

**Small Signal Schottky (double) diodes**

# BAT54S3/BAT54AS3

# BAT54CS3/BAT54SS3

**Description**

Planar silicon Schottky barrier diodes encapsulated in a SOT-323 very small plastic SMD package. Single diodes and double diodes with different pinning are available.

**Features**

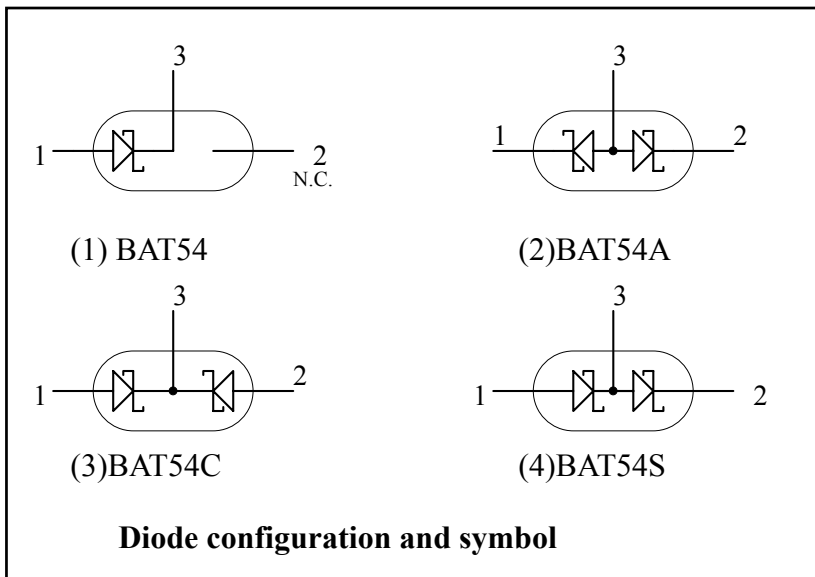
- Guard ring protected
- Low forward voltage drop
- Very small plastic SMD package

**Applications**

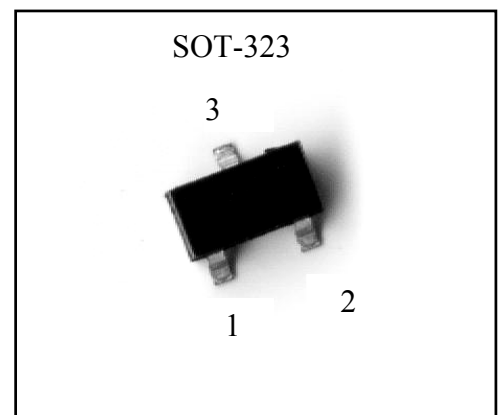
- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes

**Pinning**

Pin	Description			
	BAT54	BAT54A	BAT54C	BAT54S
1	A	K1	A1	A1
2	NC	K2	A2	K2
3	K	A1,A2	K1,K2	K1,A1



**Outline**



**Marking:**

Type	Marking Code
BAT54 S3	L4
BAT54AS3	42
BAT54CS3	43
BAT54SS3	44

**Absolute Maximum Ratings**

Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
V <sub>R</sub>	continuous reverse voltage		-	30	V
I <sub>F</sub>	continuous forward current		-	200	mA
I <sub>FRM</sub>	repetitive peak forward current	tp≤1s, δ≤0.5	-	300	mA
I <sub>FSM</sub>	non-repetitive peak forward current	tp<10ms	-	600	mA
P <sub>tot</sub>	total power dissipation (per package)	T <sub>amb</sub> ≤25°C	-	200	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
T <sub>j</sub>	junction temperature		-	125	°C
T <sub>amb</sub>	operating ambient temperature		-65	+125	°C

