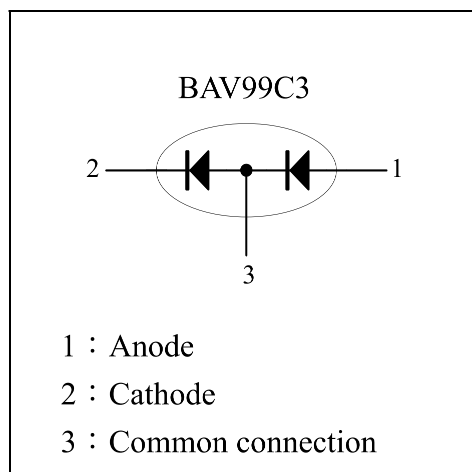
High –speed double diode

BAV99C3

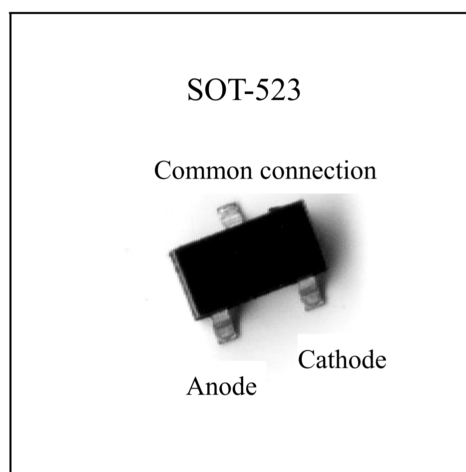
Description

The BAV99C3 consists of two high-speed switching diodes connected in series, fabricated in planar technology, and encapsulated in the small SOT-523 plastic SMD package.

Equivalent Circuit



Outline



Features

- Small plastic SMD package
- Reverse voltage: max. 100V
- Forward current: max. 75mA.
- Pb-free lead plating package

Applications

- High-speed switching in thick and thin-film circuits.

Absolute Maximum Ratings @T_A=25℃

Parameters	Symbol	Min	Max	Unit
Reverse voltage	V_R	-	100	V
Forward current	I_O	-	75	mA
Total power dissipation	Ptot		150	mW
Junction Temperature	T_j	-	150	°C
Storage Temperature	T_{stg}	-65	+150	°C

Electrical Characteristics @ Tj=25℃ unless otherwise specified

Parameters	Symbol	Conditions	Min	Typ.	Max	Unit
Reverse breakdown voltage	V_R	I_R=1μA	100	-	-	V
Forward voltage	V_F	I_F=1mA I_F=10mA I_F=50mA I_F=150mA	-	-	715 855 1 1.25	mV mV V V
Reverse current	I_R	V_R=25V V_R=100V	-	-	30 2	nA μA
Diode capacitance	C_D	V_R=0V, f=1MHz	-	-	1.5	pF
Reverse recovery time	trr	when switched from I_F=10mA to I_R=10mA,R_L=100Ω, measured at I_R=1mA	-	-	4	ns

Thermal Characteristics

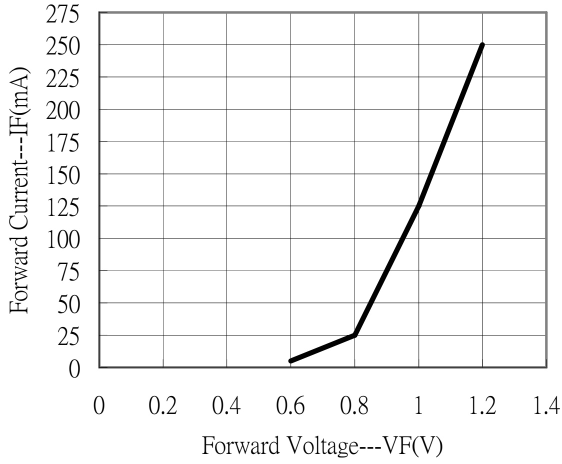
Symbol	Parameter	Conditions	Value	Unit
Rth, j-a	thermal resistance from junction to ambient	Note 1	833	℃/W

