

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

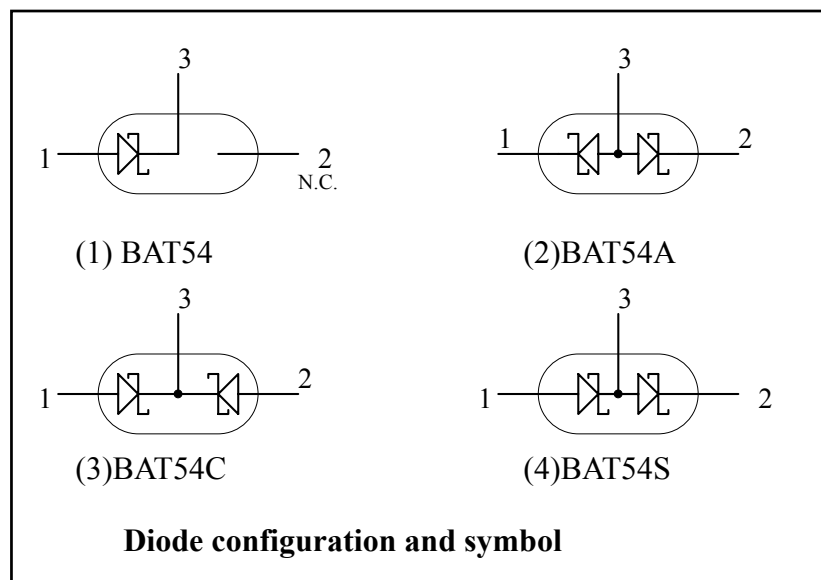
- Guard ring protected
- Low forward voltage drop
- Very small plastic SMD package

Applications

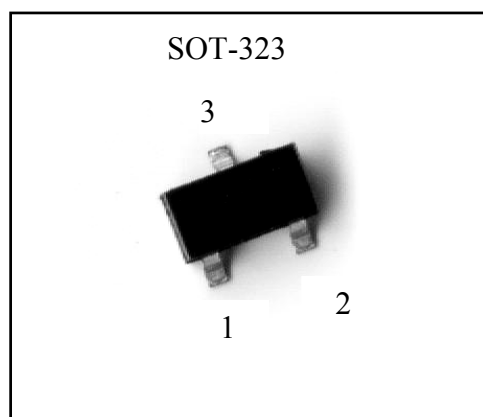
- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes

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_R	continuous reverse voltage		-	30	V
I_F	continuous forward current		-	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1s, \delta \leq 0.5$	-	300	mA
I_{FSM}	non-repetitive peak forward current	$t_p < 10ms$	-	600	mA
P_{tot}	total power dissipation (per package)	$T_{amb} \leq 25^\circ C$	-	200	mW
T_{stg}	storage temperature		-65	+150	$^\circ C$
T_j	junction temperature		-	125	$^\circ C$
T_{amb}	operating ambient temperature		-65	+125	$^\circ C$

Characteristics ($T_a = 25^\circ C$, unless otherwise specified)

Parameter	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	V_{BR}	$I_R = 100\mu A$	30	-	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	t_{rr}	when switched from $I_F = 10mA$ to $I_R = 10mA$; $R_L = 100\Omega$; measured at $I_R = 1mA$	-	5	ns

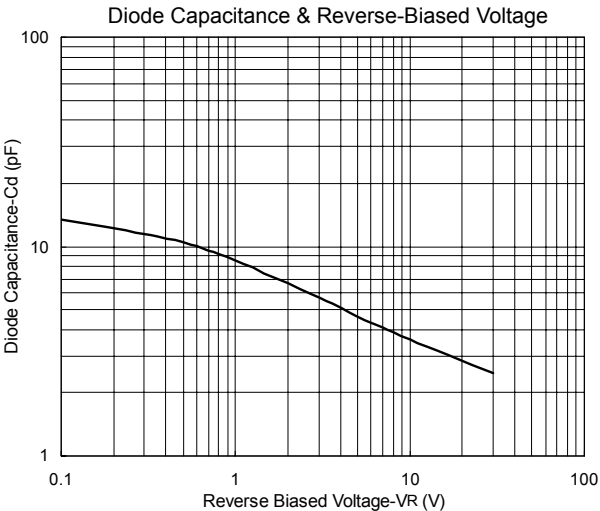
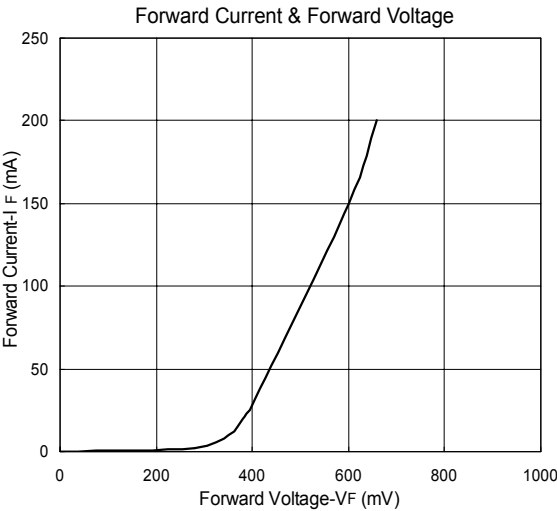
Notes: 1.pulse test, $t_p = 380\mu s$, duty cycle $< 2\%$.2.pulse test, $t_p = 300\mu s$, duty cycle $< 2\%$.**Thermal Characteristics**

