

Small Signal Schottky diode

BAR40S2

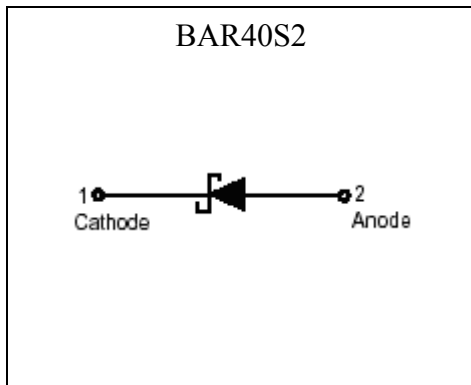
Features

- Guard ring protected
- Low forward voltage drop
- Very small plastic SMD package
- Pb-free lead plating and halogen-free package

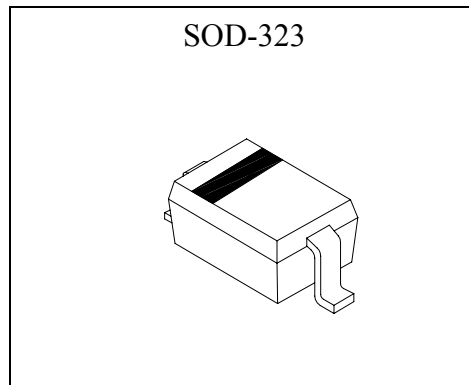
Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes

Symbol

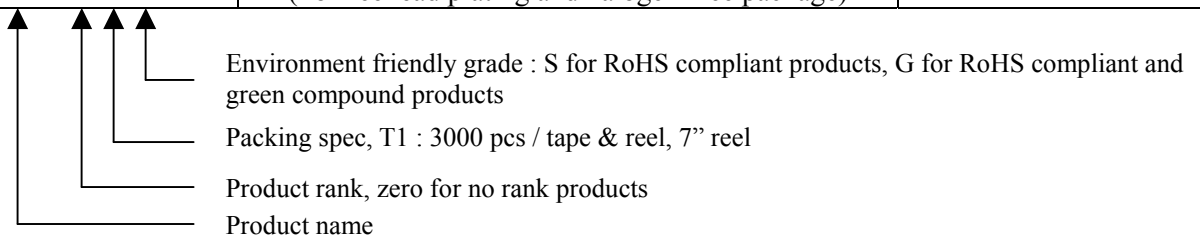


Outline



Ordering Information

Device	Package	Shipping
BAR40S2-0-T1-G	SOD-323 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel





Absolute Maximum Ratings

Symbol	Parameter	Conditions	Min	Max	Unit
V _R	continuous reverse voltage		-	40	V
I _F	continuous forward current		-	200	mA
I _{FRM}	repetitive peak forward current	tp≤1s, δ≤0.5	-	300	mA
I _{FSM}	non-repetitive peak forward current	tp<1ms	-	1000	mA
P _{tot}	total power dissipation	T _{amb} ≤25°C	-	200	mW
T _{stg}	storage temperature		-65	+150	°C
T _j	operating junction temperature		-65	+150	°C
T _{amb}	operating ambient temperature		-65	+125	°C

Characteristics (Ta=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	V _{BR}	I _R =100μA	40	-	V
Forward Voltage (Note 1)	V _F (1)	I _F =0.1mA	-	240	mV
	V _F (2)	I _F =1mA	-	320	mV
	V _F (3)	I _F =10mA	-	400	mV
	V _F (4)	I _F =30mA	-	500	mV
	V _F (5)	I _F =100mA	-	800	mV
Reverse Leakage Current (Note 2)	I _R	V _R =25V	-	2	μA
Diode Capacitance	C _D	V _R =1V, f=1MHz	-	10	pF
Reverse Recovery Time	trr	when switched from I _F = 10mA to I _R =10mA; R _L =100Ω; measured at I _R =1mA	-	5	ns

