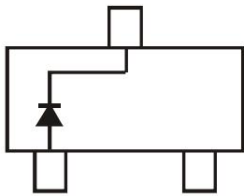


Features

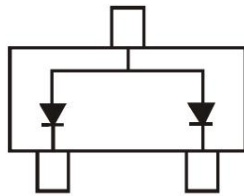
- ◆ Low Turn-on Voltage
- ◆ Fast Switching
- ◆ PN Junction Guard Ring for Transient and ESD Protection
- ◆ Totally Lead-Free & Fully RoHS Compliant



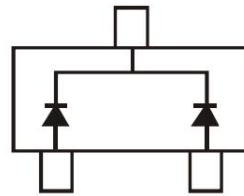
Schematic



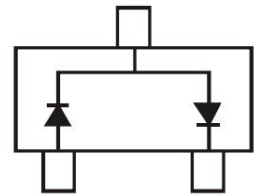
BAT54



BAT54A



BAT54C

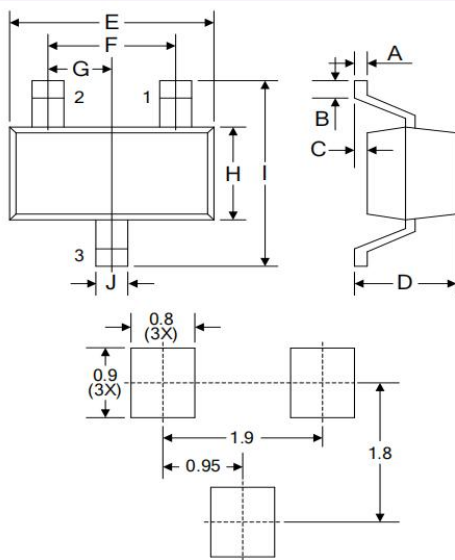


BAT54S

Applications

- ◆ Ultra high-speed switching
- ◆ Voltage clamping
- ◆ Line termination
- ◆ Reverse polarity protection

Dimensions (SOT-23)



Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.08	0.18	0.003	0.007
B	0.15	-	0.006	-
C	-	0.13	-	0.005
D	0.89	1.09	0.035	0.043
E	2.80	3.05	0.110	0.120
F	1.90		0.075	
G	0.95		0.037	
H	1.19	1.40	0.047	0.055
I	2.10	2.49	0.083	0.098
J	0.35	0.50	0.014	0.020

Maximum Ratings and Thermal Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	30	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
Forward Continuous Current	I_{FM}	200	mA
Repetitive Peak Forward Current	I_{FRM}	300	mA
Forward Continuous Current @ $t=8.3\text{ms}$	I_{FSM}	600	mA
Power Dissipation	P_D	200	mW
Typical Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	500	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-45 to + 125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to + 150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Max	Unit
Reverse Breakdown Voltage	$V_{(BR)R}$	$I_{RS} = 100\mu\text{A}$	30	-	V
Forward Voltage	V_F	$I_F = 0.1\text{mA}$	--	240	mV
		$I_F = 1\text{mA}$		320	
		$I_F = 10\text{mA}$		400	
		$I_F = 30\text{mA}$		500	
		$I_F = 100\text{mA}$		1000	
Reverse Current	I_{RM}	$V_R = 25\text{V}$	--	2.0	μA
Total Capacitance	C_T	$V_R = 4\text{V}, f = 1.0\text{MHz}$	--	10	pF
Reverse Recovery Time	t_{rr}	$I_F = I_R = 10\text{mA}, I_{rr} = 0.1 \times I_R$ $R_L = 100\Omega$	--	5.0	ns

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1. Typical Forward Characteristics

