL, $I_R=100\mu\text{A}$ BAV20W-FL, $I_R=100\mu\text{A}$ BAV21W-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
Total 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(BAV19W-FL THRU BAV21W-FL)

FIG.1- TOTAL CAPACITANCE VS. REVERSE VOLTAGE

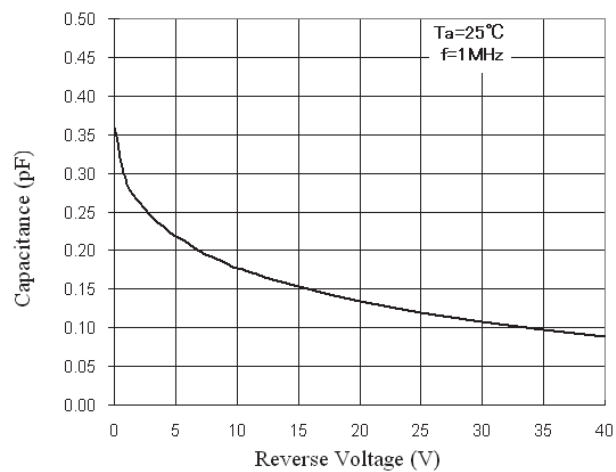


FIG.2-TYPICAL FORWARD CHARACTERISTICS

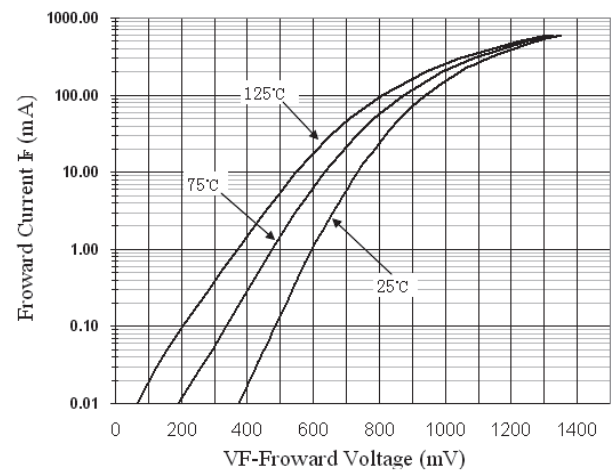
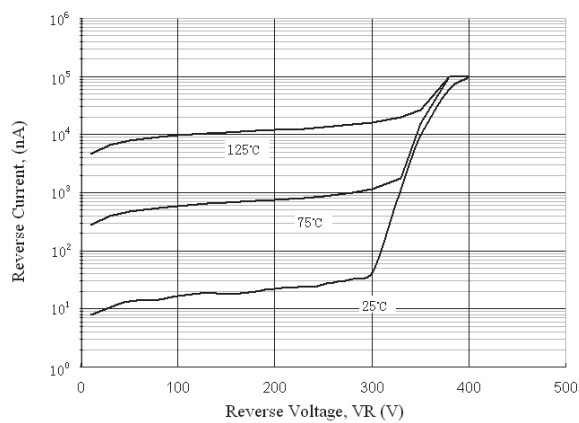


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

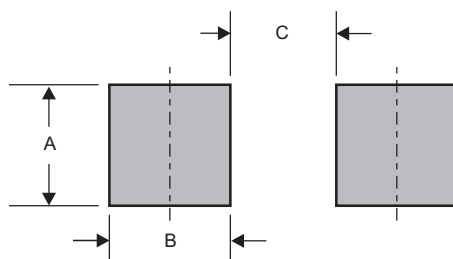


BAV19W-FL THRU BAV21W-FL**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
BAV19W-FL	H1,JX
BAV20W-FL	H2,T2
BAV21W-FL	H3,T3

