

BAT54,BAT54A,BAT54C,BAT54S
Small Signal Schottky Barrier Rectifiers



Voltage: 30 Volts

Power: 200 mW

Package: SOT-23

Features

- NH'S Small Signal Schottky Barrier Chip Technology
- Low Forward Voltage Drop For High Efficiency
- Small Package
- Low Cost

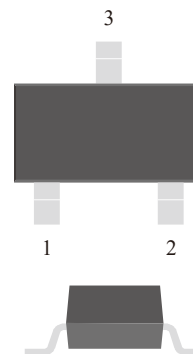
Mechanical Data

- **Case:** Molded With UL-94 ClassV-0 Recognized, RoHS-Compliant
- **Polarity:** Look At The Diagram And Polarity On The Right
- **Terminals:** Tin Plated Leads,Solderable Per J-STD-002 And JESD22-B102

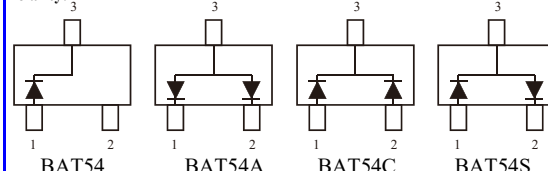
Typical Applications

- Small Signal Control Circuit
- Auxiliary Control Circuit
- Switch Mode Power Supplies (SMPS)
- LED Driver

Diagram:



Polarity:



Single Phase,Half Wave,60Hz,Resistive Or Inductive Load.For Capacitive Load,Derate Current By 20%

Maximum Ratings (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	30	V
Maximum RMS Voltag		V_{RMS}	21	V
Maximum Non-Repetitive Peak Reverse Voltage		V_{NRM}	30	V
Maximum Average Forward Rectified		$I_{F(AV)}$	200	mA
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	0.6	A
Power Dissipation		P_D	200	mW

Electrical Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Ratings			Unit
			Min.	Typ.	Max.	
Breakdown Voltage	$I_R=100\mu A$	BV_R	30	-	-	V
Maximum Instantaneous Forward Voltage	$I_F=1\text{ mA}$	V_F	-	-	0.32	V
	$I_F=10\text{ mA}$		-	-	0.4	
	$I_F=30\text{ mA}$		-	-	0.5	
	$I_F=100\text{ mA}$		-	-	1.0	
Reverse Leakage Current	$V_R=V_{RRM}$	I_{RRM}	-	-	2	μA
Typical Junction Capacitance	0 V,1MHz	C_T	-	-	10	pF
Maximum Reverse Recovery Time	$I_F=I_R=10\text{mA}, I_{RR}=1\text{mA to }1\text{mA}, RL=100$	T_{rr}	-	-	5	nS

Thermal Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Operating Junction Temperature Range		T_J	-55 to 125	°C
Storage Temperature Range		T_{STD}	-55 to 150	
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	$R_{\theta JA}$	500	°C/W

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Typical Characteristics Curves