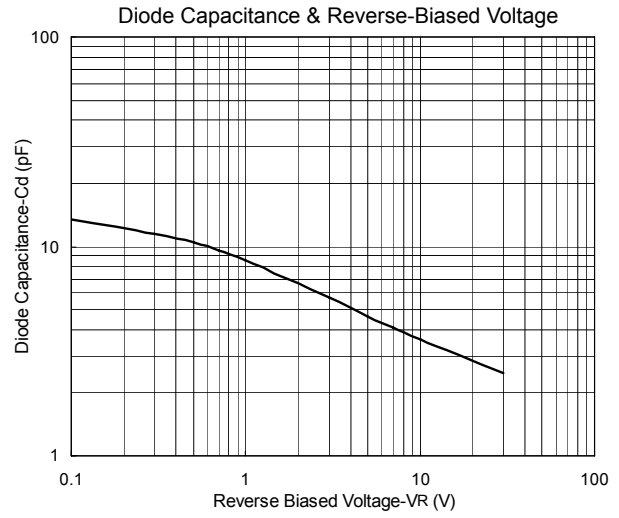
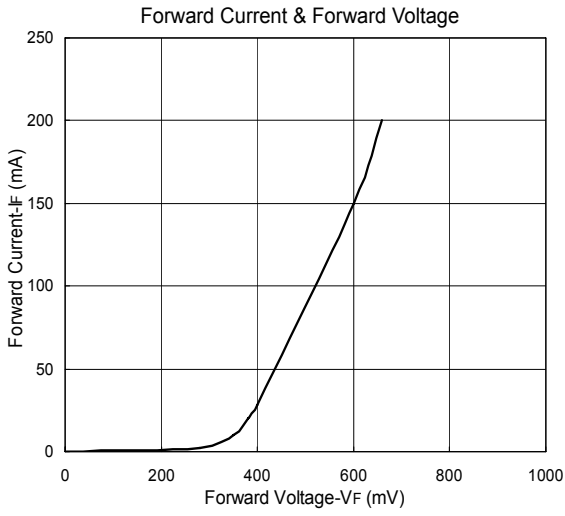
Notes: 1.pulse test, tp=380μs, duty cycle<2%.
2.pulse test, tp=300μs, duty cycle<2%.

Thermal Characteristics

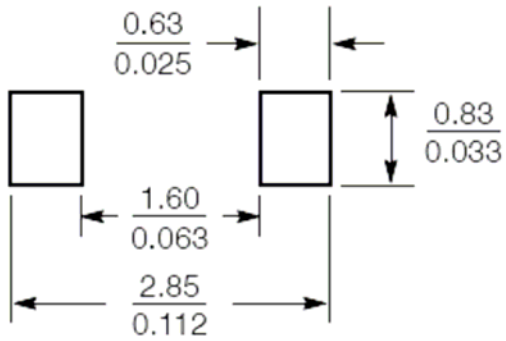
Symbol	Parameter	Conditions	Value	Unit
R _{th j-a}	thermal resistance from junction to ambient	note 1	635	K/W