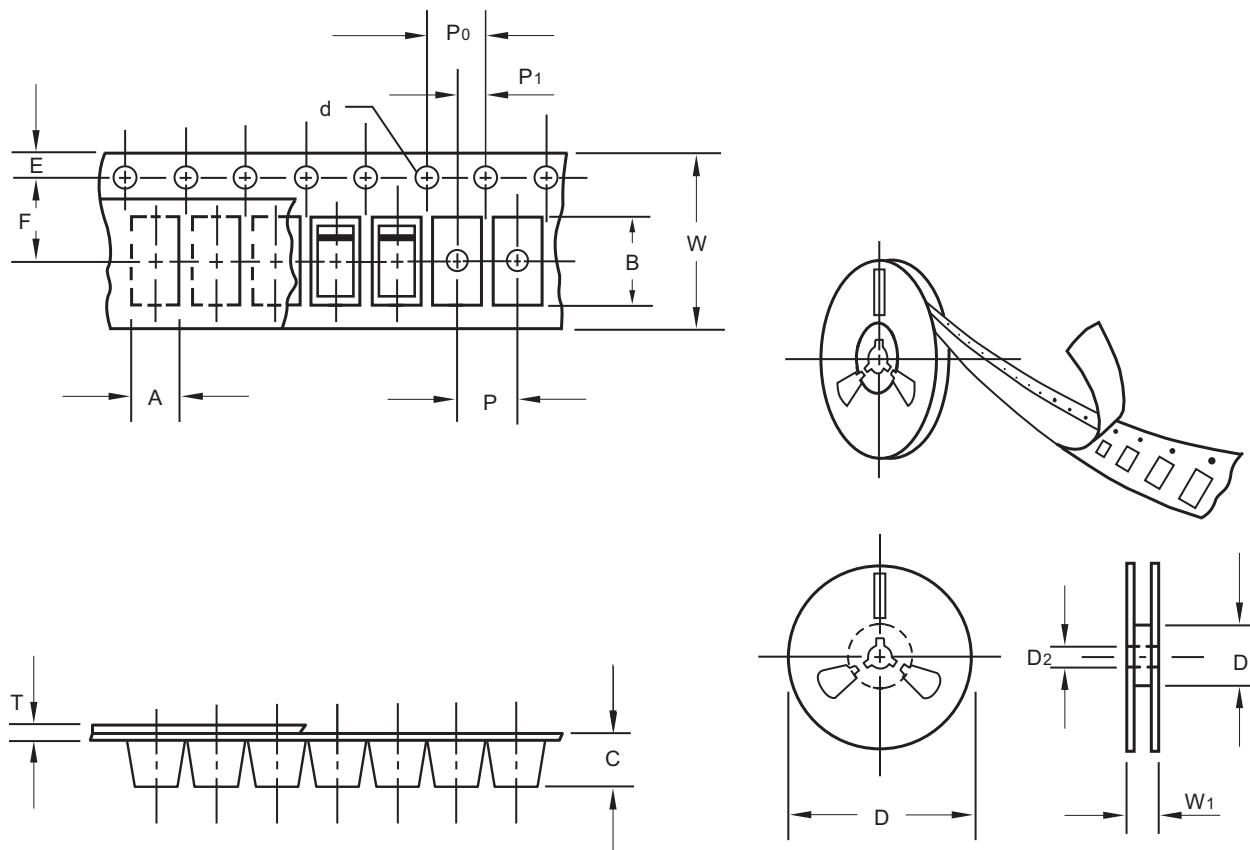
Suggested solder pad layout

Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123FL	0.028 (0.70)	0.028 (0.70)	0.091 (2.30)

BAV19W-FL THRU BAV21W-FL

Packing information



unit:mm

Item	Symbol	Tolerance	SOD-123FL
Carrier width	A	0.1	2.00
Carrier length	B	0.1	3.85
Carrier depth	C	0.1	1.10
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.

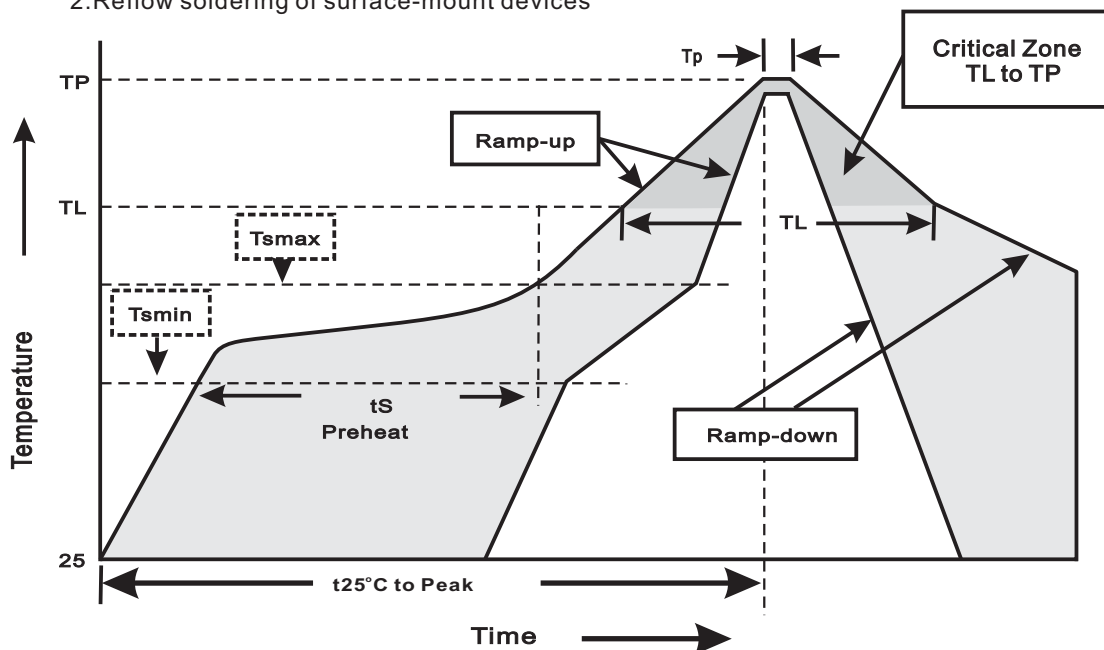
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Reel packing

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-123FL	7"	3,000	4.0	30,000	183*123*183	178	382*257*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°C/sec
Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} 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

BAV19W-FL THRU BAV21W-FL**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for 10 ± 2 sec.	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	Peak forward surge current at $t = 1\text{ms}$	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