High voltage switching (double) diodes

BAV23/A/C/SN3

Description

High voltage switching diodes encapsulated in a SOT-23 small plastic SMD package.
Single diodes and double diodes with different pinning are available.

Features

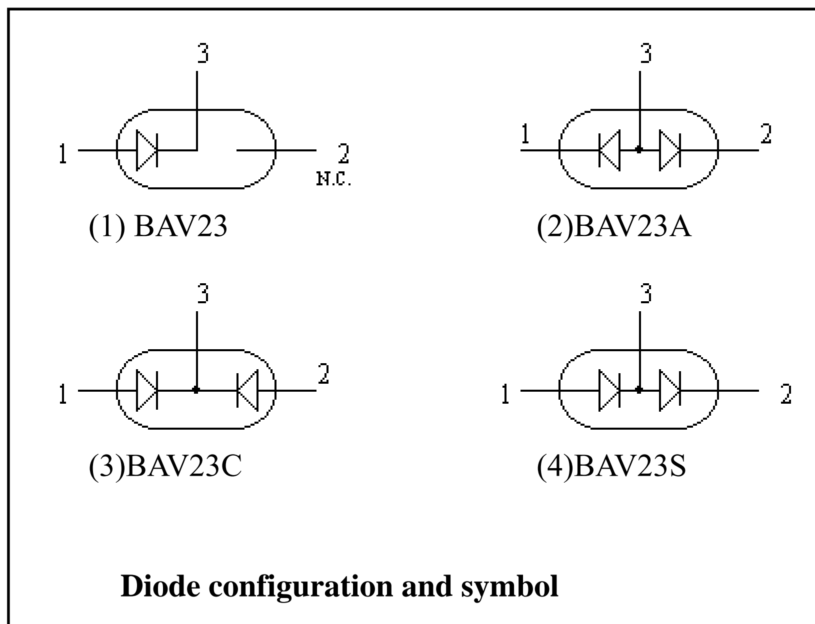
- •Fast switching speed
- •Low forward voltage drop
- •Pb-free lead plating and halogen-free package

Mechanical Data

- •Case : SOT-23, molded plastic
- •Terminals : Solderable per MIL-STD-202 Method 208
- •Weight : 0.008 grams(approx.)

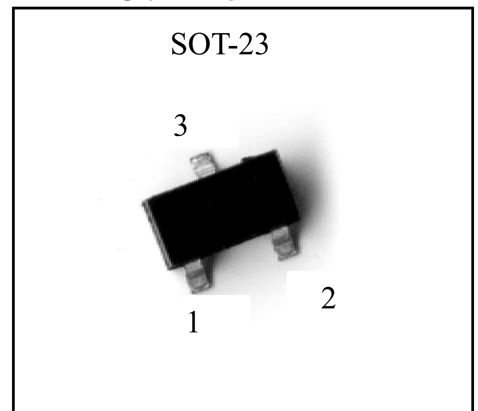
Pinning

Pin	Description			
	BAV23	BAV23A	BAV23C	BAV23S
1	A	K1	A1	A1
2	NC	K2	A2	K2
3	K	A1,A2	K1,K2	K1,A1



Diode configuration and symbol

Outline



Marking:

Type	Marking Code
BAV23N3	JS
BAV23AN3	JS2
BAV23CN3	JS3
BAV23SN3	JS4

Absolute Maximum Ratings (Ta=25℃, unless otherwise specified)

Parameter	Symbol	Limits	unit
Repetitive Peak Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	250	V
Forward Continuous Current	I_{FM}	400	mA
Average Rectified Output Current	I_O	200	mA
Non-repetitive Peak Forward Surge Current @ tp=1μs @ tp=100μs @ tp=1s	I_{FSM}	9 3 1.7	A
Repetitive Peak Forward Surge Current	I_{FRM}	625	mA
Power Dissipation	P_D	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	°C/W
Operating Junction Temperature Range	T_J	-65~+150	°C
Storage Temperature Range	T_{STG}	-65~+150	°C

