

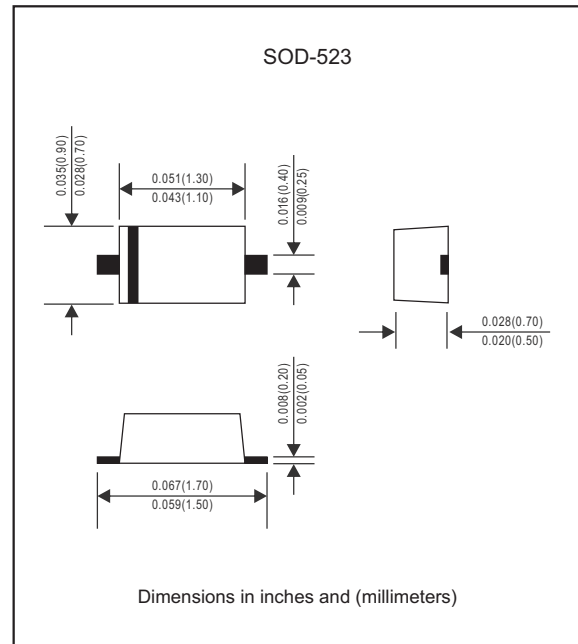
### Features

- Low current rectification and high speed switching
- Small surface mount type
- Up to 200mA current capability
- Low forward voltage drop (0.35V typ. @ $I_F=10\text{mA}$ )
- Silicon epitaxial planar chip, metal silicon junction
- High speed ( $t_{rr} < 5\text{ ns}$ )
- Lead-free parts meet RoHS requirements
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-523
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

### Package outline



### Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

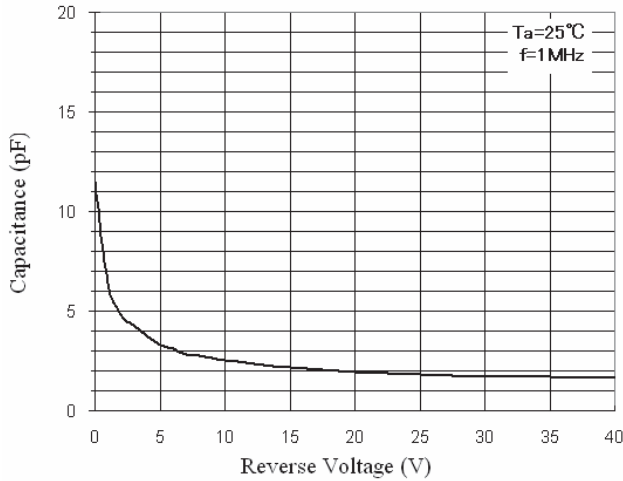
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Repetitive peak reverse voltage		$V_{RRM}$			30	V
Reverse voltage		$V_R$			30	V
Repetitive peak forward current		$I_{FRM}$			300	mA
Non-repetitive peak forward current	$t < 1.0\text{ s}$	$I_{FSM}$			600	mA
Forward current		$I_F$			200	mA
Power dissipation	Mounted on FR-5 board at $T_A=25^\circ\text{C}$	$P_D$			200	mW
Thermal resistance	Junction to ambient	$R_{\theta JA}$		635		$^\circ\text{C/W}$
Operating junction temperature range		$T_J$	-55		+125	$^\circ\text{C}$
Storage temperature range		$T_{STG}$	-55		+125	$^\circ\text{C}$

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

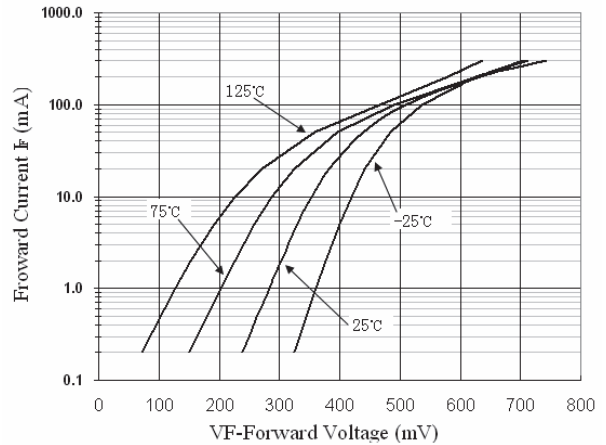
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 0.1\text{ mA}$	$V_F$		0.220	0.240	V
	$I_F = 1\text{ mA}$	$V_F$		0.290	0.320	V
	$I_F = 10\text{ mA}$	$V_F$		0.350	0.400	V
	$I_F = 30\text{ mA}$	$V_F$		0.410	0.500	V
	$I_F = 100\text{ mA}$	$V_F$		0.520	1.000	V
Reverse current	$V_R = 25\text{ V}$	$I_R$		0.5	2.0	$\mu\text{A}$
Total capacitance	$V_R = 1\text{ V}, f = 1\text{ MHz}$	$C_T$			10.0	pF
Reverse recovery time	$I_F = I_R = 10\text{ mAdc}, I_{R(REC)} = 1.0\text{ mAdc}$	$t_{rr}$			5.0	ns

