

BAV19W-Q1 THRU BAV21W-Q1**List**

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BAV19W-Q1 THRU BAV21W-Q1

200mA Surface Mount Switching Diode-100-200V

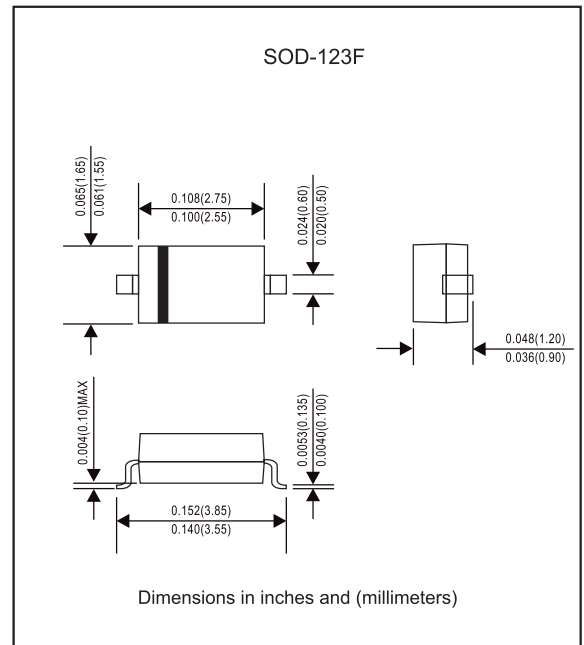
Features

- Fast switching speed
- Surface mount package ideally suited for automatic insertion
- For general purpose switching applications
- High conductance
- Lead-free parts meet RoHS requirements
- Qualified to AEC-Q101 standards for high reliability
- Suffix "-H" indicates Halogen-free part, ex.BAV19W-Q1-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123F
- 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 =25°C unless otherwise noted)

Parameter	Symbol	Limits	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	120 200 250	V
Reverse Voltage	V_R	100 150 200	V
Average Rectified Forward Current	$I_{F(AV)}$	200	mA
Forward Continuous Current	I_{FM}	400	mA
Repetitive Peak Forward Current	I_{FRM}	625	mA
Non-repetitive Peak Forward Surge Current	I_{FSM}	2.5 0.5	A
Power Dissipation	P_d	250	mW
Operating and Storage Temperature Range	T_j, T_{stg}	-65 to +150	°C

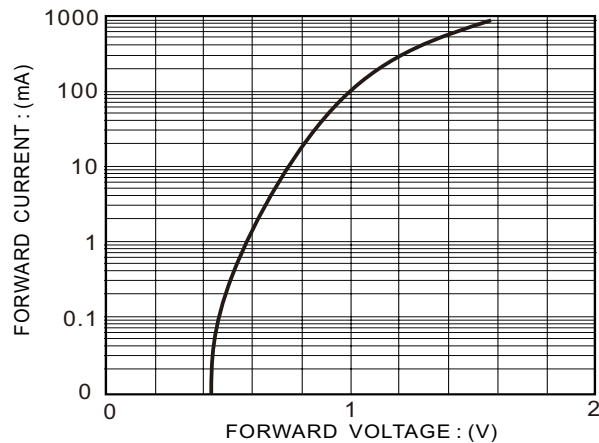
Electrical characteristics (AT T =25°C unless otherwise noted)

Parameter	Condition	Symbol	MIN.	TYP.	MAX.	Unit
Forward Voltage	$I_F=100mA$ $I_F=200mA$	V_F			1 1.25	V
Reverse Leakage Current	BAV19W-Q1 $V_R=120V$ BAV20W-Q1 $V_R=200V$ BAV21W-Q1 $V_R=250V$	I_R			100	nA
Capacitance Between Terminals	$V_R=0, f=1MHz$	C_T			5	pF
Reverse Recovery Time	$I_F=I_R=30mA, I_{rr}=0.1I_R, R_L=100\Omega$	t_{rr}			50	ns

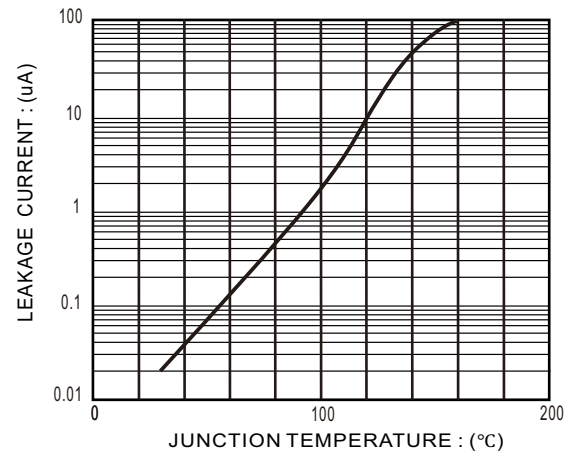
Note 1: Valid provided that electrodes are kept at ambient temperature.