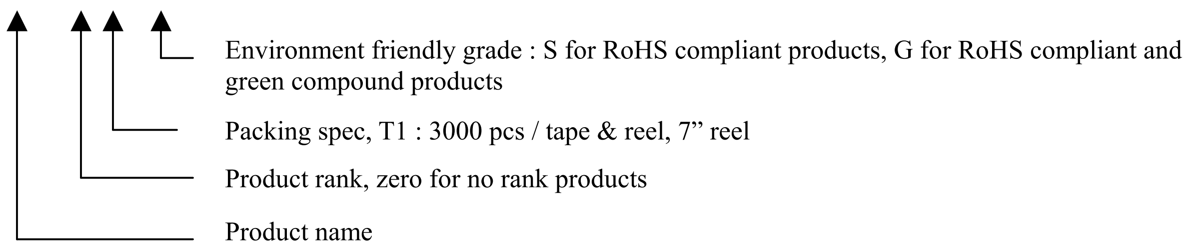
Characteristics (Ta=25°C)

Characteristic	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	V_{BR}	I_R=100μA	250	-	V
Forward Voltage (Note)	V_F	I_F=100mA	-	1	V
		I_F=200mA	-	1.25	V
Reverse Leakage Current	I_R	V_R=250V	-	100	nA
		V_R=250V, Tj=150°C	-	100	μA
Diode Capacitance	C_D	V_R=0V, f=1MHz	-	5	pF
Reverse Recovery Time	t_{rr}	I_F=I_R=30mA, R_L=100Ω measured at I_R=3mA	-	50	ns

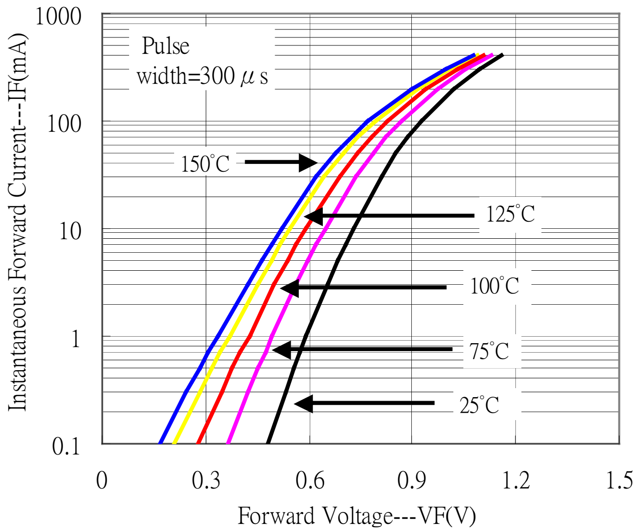
Note: Pulse test, tp=300μs, duty cycle<2%.