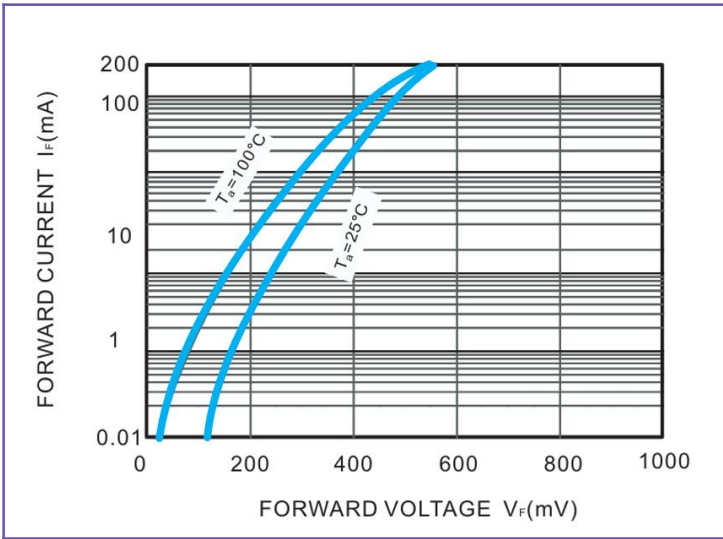


Figure 2. Typical Reverse Characteristics

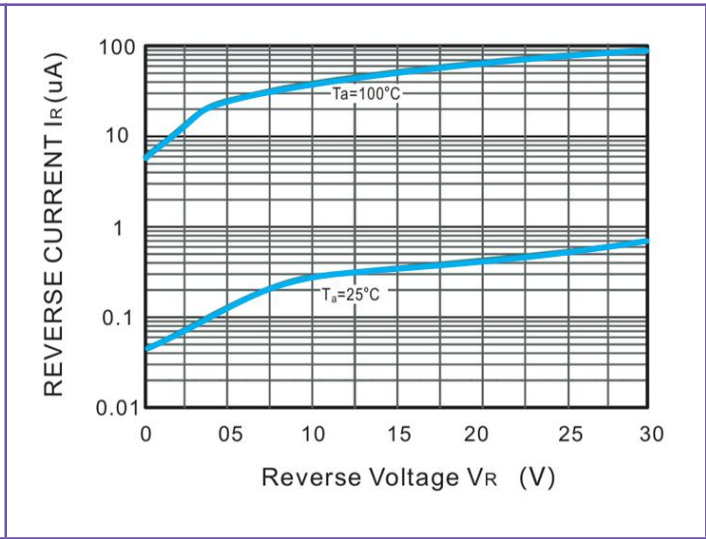


Figure 3. Total Capacitance vs. Reverse Voltage

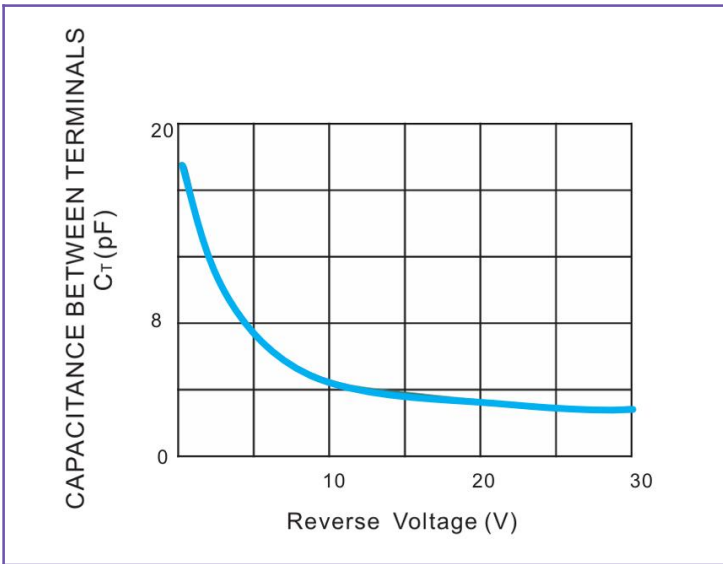
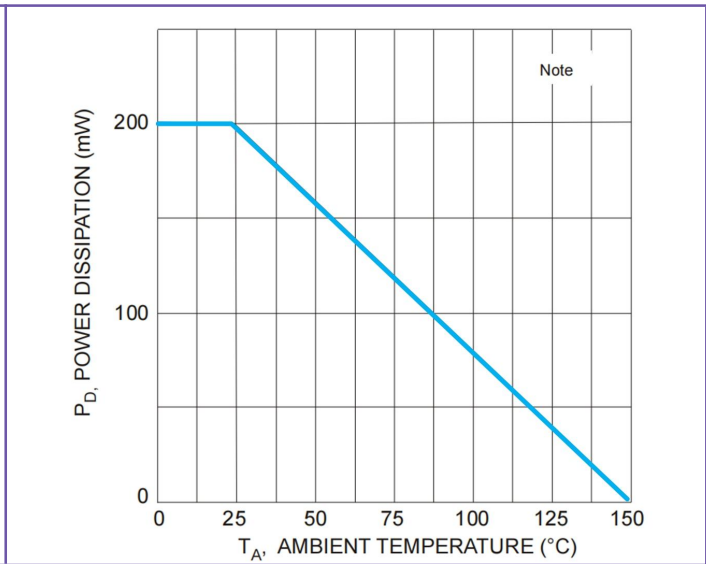
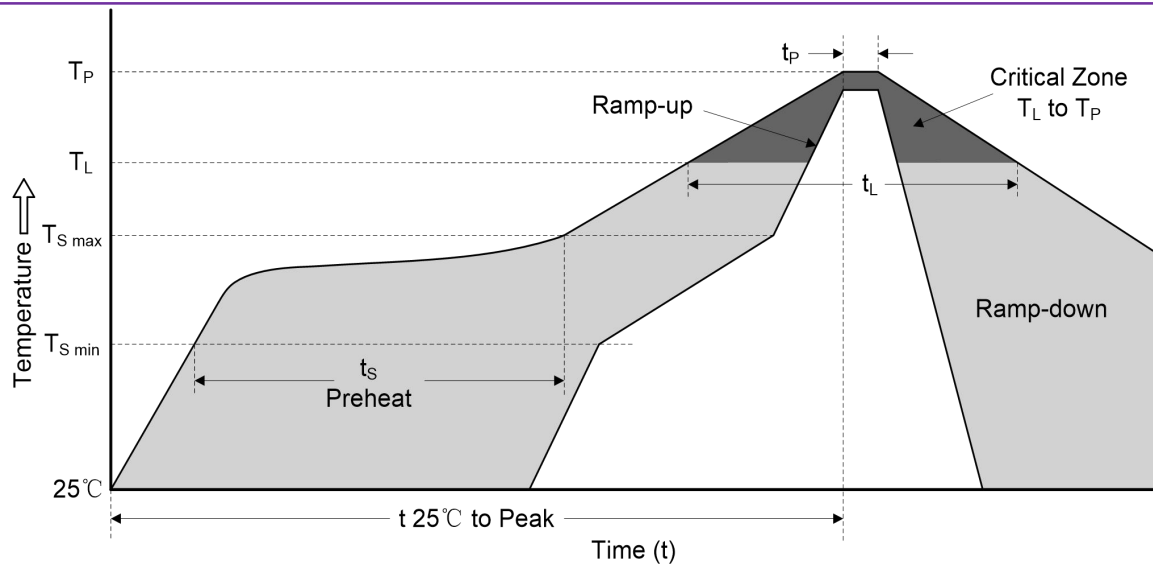


Figure 4 Power Derating Curve



Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min ($T_{S\ min}$)	150°C
	-Temperature Max ($T_{S\ max}$)	200°C
	-Time (min to max) (t_s)	60-180 seconds
Average ramp-up rate (T_L to T_P)		3°C/second max.
$T_{S\ max}$ to T_L -Ramp-up Rate		3°C/second max.
Reflow	-Temperature (T_L) (Liquidus)	217°C
	-Time (min to max) (t_s)	60-150 seconds
Peak Temperature (T_P)		260(+0/-5)°C
Time within 5°C of actual Peak Temperature (t_p)		20-40 seconds
Ramp-down Rate		6°C/second max.
Time 25°C to Peak Temperature(T_P)		8 minutes max.
Do not exceed		260°C