### Rating and characteristic curves for each diode

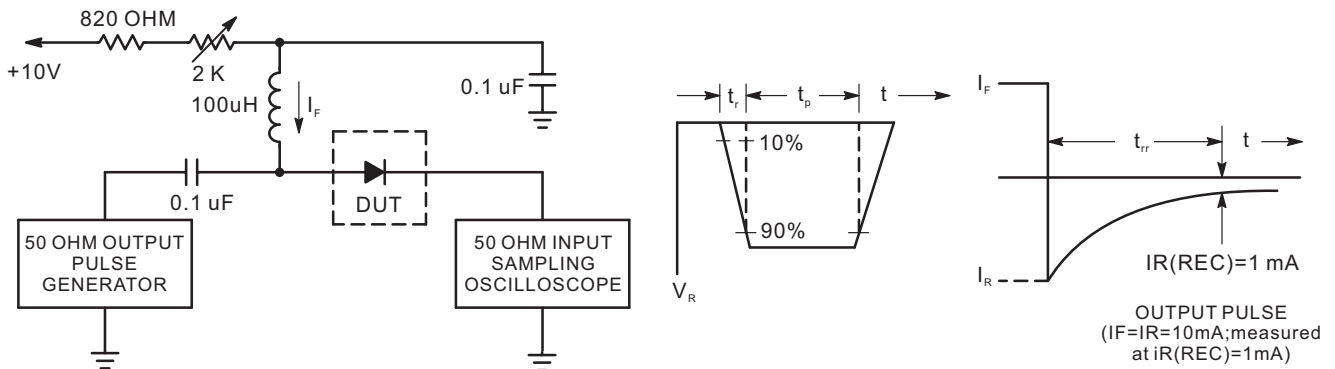
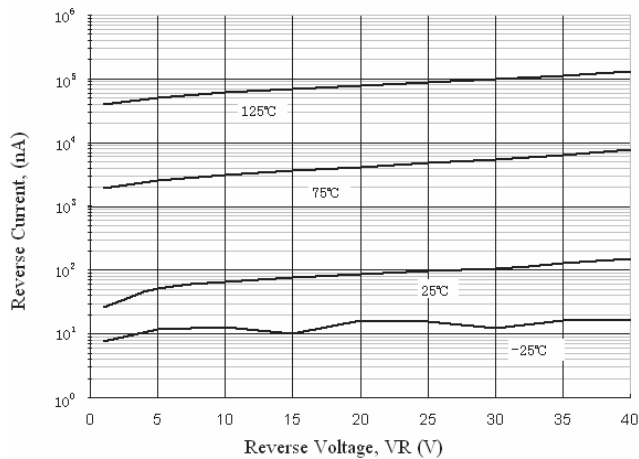
**Total Capacitance**



**Forward Voltage vs Ambient Temperature**





**Reverse Current vs Reverse Voltage**



- Notes : 1. A2.0 Kohm variable resistor adjusted for a forward Current ( $I_F$ ) of 10mA.  
 2. Input pulse is adjusted so  $I_R(\text{peak})$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$ .

**Recovery Time Equivalent Test Circuit**

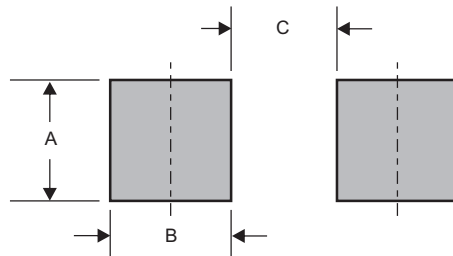
### Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

### Marking

Type number	Marking code
BAT54X-Q1	5B/JV

### Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-523	0.032 (0.80)	0.024 (0.60)	0.044 (1.10)