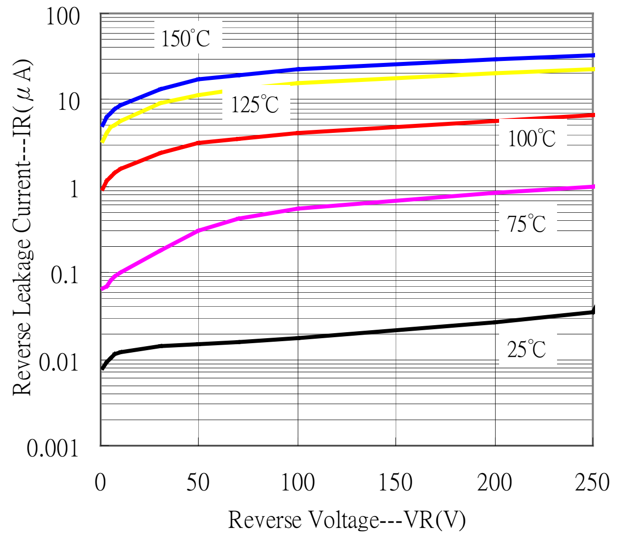
Ordering Information

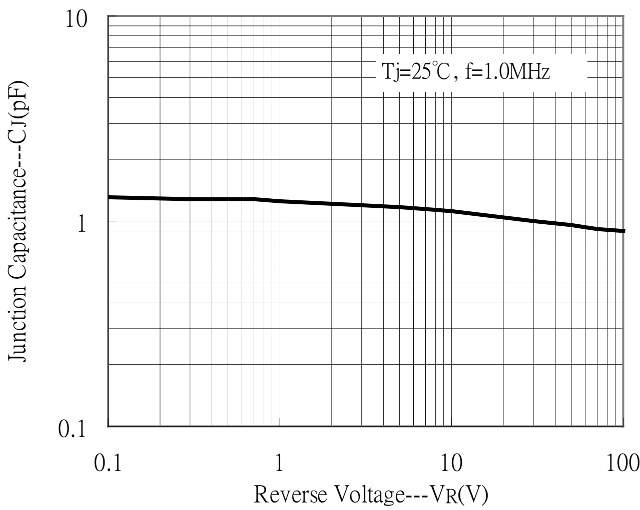
Device	Package	Shipping	Marking
BAV23N3-0-T1-G	SOT-23 (Pb-free lead plating and halogen-free package)	3000 pcs / Tape & Reel	JS
BAV23AN3-0-T1-G			JS2
BAV23CN3-0-T1-G			JS3
BAV23SN3-0-T1-G			JS4