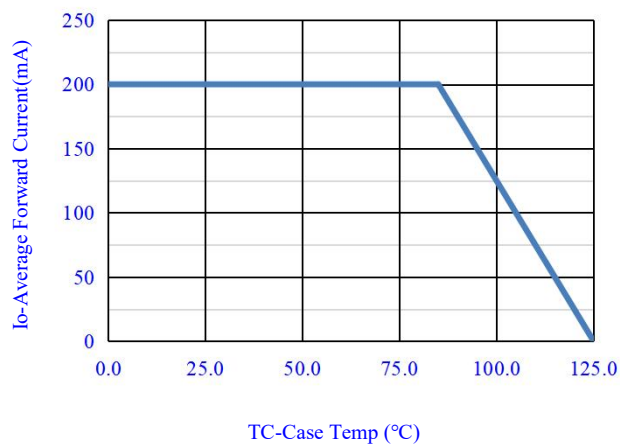


Fig.1-Forward Current Derating Curve

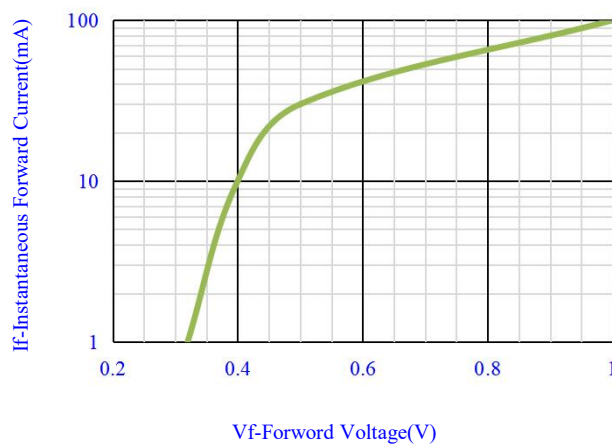


Fig.2-Typical Instantaneous Forward

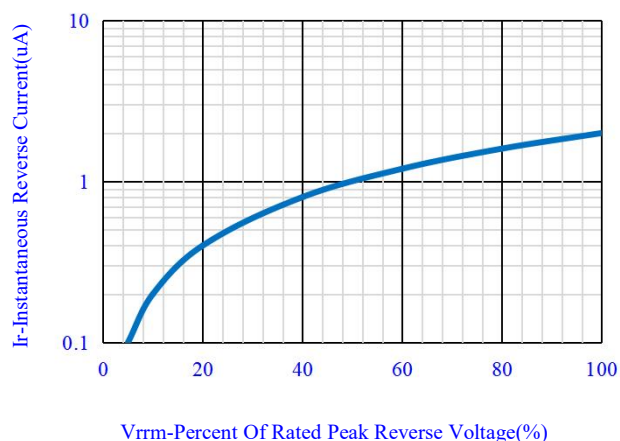


Fig.3-Typical Reverse Characteristics

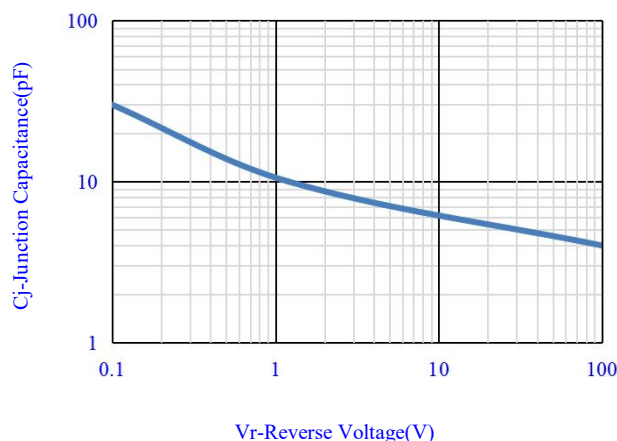


Fig.4- Typical Junction Capacitance

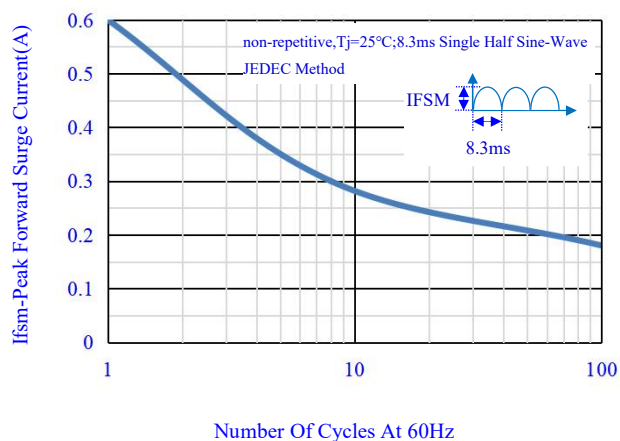


Fig.5-Max. Non-Repetitive Surge Current

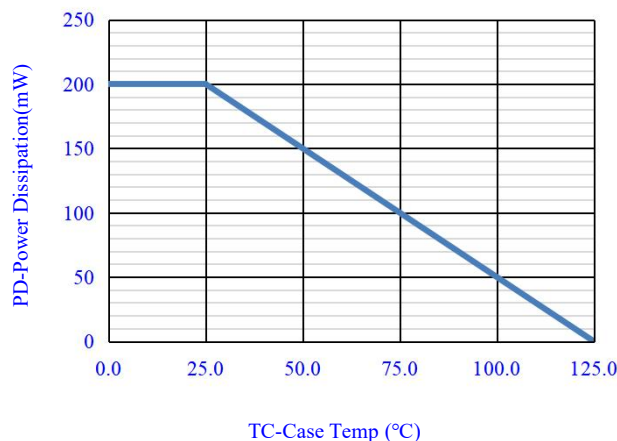
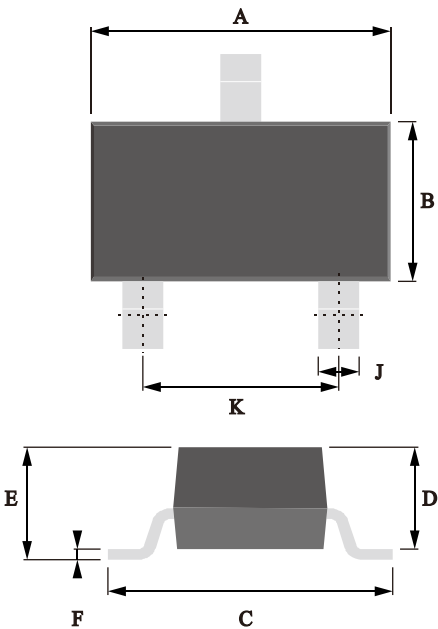