**Characteristics** (T<sub>a</sub>=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	V <sub>BR</sub>	I <sub>R</sub> =100μA	30	-	V
Forward Voltage (Note 1)	V <sub>F</sub> (1)	I <sub>F</sub> =0.1mA	-	240	mV
	V <sub>F</sub> (2)	I <sub>F</sub> =1mA	-	320	mV
	V <sub>F</sub> (3)	I <sub>F</sub> =10mA	-	400	mV
	V <sub>F</sub> (4)	I <sub>F</sub> =30mA	-	500	mV
	V <sub>F</sub> (5)	I <sub>F</sub> =100mA	-	800	mV
Reverse Leakage Current (Note 2)	I <sub>R</sub>	V <sub>R</sub> =25V	-	2	μA
Diode Capacitance	C <sub>D</sub>	V <sub>R</sub> =1V, f=1MHz	-	10	pF
Reverse Recovery Time	t <sub>rr</sub>	when switched from I <sub>F</sub> = 10mA to I <sub>R</sub> =10mA; R <sub>L</sub> =100Ω; measured at I <sub>R</sub> =1mA	-	5	ns

Notes: 1.pulse test, tp=380μs, duty cycle&lt;2%.

2.pulse test, tp=300μs, duty cycle&lt;2%.

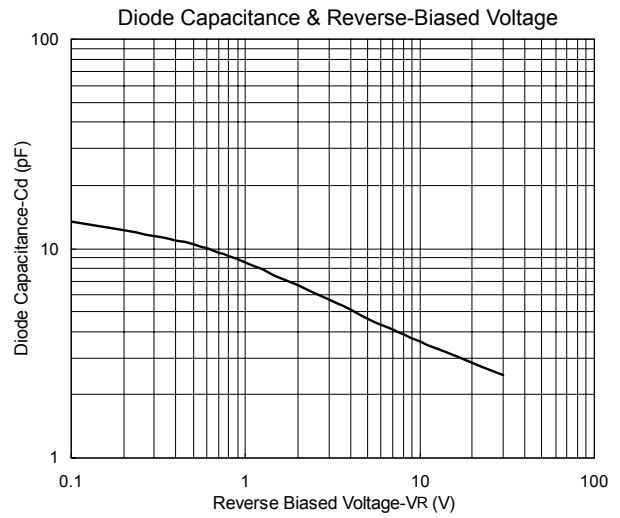
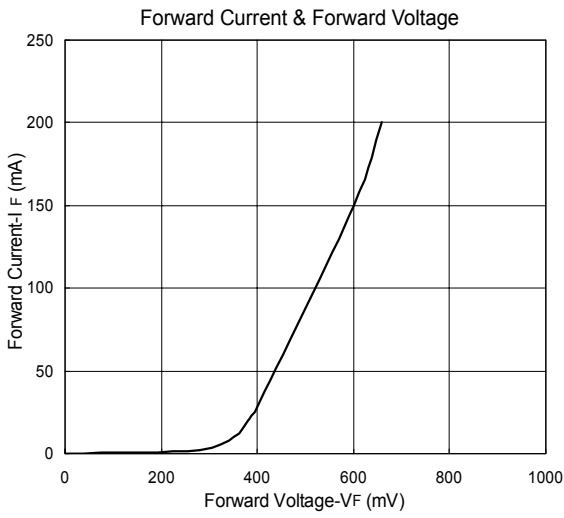
**Thermal Characteristics**

Symbol	Parameter	Conditions	Value	Unit
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	625	K/W