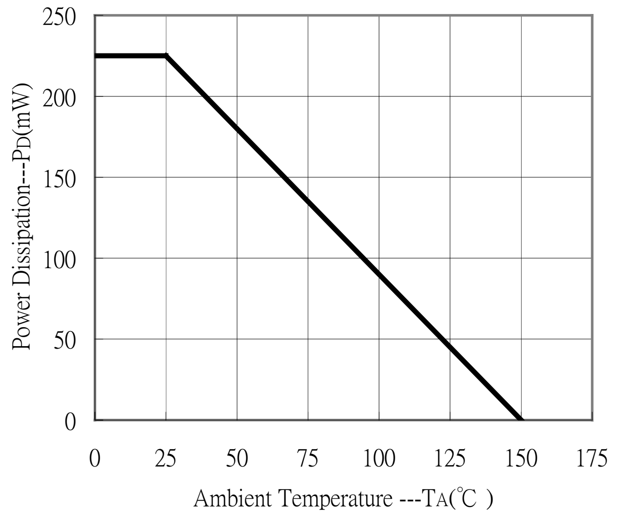


Typical Characteristics

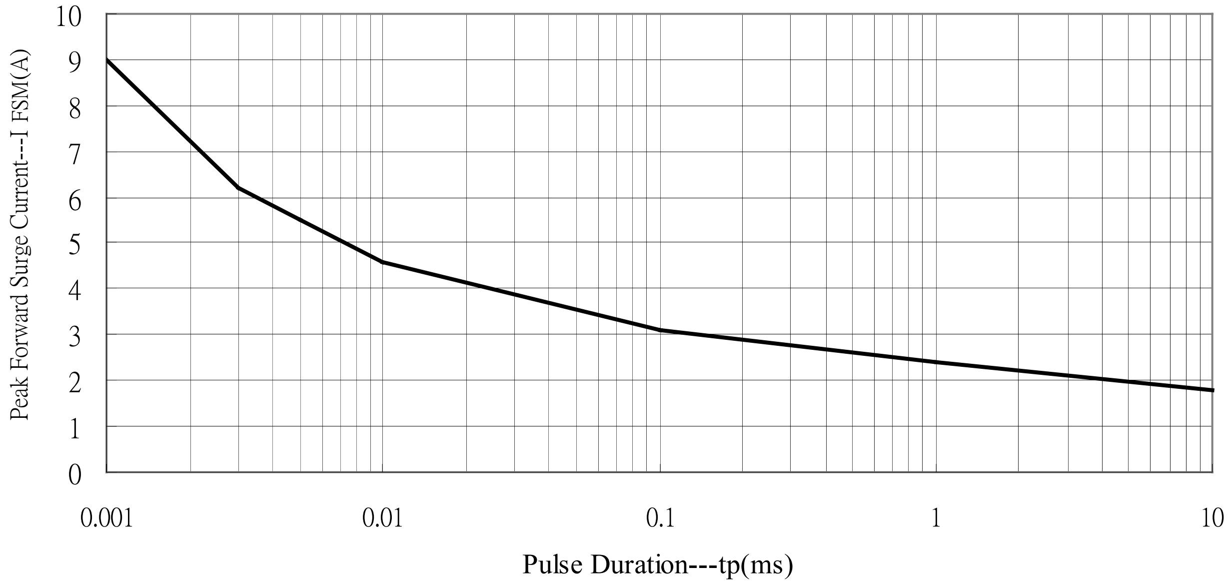




