

0.2A surface mount Schottky diode

BAT54C2

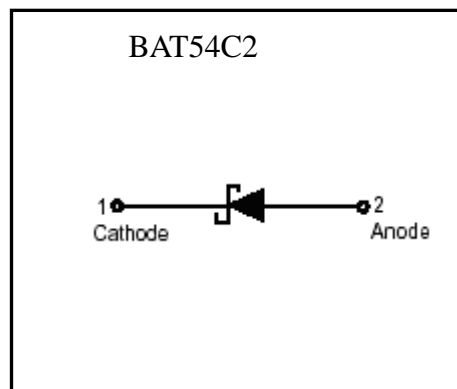
Features

- High current capability, low forward voltage drop
- High surge current capability
- Guardring for over voltage protection
- Low power loss, high efficiency
- Ultra high-speed switching
- Low profile surface mounted package in order to minimize board space

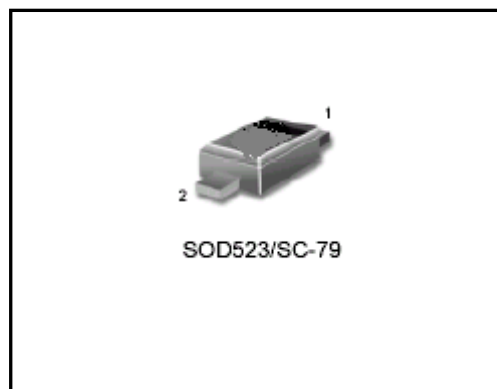
Mechanical data

- Case : Molded plastic, SC-79/SOD523.
- Epoxy : UL94-V0 rated flame retardant
- Terminals : Plated terminals, solderable per MIL-STD-750 method 2026.
- Polarity : Indicated by cathode band.
- Mounting position : Any.

Symbol

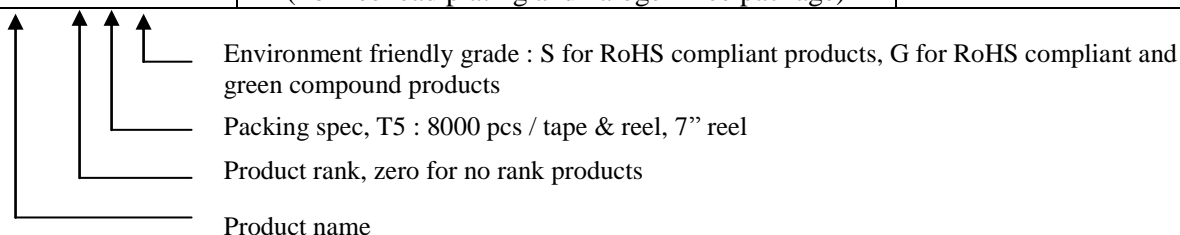


Outline



Ordering Information

Device	Package	Shipping
BAT54C2-0-T5-G	SOD-523 (Pb-free lead plating and halogen-free package)	8000 pcs / tape & reel



**Absolute Maximum Ratings** ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameters	Conditions	Symbol	Value	Units
Repetitive peak reverse voltage		V_{RRM}	30	V
RMS voltage		V_{RMS}	21	
Continuous reverse voltage		V_R	30	
Forward rectified current		I_F	0.2	A
Repetitive Peak Forward Current		I_{FM}	0.3	
Non-repetitive Peak Forward Current		I_{FSM}	0.6	
Total Device Dissipation	$T_A=25^{\circ}\text{C}$ (Note)	P_D	200	mW
Thermal resistance	Junction to Ambient (Note)	$R_{\theta JA}$	625	$^{\circ}\text{C}/\text{W}$
Storage temperature range		T_{stg}	$-65 \sim +175$	$^{\circ}\text{C}$
Operating junction temperature range		T_j	$-65 \sim +150$	$^{\circ}\text{C}$