Note 1 : Device mounted on a FR-4 PCB

Typical Characteristics

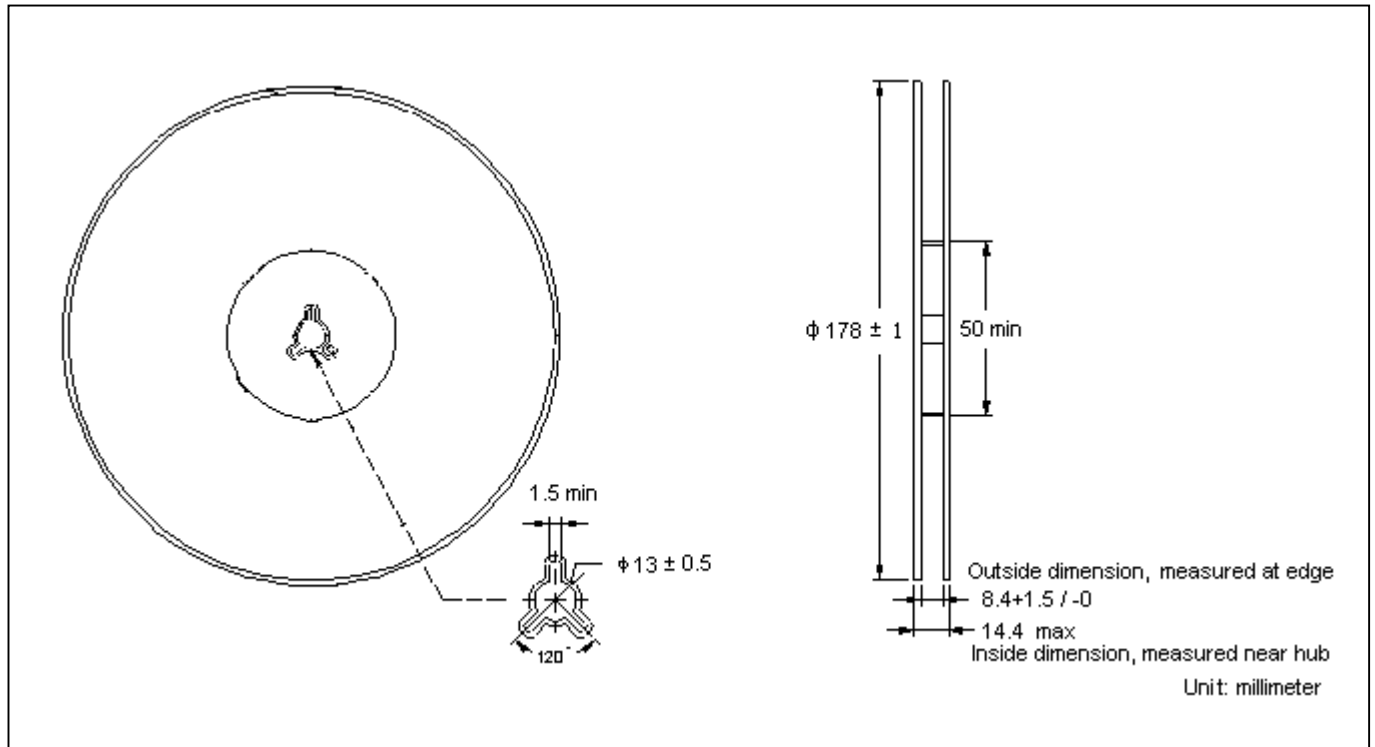


Recommended Footprint

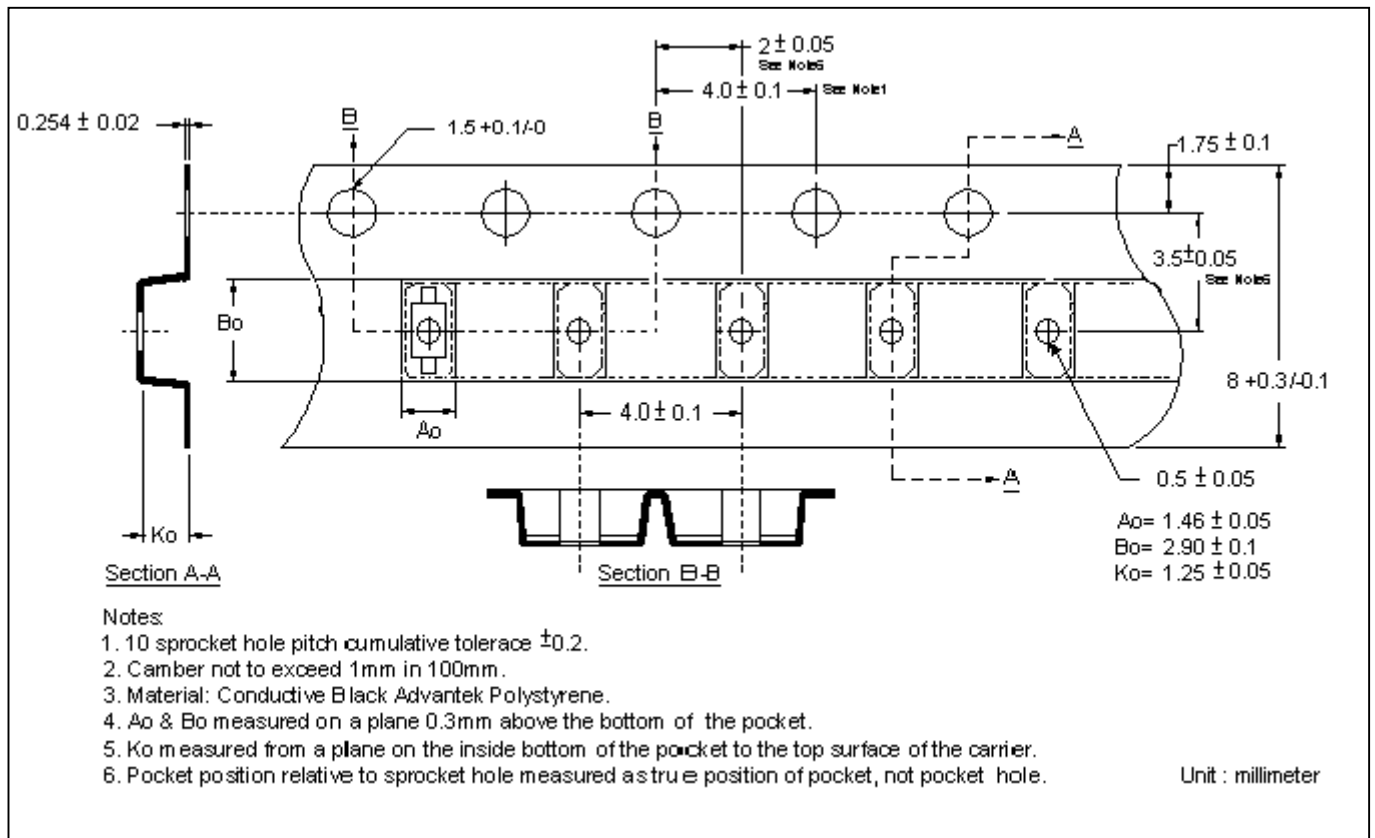


mm
 inch

Reel Dimension



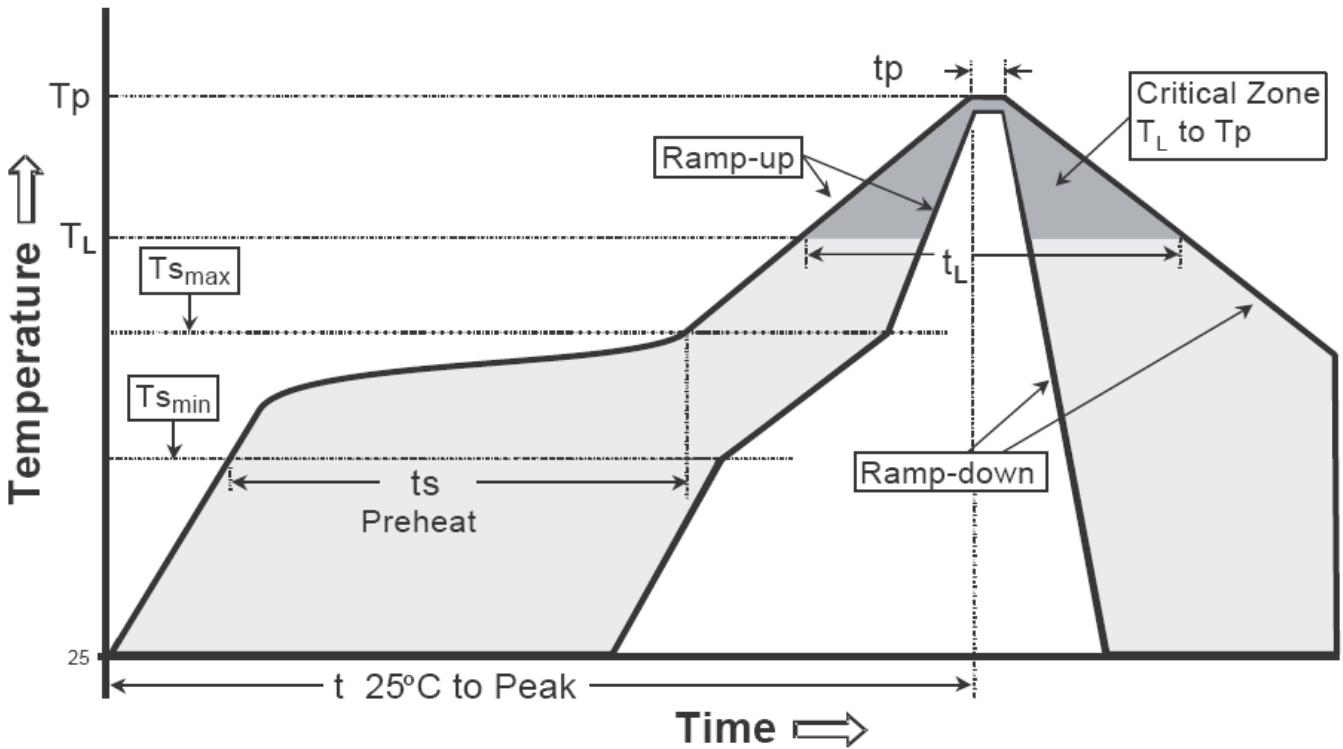
Carrier Tape Dimension



Recommended wave soldering condition