Fig.6-Power Dissipation Vs. Ambient Temp.

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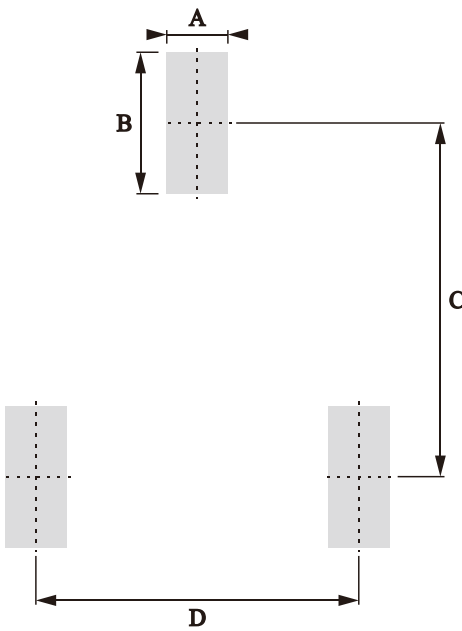
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OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.80	-	3.20	0.1102	-	0.1260
B	1.15	-	1.45	0.0453	-	0.0571
C	2.25	-	2.65	0.0886	-	0.1043
D	0.85	-	1.15	0.0335	-	0.0453
E	0.90	-	1.20	0.0354	-	0.0472
F	0.08	-	0.18	0.0031	-	0.0071
J	0.30	-	0.50	0.0118	-	0.0197
K	1.70	-	2.10	0.0669	-	0.0827

RECOMMEDND LAYOUT DRAWINGS

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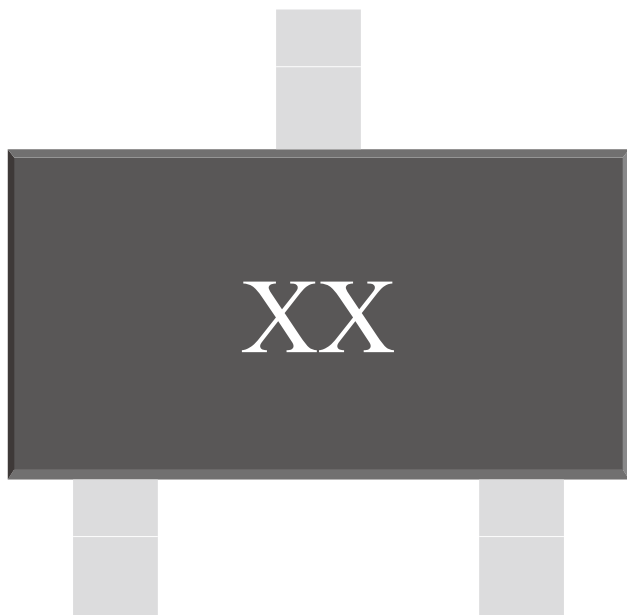
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	0.60	-	-	0.0000	-
B	-	0.80	-	-	0.0315	-
C	-	2.00	-	-	0.0787	-
D	-	1.90	-	-	0.0748	-