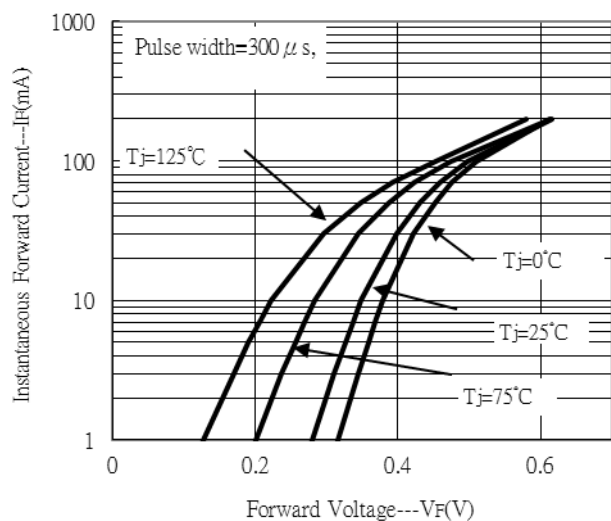
Note : When device mounted on FR-5 PCB with minimum pad.

Characteristics ($T_A=25^{\circ}\text{C}$)

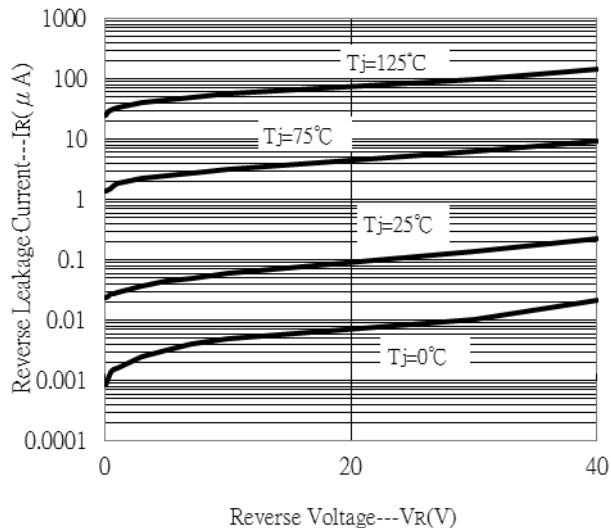
Characteristic	Symbol	Condition	Min.	Typ	Max.	Unit
Reverse Breakdown Voltage	V_{BR}	$I_R=100\mu\text{A}$	30	-	-	V
Forward Voltage	$V_F 1$	$I_F=0.1\text{mA}$	-	-	240	mV
	$V_F 2$	$I_F=1\text{mA}$	-	-	320	
	$V_F 3$	$I_F=10\text{mA}$	-	-	400	
	$V_F 4$	$I_F=30\text{mA}$	-	-	500	
	$V_F 5$	$I_F=100\text{mA}$	-	-	800	
Reverse Leakage Current (Note 2)	I_R	$V_R=30\text{V}$	-	-	2	μA
Diode Capacitance	C_D	$V_R=1\text{V}$, $f=1\text{MHz}$	-	-	10	pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=10\text{mA}$ $R_L=100\Omega$ measured at $I_R=1\text{mA}$	-	-	5	ns