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

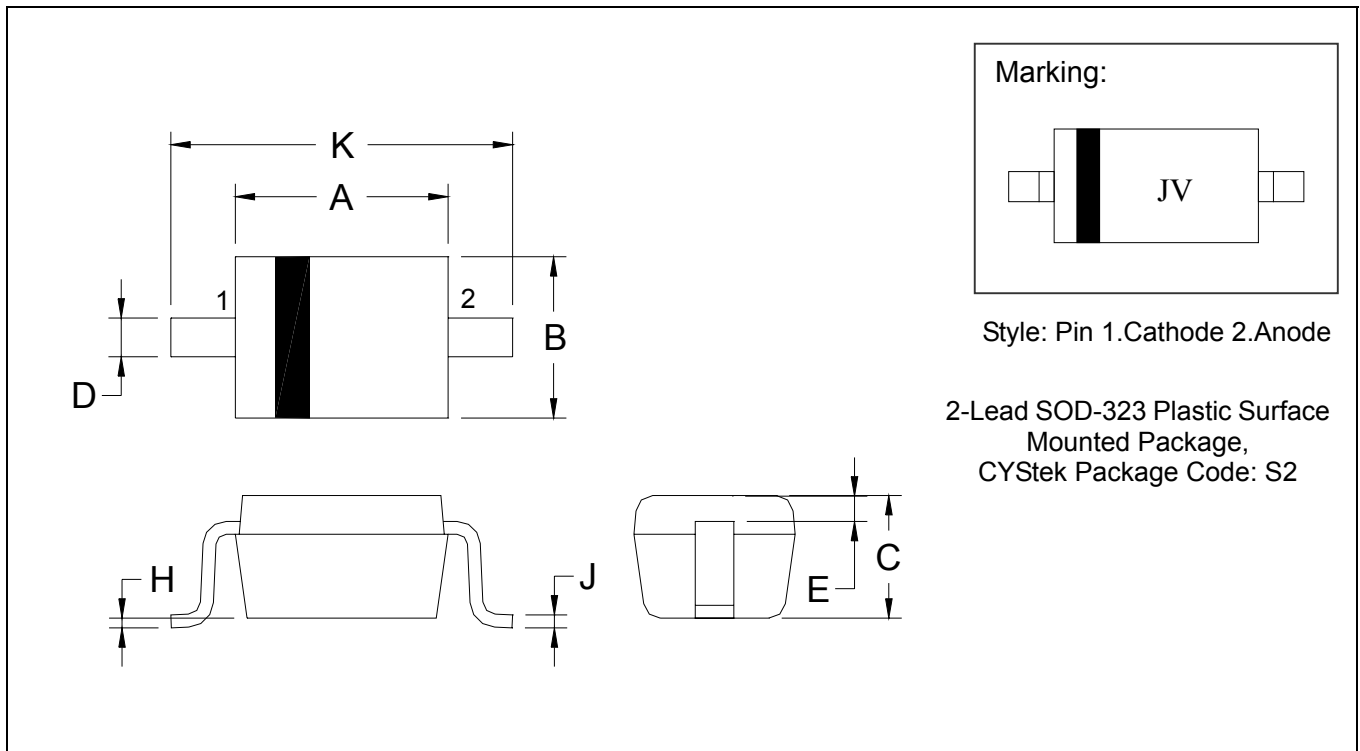
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	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.

SOD-323 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0630	0.0709	1.60	1.80	E	0.0060 REF		0.15 REF	
B	0.0453	0.0531	1.15	1.35	H	0.0000	0.0040	0.00	0.10
C	0.0315	0.0394	0.80	1.00	J	0.0035	0.0070	0.089	0.177
D	0.0098	0.0157	0.25	0.40	K	0.0906	0.1063	2.30	2.70

Notes: 1.Controlling dimension : millimeters.
 2.Lead thickness specified per L/F drawing with solder plating.
 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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