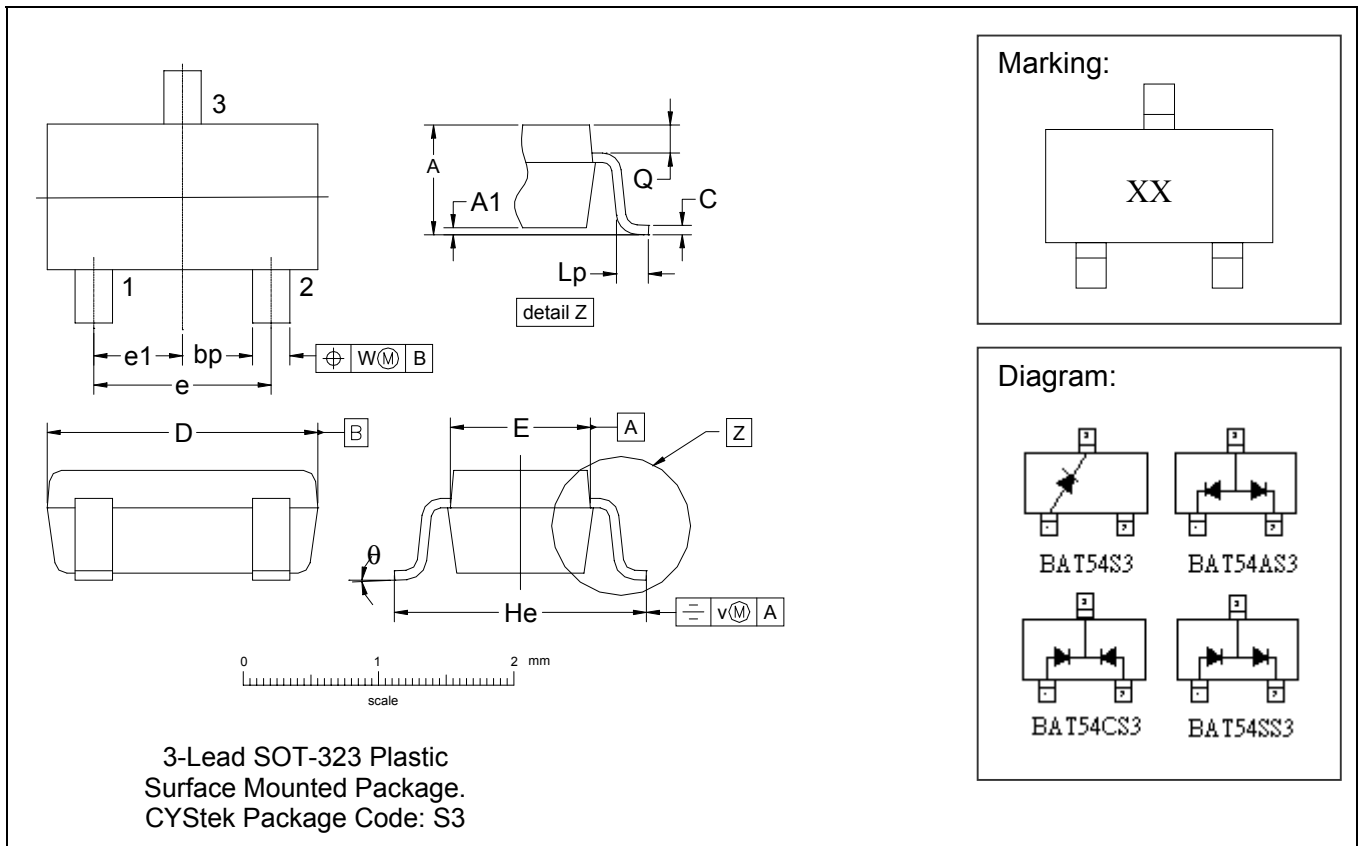
Note 1 : Refer to SOT-323 standard mounting conditions.



### Characteristic Curves



**SOT-323 Dimension**



**3-Lead SOT-323 Plastic Surface Mounted Package.**  
 CYStek Package Code: S3

- BAT54 S3 : Single Diode (Marking Code L4)
- BAT54AS3 : Common Anode. (Marking Code 42)
- BAT54CS3 : Common Cathode. (Marking Code 43)
- BAT54SS3 : Series Connected. (Marking Code 44)

\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0315	0.0433	0.80	1.10	e1	0.0256	-	0.65	-
A1	0.0000	0.0039	0.00	0.10	He	0.0787	0.0886	2.00	2.25
bp	0.0118	0.0157	0.30	0.40	Lp	0.0059	0.0177	0.15	0.45
C	0.0039	0.0098	0.10	0.25	Q	0.0051	0.0091	0.13	0.23
D	0.0709	0.0866	1.80	2.20	v	0.0079	-	0.2	-
E	0.0453	0.0531	1.15	1.35	w	0.0079	-	0.2	-
e	0.0512	-	1.3	-	θ	-	-	10°	0°

- 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: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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