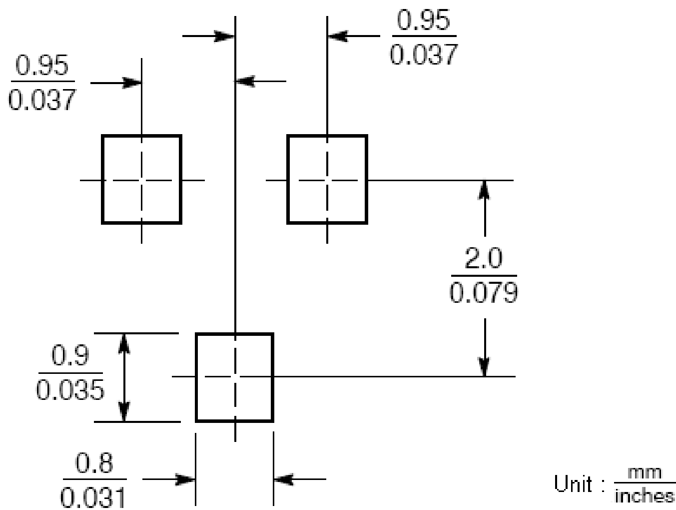




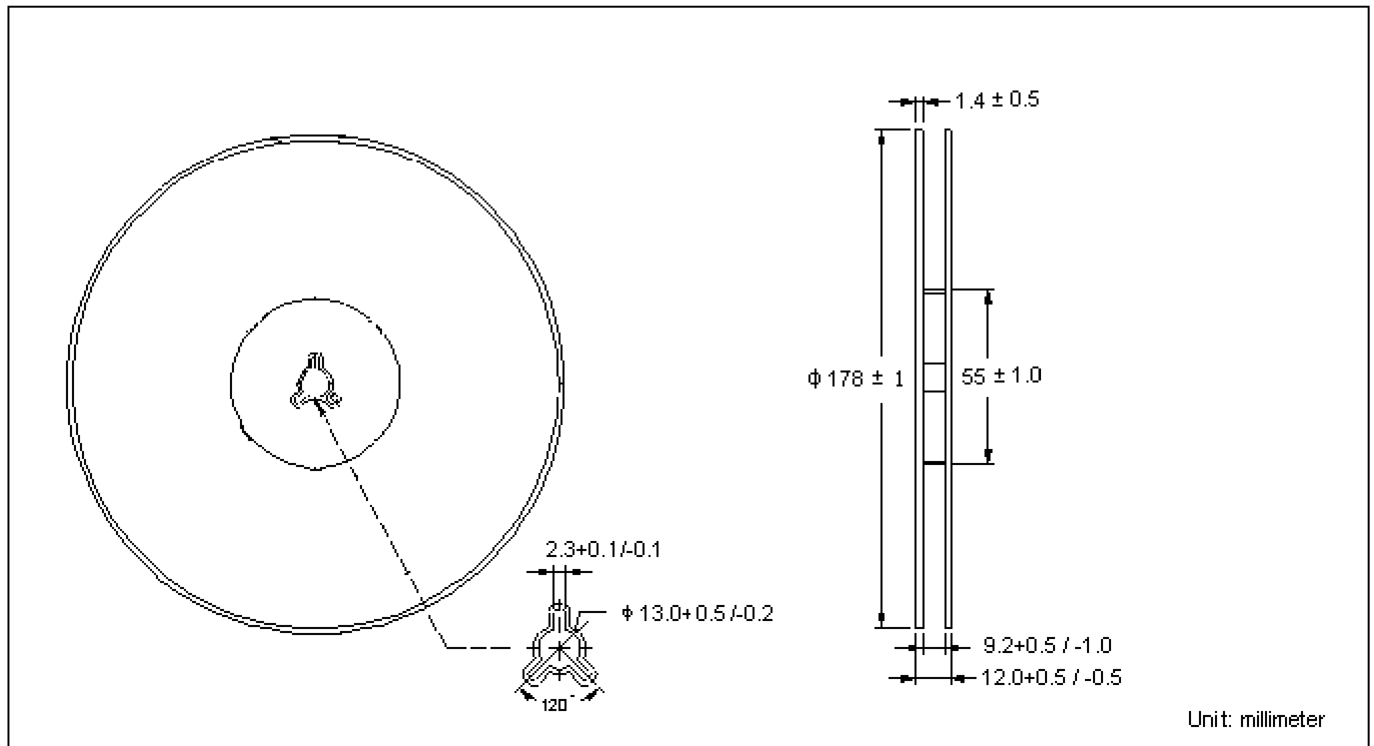
Typical Characteristics(Cont.)



