



# THE DATASHEET OF BAT54XV2T1



# BAT54XV2T1

Preferred Device

## Schottky Barrier Diodes

These Schottky barrier diodes are designed for high speed switching applications, circuit protection, and voltage clamping. Extremely low forward voltage reduces conduction loss. Miniature surface mount package is excellent for hand held and portable applications where space is limited.

- Extremely Fast Switching Speed
- Low Forward Voltage – 0.35 V (Typ) @  $I_F = 10$  mA dc

### MAXIMUM RATINGS ( $T_J = 125^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	30	V

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	200 1.57	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	635	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	150	$^\circ\text{C}$

1. FR-4 Minimum Pad



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## 30 VOLT SILICON HOT-CARRIER DETECTOR AND SWITCHING DIODES



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### MARKING DIAGRAM



PLASTIC  
SOD-523  
CASE 502

JV = Specific Device Code  
d = Date Code

### ORDERING INFORMATION

Device	Package	Shipping
BAT54XV2T1	SOD-523	3000/Tape & Reel

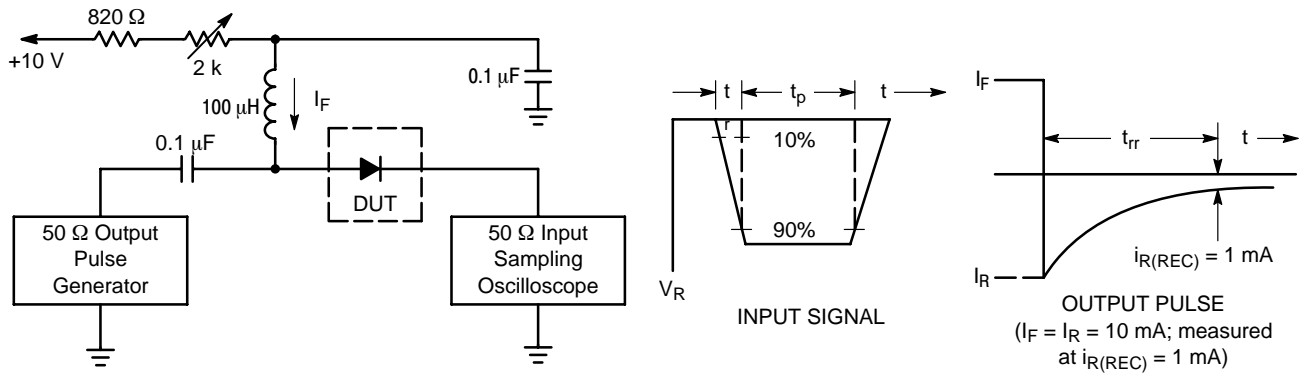
Preferred devices are recommended choices for future use and best overall value.

# BAT54XV2T1

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ( $I_R = 10 \mu\text{A}$ )	$V_{(BR)R}$	30	–	–	Volts
Total Capacitance ( $V_R = 1.0 \text{ V}$ , $f = 1.0 \text{ MHz}$ )	$C_T$	–	7.6	10	pF
Reverse Leakage ( $V_R = 25 \text{ V}$ )	$I_R$	–	0.5	2.0	$\mu\text{A}$ dc
Forward Voltage ( $I_F = 0.1 \text{ mA}$ dc)	$V_F$	–	0.22	0.24	Vdc
Forward Voltage ( $I_F = 30 \text{ mA}$ dc)	$V_F$	–	0.41	0.5	Vdc
Forward Voltage ( $I_F = 100 \text{ mA}$ dc)	$V_F$	–	0.52	0.8	Vdc
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mA}$ dc, $I_{R(REC)} = 1.0 \text{ mA}$ dc) Figure 1	$t_{rr}$	–	–	5.0	ns
Forward Voltage ( $I_F = 1.0 \text{ mA}$ dc)	$V_F$	–	0.29	0.32	Vdc
Forward Voltage ( $I_F = 10 \text{ mA}$ dc)	$V_F$	–	0.35	0.40	Vdc
Forward Current (DC)	$I_F$	–	–	200	mA
Repetitive Peak Forward Current	$I_{FRM}$	–	–	300	mA
Non–Repetitive Peak Forward Current ( $t < 1.0 \text{ s}$ )	$I_{FSM}$	–	–	600	mA

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- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.
- 2. Input pulse is adjusted so  $I_{R(peak)}$  is equal to 10 mA.
- 3.  $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