Typical Characteristics

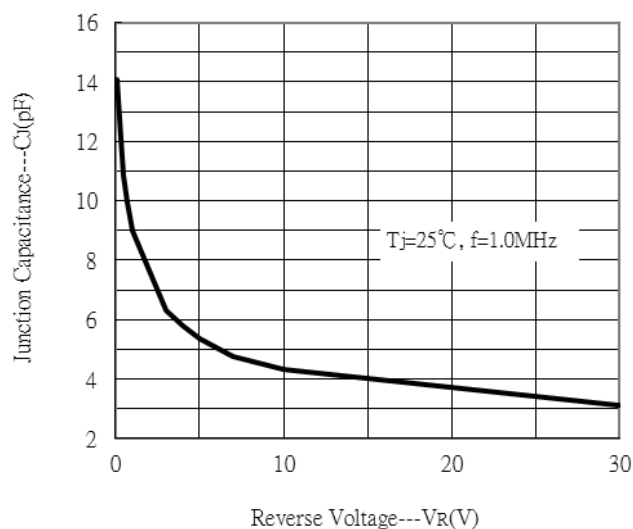
Forward Current vs Forward Voltage



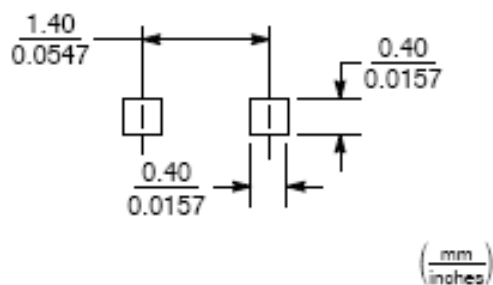
Reverse Leakage Current vs Reverse Voltage