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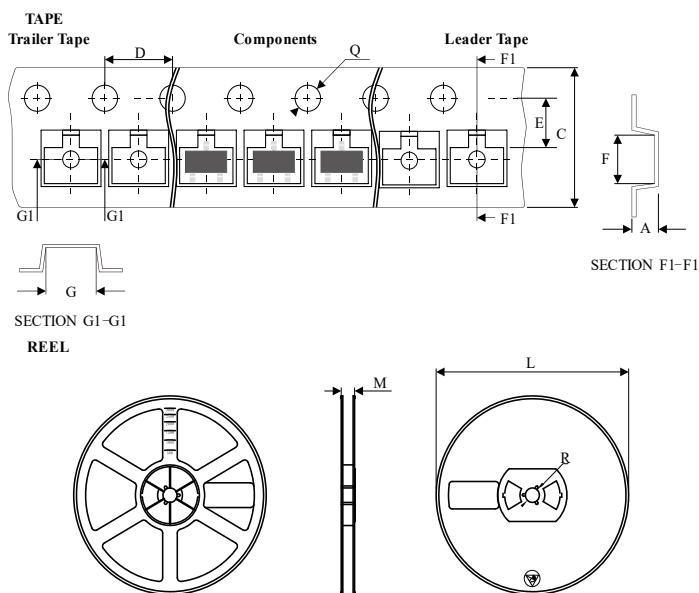
MARKING



MARKING INSTRUCTION

XX=Model
XX=KL1=BAT54
XX=KL2=BAT54A
XX=KL3=BAT54C
XX=KL4=BAT54S

PACKAGING



SOT-23

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
TAPE						
A	1.02	-	1.42	0.0402	-	0.0559
C	7.40	-	8.60	0.2913	-	0.3386
D	3.80	-	4.20	0.1496	-	0.1654
E	3.30	-	3.70	0.1299	-	0.1457
F	2.57	-	2.97	0.1012	-	0.1169
G	2.95	-	3.35	0.1161	-	0.1319
Q Φ	1.40	-	1.60	0.0551	-	0.0630
REEL						
L Φ	174.00	-	182.00	6.850	-	7.165
R	12.00	-	14.00	0.4724	-	0.5512
M	10.30	-	14.30	0.4055	-	0.5630

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOT-23	P1	0.008	7" Reel	3000	45000	180000

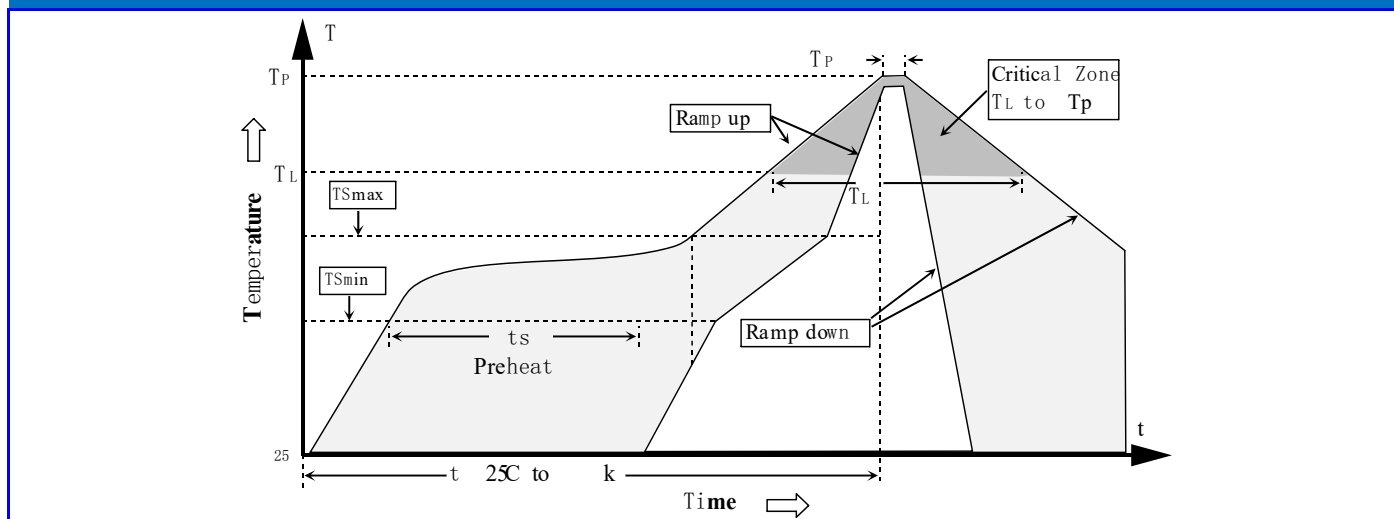
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Recommended wave soldering condition

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(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 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.

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