Symbol	Parameter	Conditions	Value	Unit
$R_{th j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

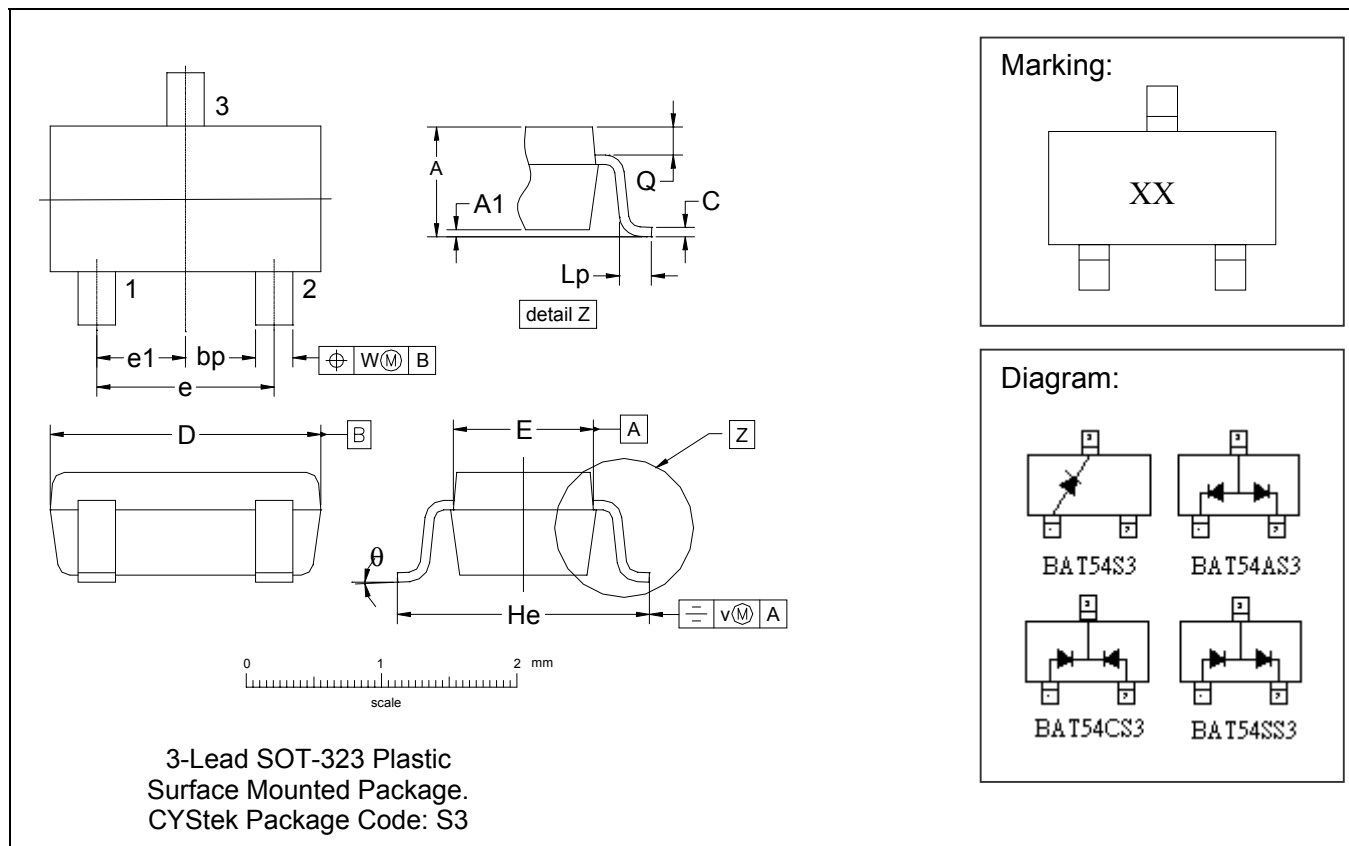
Note 1 : Refer to SOT-323 standard mounting conditions.



Characteristic Curves



SOT-323 Dimension



- 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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