Rating and characteristic curves(BAV19W-Q1 THRU BAV21W-Q1)

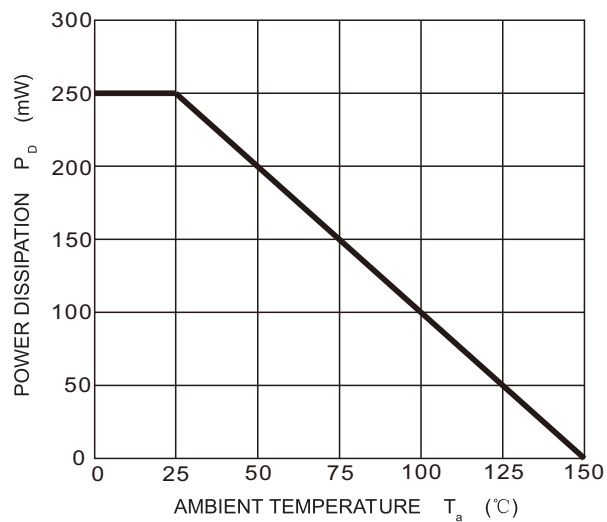
Typical Forward Characteristics



Leakage Current VS Junction Temperature



Power Derating Curve



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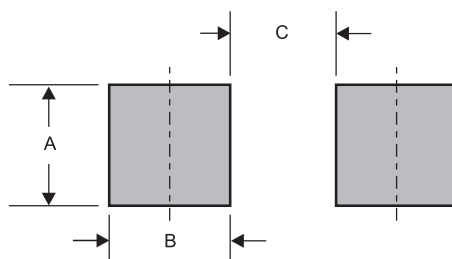
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
BAV19W-Q1	JX
BAV20W-Q1	T2
BAV21W-Q1	T3