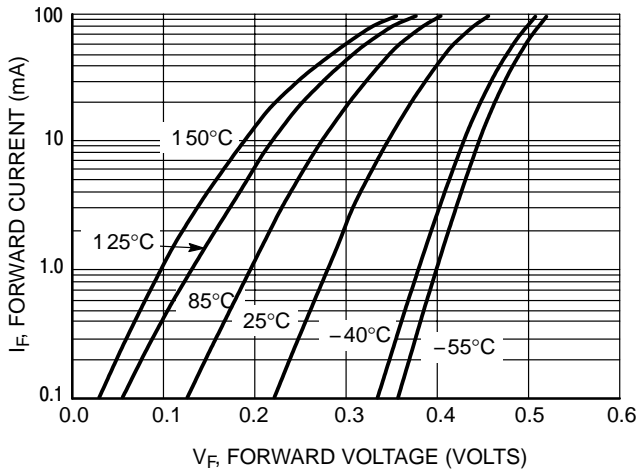


Figure 2. Forward Voltage

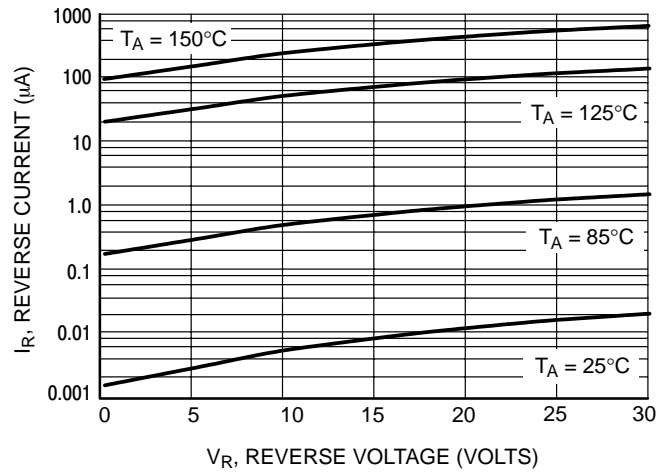


Figure 3. Leakage Current

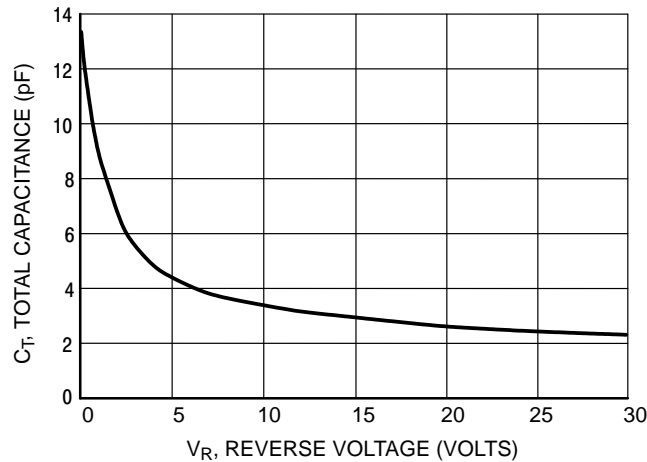
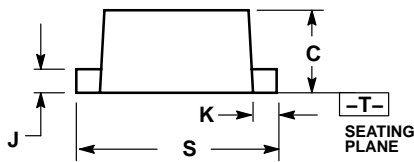
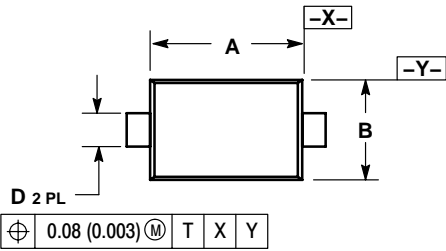


Figure 4. Total Capacitance

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## PACKAGE DIMENSIONS


**SOD-523**  
**PLASTIC PACKAGE**  
**CASE 502-01**  
**ISSUE O**



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
<b>A</b>	1.10	1.20	1.30	0.043	0.047	0.051
<b>B</b>	0.70	0.80	0.90	0.028	0.032	0.035
<b>C</b>	0.50	0.60	0.70	0.020	0.024	0.028
<b>D</b>	0.25	0.30	0.35	0.010	0.012	0.014
<b>J</b>	0.07	0.14	0.20	0.0028	0.0055	0.0079
<b>K</b>	0.15	0.20	0.25	0.006	0.008	0.010
<b>S</b>	1.50	1.60	1.70	0.059	0.063	0.067

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