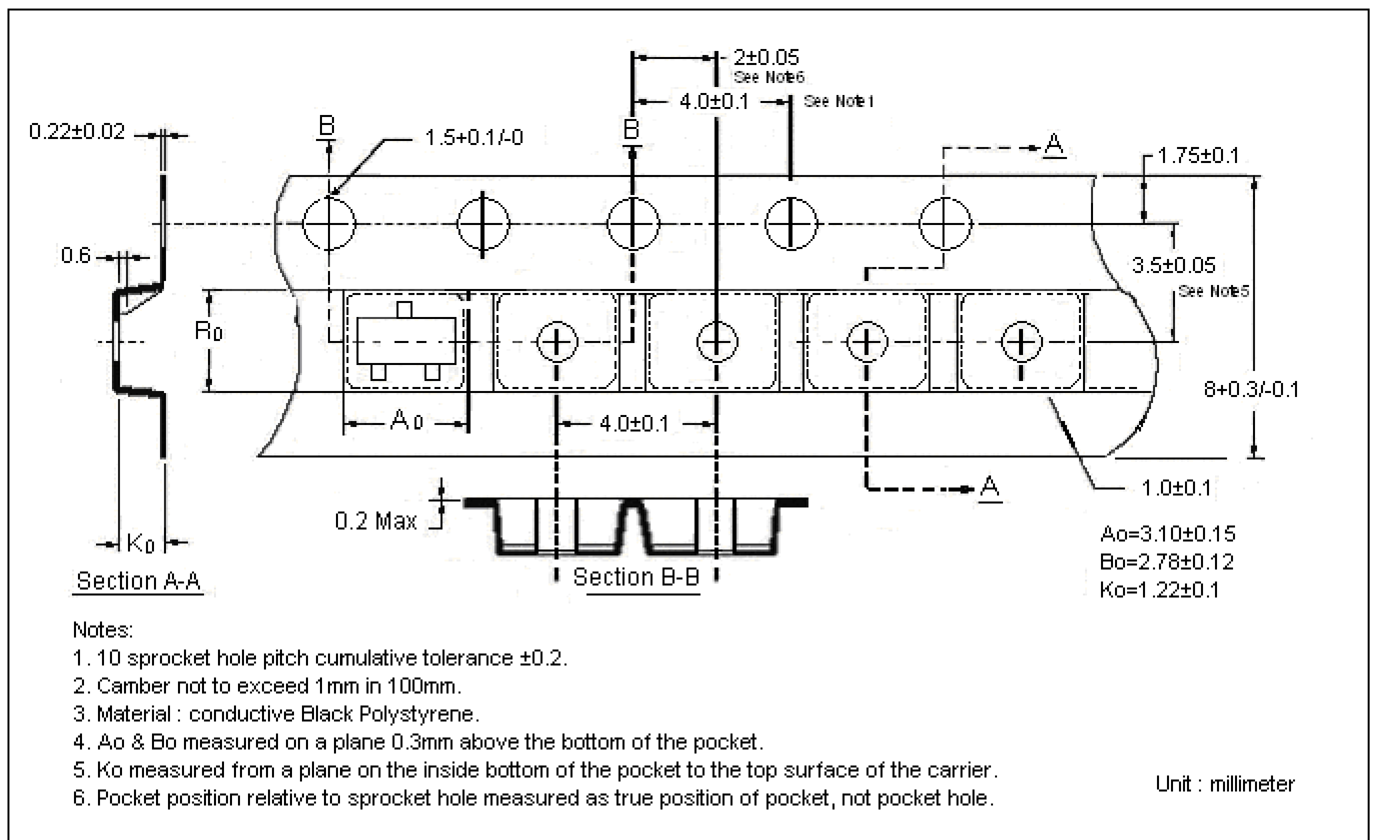
Recommended Soldering Footprint



Reel Dimension



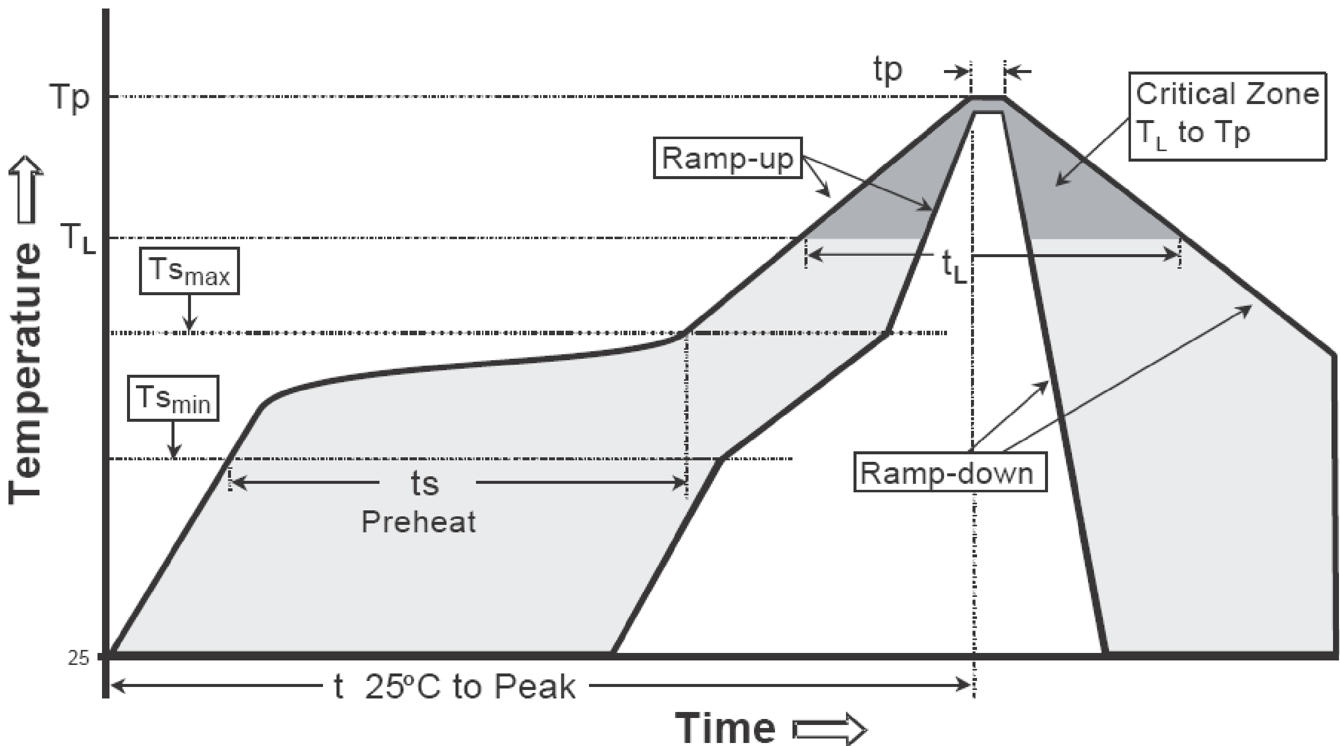
Carrier Tape Dimension



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

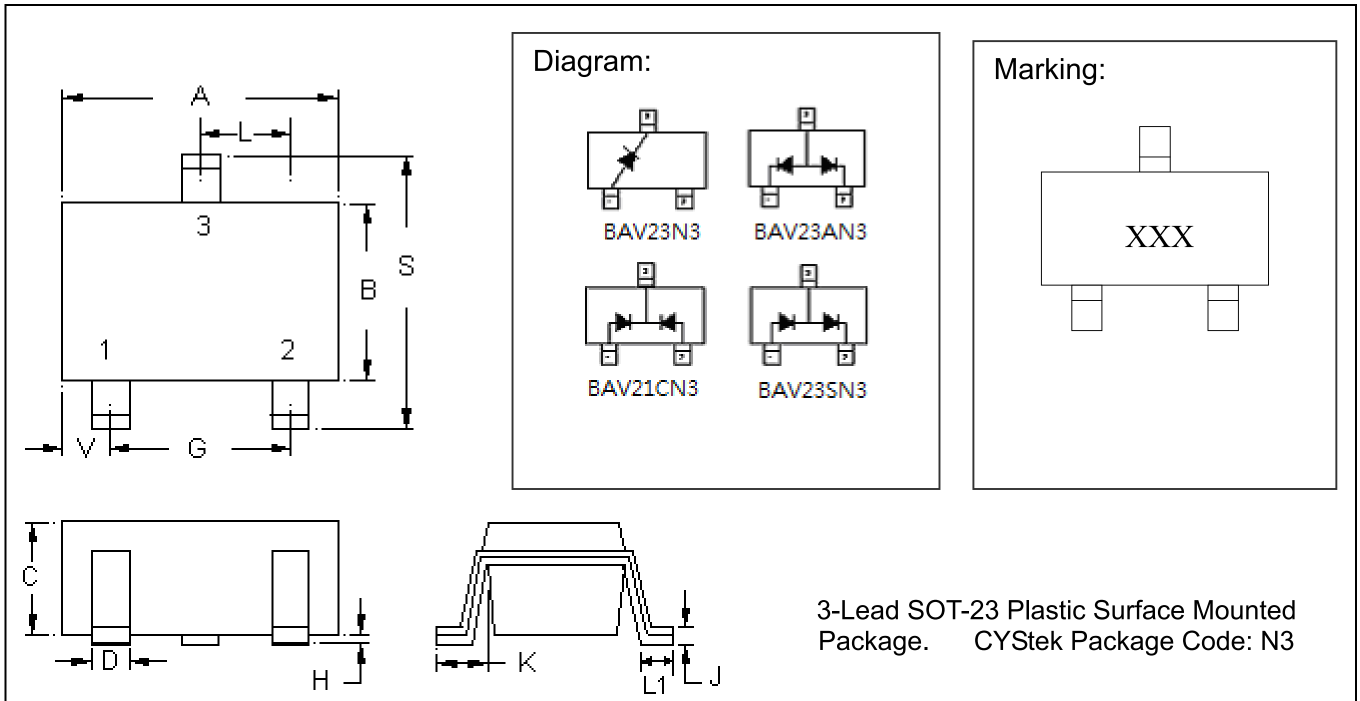
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-23 Dimension



- BAV23 N3 : Single Diode (Marking Code JS)
- BAV23AN3 : Common Anode. (Marking Code JS2)
- BAV23CN3 : Common Cathode. (Marking Code JS3)
- BAV23SN3 : Series Connected. (Marking Code JS4)

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0032	0.0079	0.08	0.20
B	0.0472	0.0669	1.20	1.70	K	0.0118	0.0266	0.30	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1161	2.10	2.95
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0000	0.0040	0.00	0.10	L1	0.0118	0.0197	0.30	0.50

Notes: 1.Controlling dimension: millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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