Suggested solder pad layout

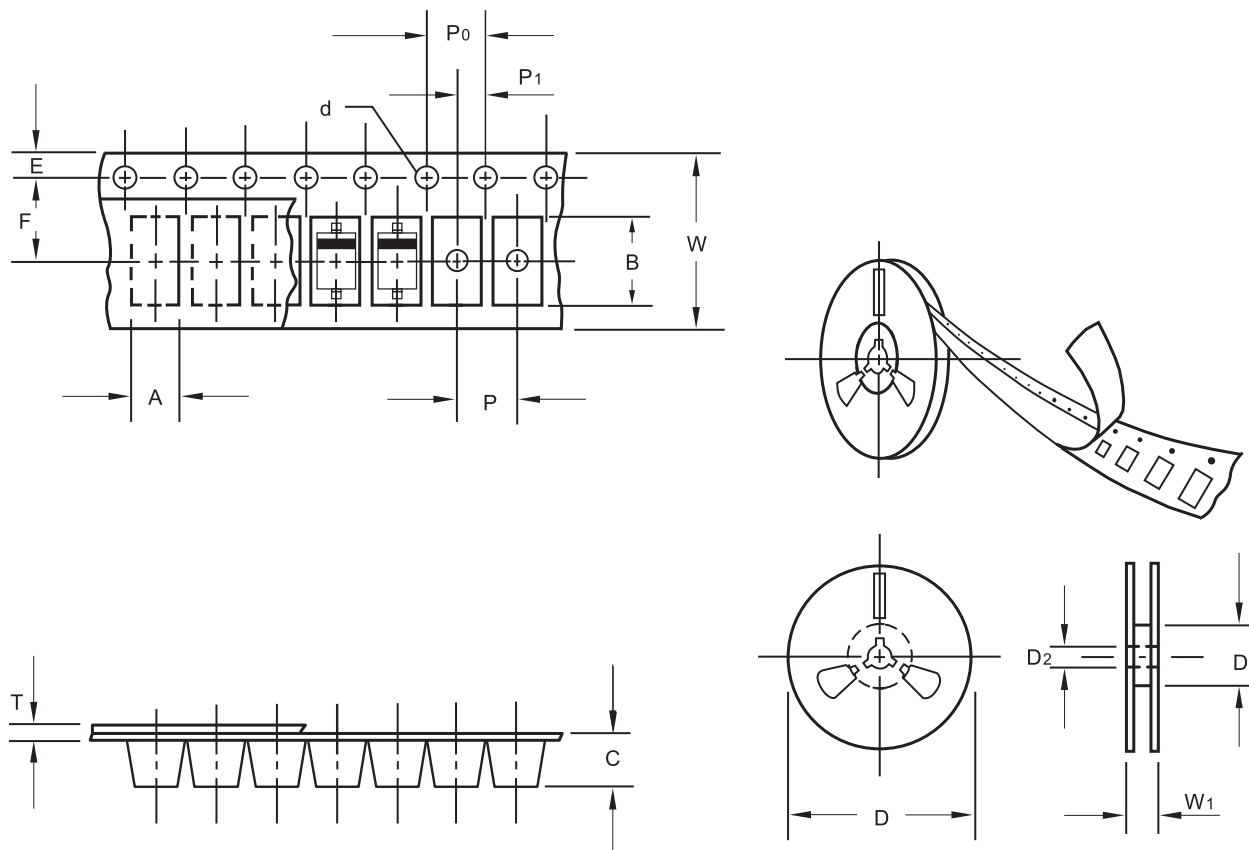


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123F	0.048 (1.22)	0.038 (0.97)	0.091 (2.31)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOD-123F
Carrier width	A	0.05	1.90
Carrier length	B	0.05	3.87
Carrier depth	C	0.05	1.50
Sprocket hole	d	0.05	1.55
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	0.05	1.75
Punch hole position	F	0.05	3.50
Punch hole pitch	P	0.05	4.00
Sprocket hole pitch	P0	0.05	4.00
Embossment center	P1	0.05	2.00
Overall tape thickness	T	0.02	0.20
Tape width	W	0.05	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.

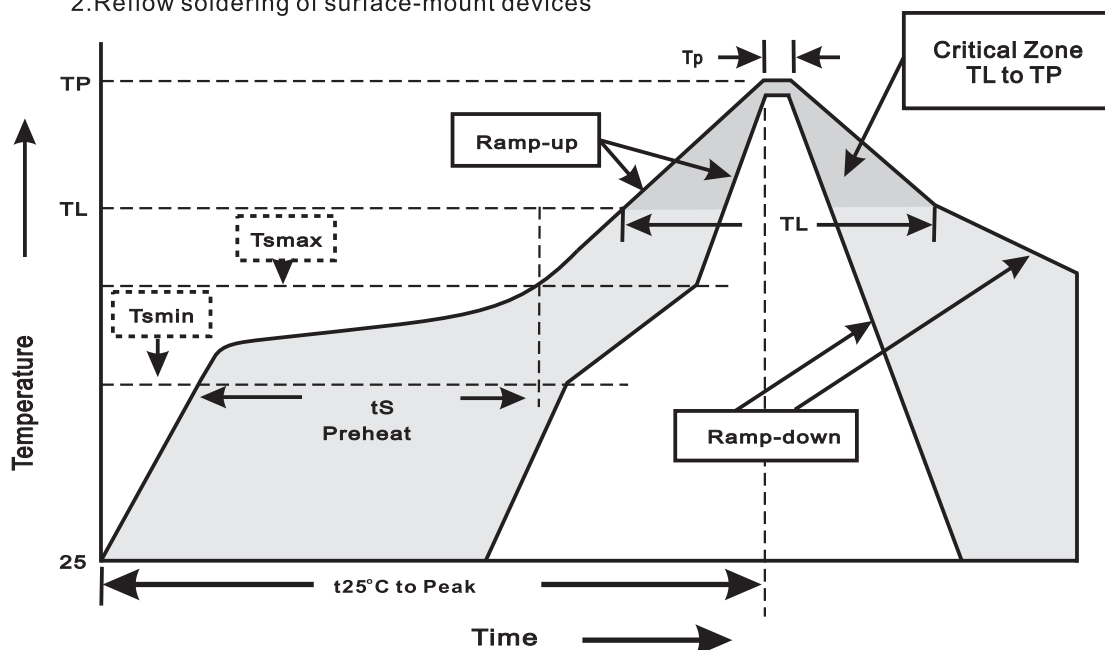
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Reel packing

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-123F	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 _{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

BAV19W-Q1 THRU BAV21W-Q1**High reliability test capabilities**

Item Test	Conditions	Reference
1. MSL Preconditioning	24hr bake@125°C+168hrs@85°C /85%RH+3xIR@260°C+1flux immersion+alcohol+DI H2O rinse	JESD22-A113
2. Operation Life	Ta=25°C, Rated Current (Io=Io max.) Test Duration:1000hrs	MIL-STD-750E METHOD 1027.3
3. High Temperature Reverse Bias	80% Rated VR (Tj=150°C) Test Duration:1000hrs	JESD22-A108
4. High Temperature Storage Life	Ta=125°C Test Duration:1000hrs	JESD22 A-103
5. Temperature Cycle	-55°C(15min) to 150°C(15min) Test Cycles:1000cycles	JESD22 A-104
6. Autoclave	P=2atm Ta=121°C RH=100% Test Duration:96hrs	JESD22 A-102
7. Intermittent Operational Life	Ta=25°C, On/Io Max. 2min, Off/2min, Test Cycles:15000cycles	MIL-STD-750E METHOD 1037
8. Solderability	245±5°C for 5sec	J-STD-002
9. Moisture Resistance	Ta=85°C/85% Relative humidity Test Duration:1000hrs	MIL-STD-750E METHOD 1021.2
10. Resistance To Solder Heat	260±5°C for 10sec	JESD22 B-106
11. High Temperature High Humidity Reverse Bias	Ta=85°C, 85%RH, with device reverse biased at 80% of rated breakdown voltage up to a maximum of 100V or limit of chamber Test Duration:1000hrs	JESD22-A101