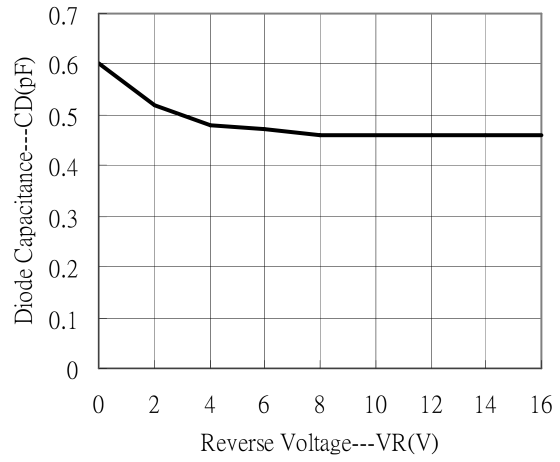
Note 1: Device mounted on an FR-4 PCB.

Ordering Information

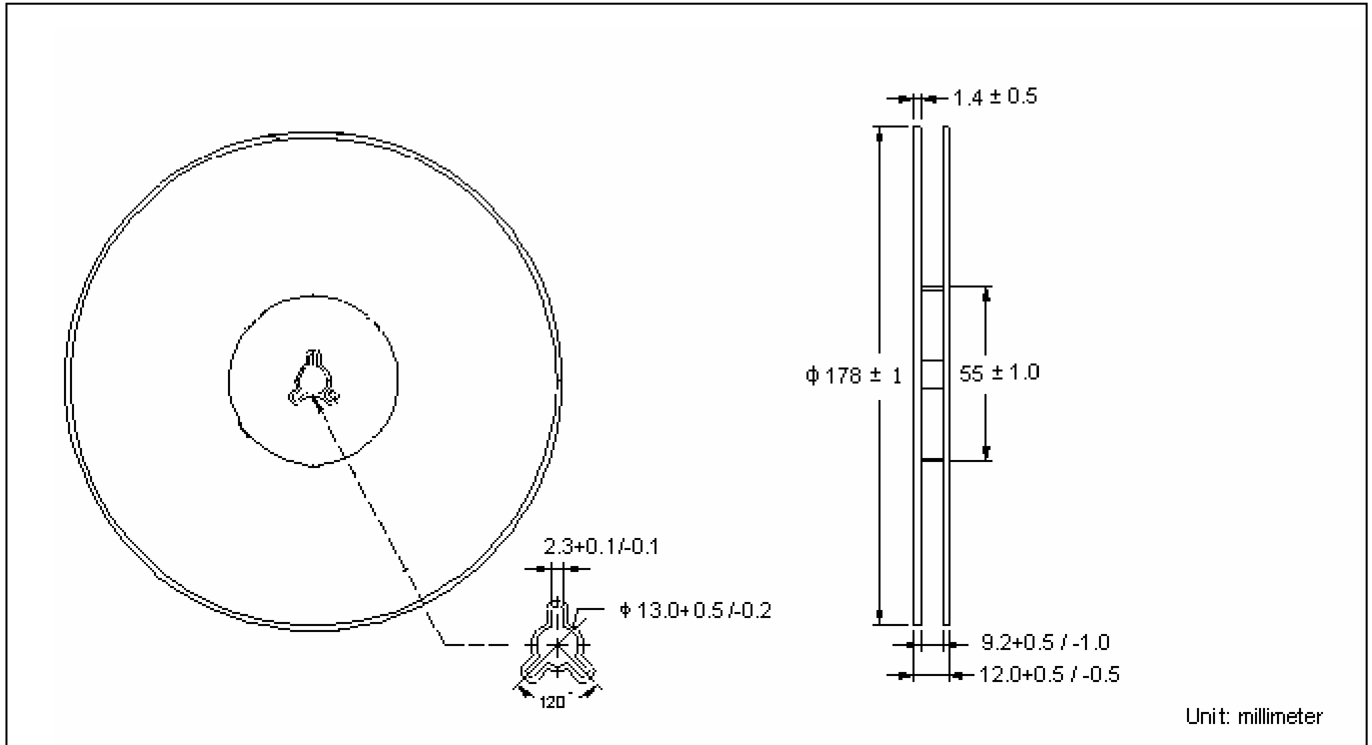
Device	Package	Shipping	Marking
BAV99C3	SOT-523 (Pb-free)	3000 pcs / Tape & Reel	JE