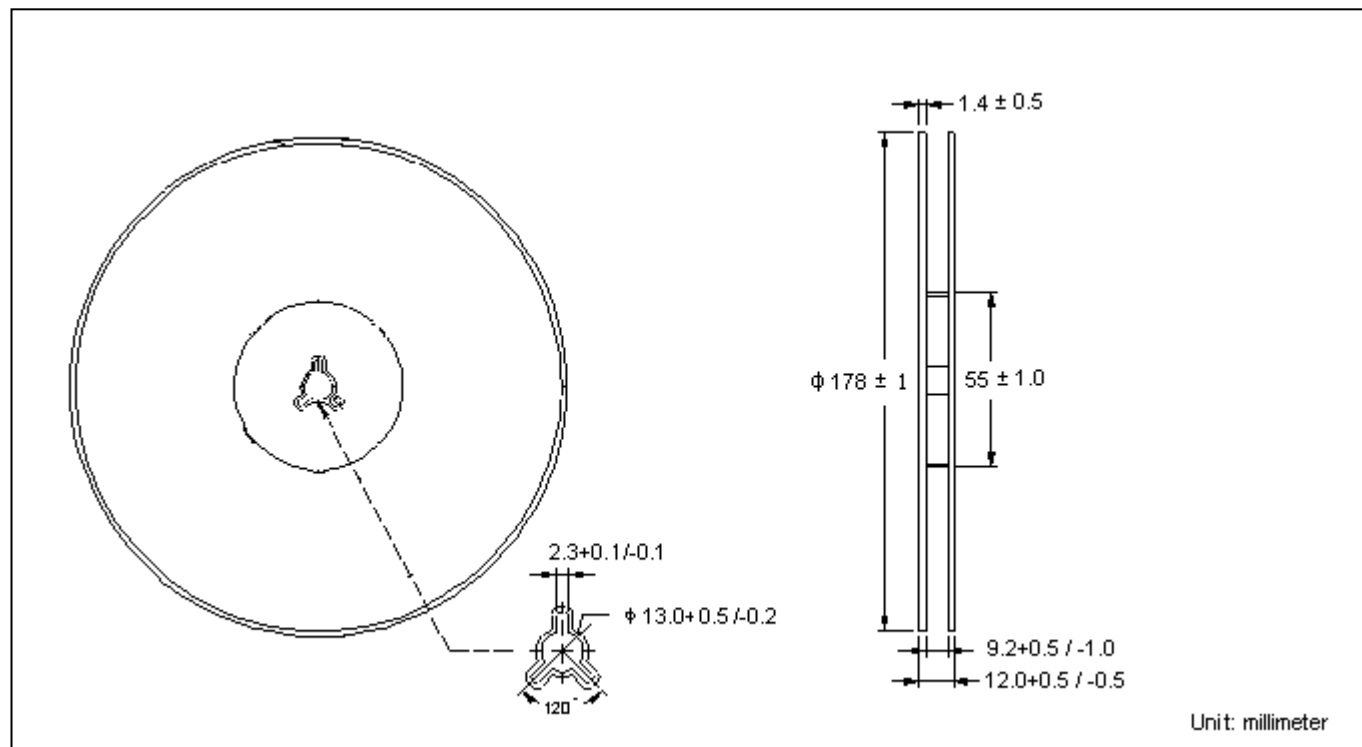
Junction Capacitance vs Reverse Voltage



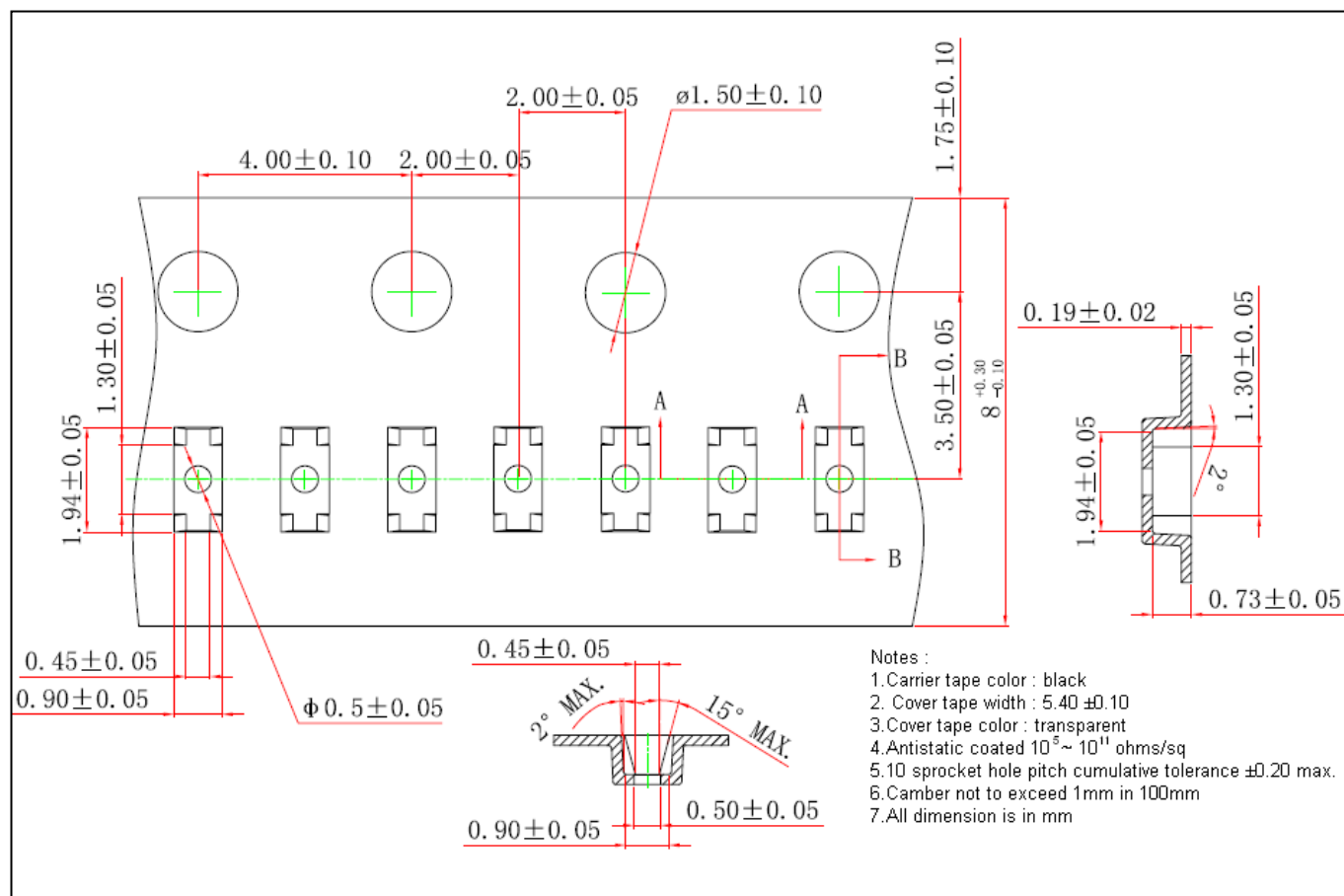
Recommended Footprint



Reel Dimension



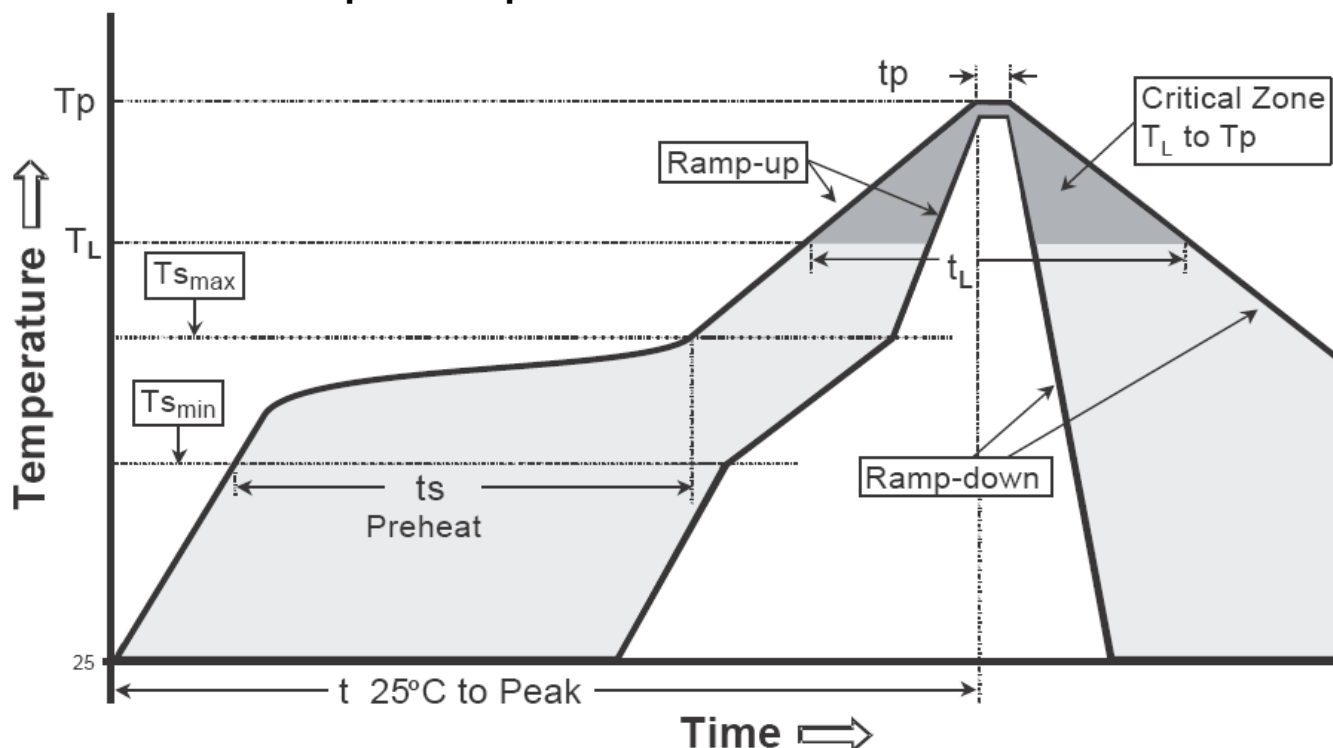
Carrier Tape Dimension



Recommended wave soldering condition

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

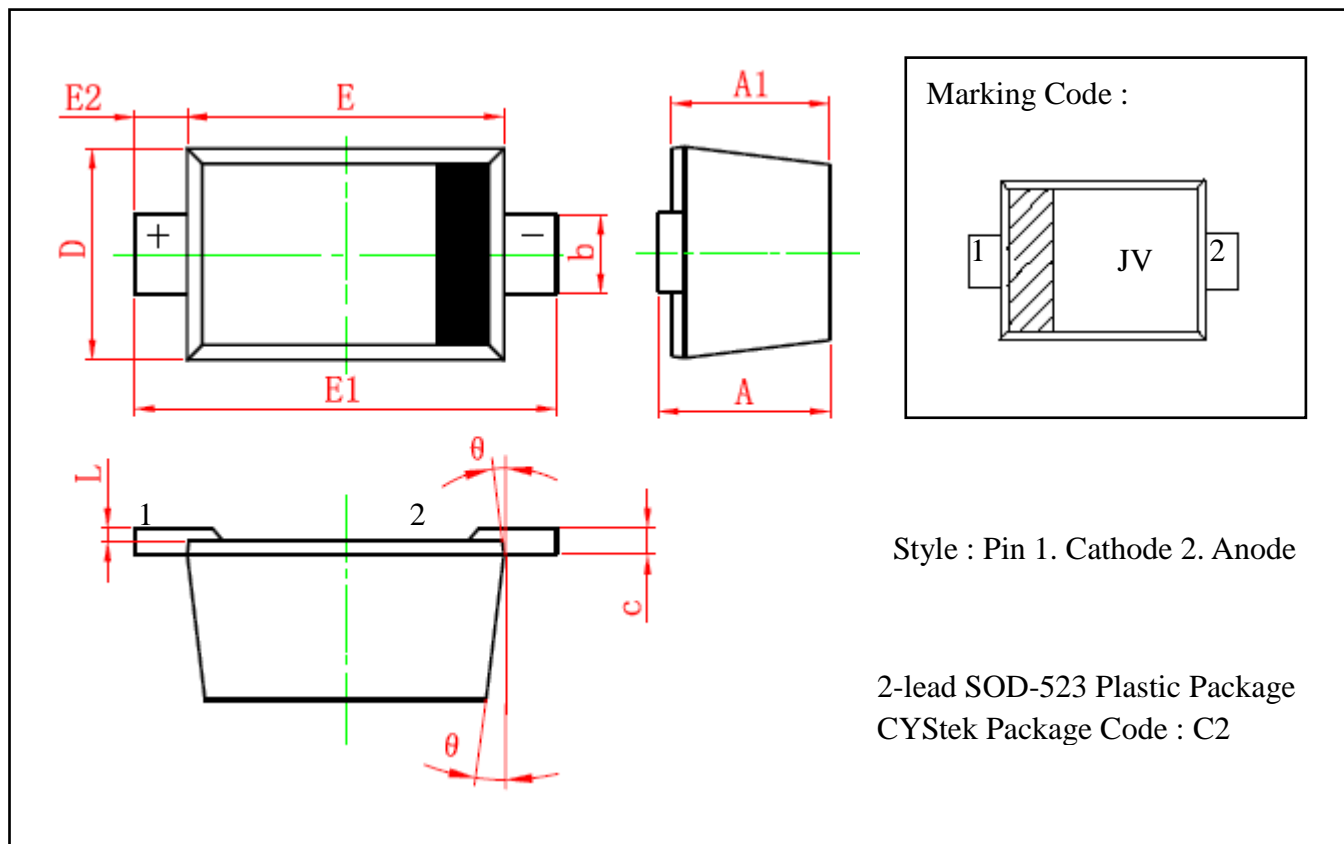
Recommended temperature profile for IR reflow



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)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (Tl)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature(Tp)	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.

SOD-523 Dimension



*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.510	0.770	0.020	0.031	E	1.100	1.300	0.043	0.051
A1	0.500	0.700	0.020	0.028	E1	1.500	1.700	0.059	0.067
b	0.250	0.350	0.010	0.014	E2	0.200	REF	0.008	REF
c	0.080	0.150	0.003	0.006	L	0.010	0.070	0.001	0.003
D	0.750	0.850	0.030	0.033	θ	7°	REF	7°	REF

Notes: 1.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
2.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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