Characteristic Curves

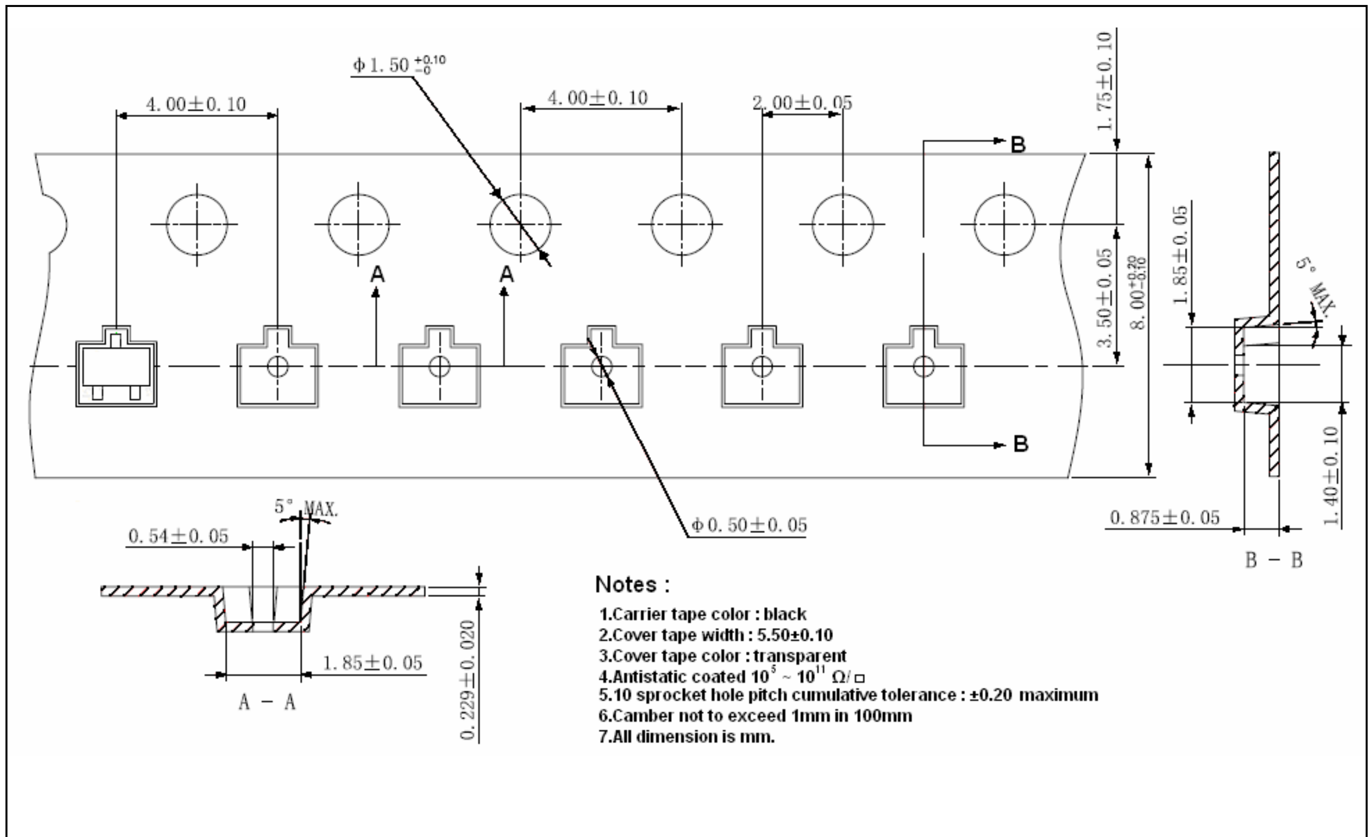




Reel Dimension



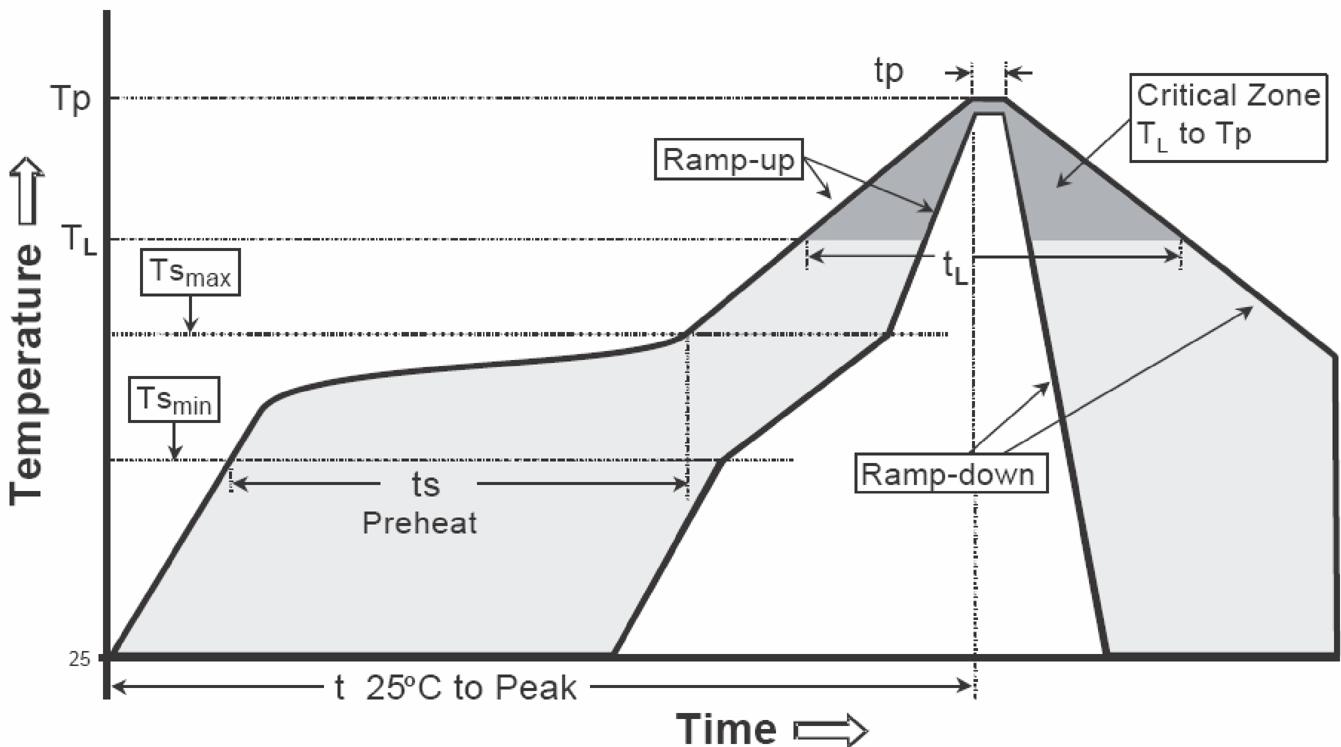
Carrier Tape Dimension



Recommended wave soldering condition

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

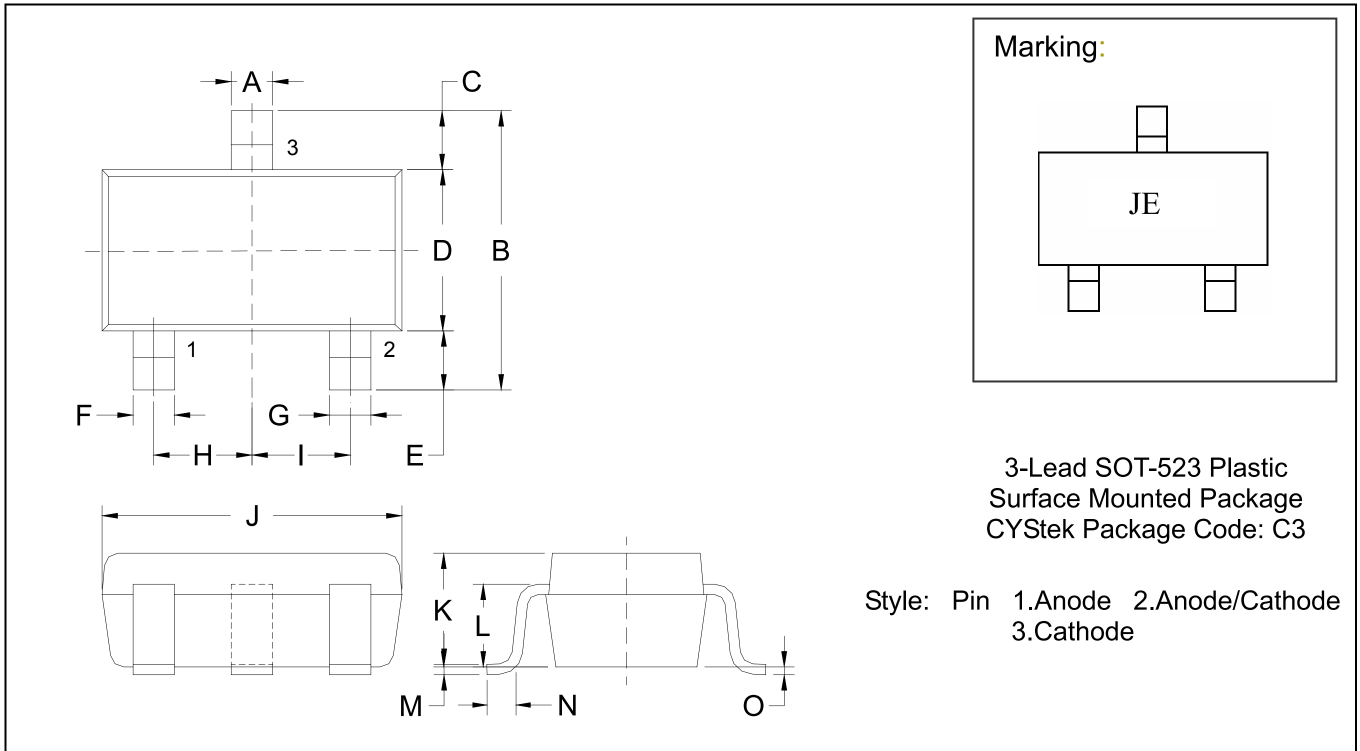
Recommended temperature profile for IR reflow



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(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 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-523 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0079	0.0157	0.20	0.40	I	*0.0197	-	*0.50	-
B	0.0591	0.0669	1.50	1.70	J	0.0610	0.0650	1.55	1.65
C	0.0118	0.0197	0.30	0.50	K	0.0276	0.0315	0.70	0.80
D	0.0295	0.0335	0.75	0.85	L	0.0224	0.0248	0.57	0.63
E	0.0118	0.0197	0.30	0.50	M	0.0020	0.0059	0.05	0.15
F	0.0039	0.0118	0.10	0.30	N	0.0039	0.0118	0.10	0.30
G	0.0039	0.0118	0.10	0.30	O	0	0.0031	0	0.08
H	*0.0197	-	*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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