

# Switching Diode

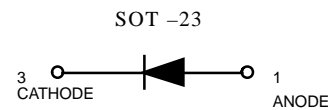
### DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Package	Shipping
FDS16ST1G	A6	SOT-23	3000/Tape&Reel
FDS16ST3G	A6	SOT-23	10000/Tape&Reel



### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	$V_R$	75	Vdc
Peak Forward Current	$I_F$	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc



### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) $T_A = 25^\circ\text{C}$	$P_D$	225	mW
Derate above $25^\circ\text{C}$		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (2) $T_A = 25^\circ\text{C}$	$P_D$	300	mW
Derate above $25^\circ\text{C}$		2.4	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

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

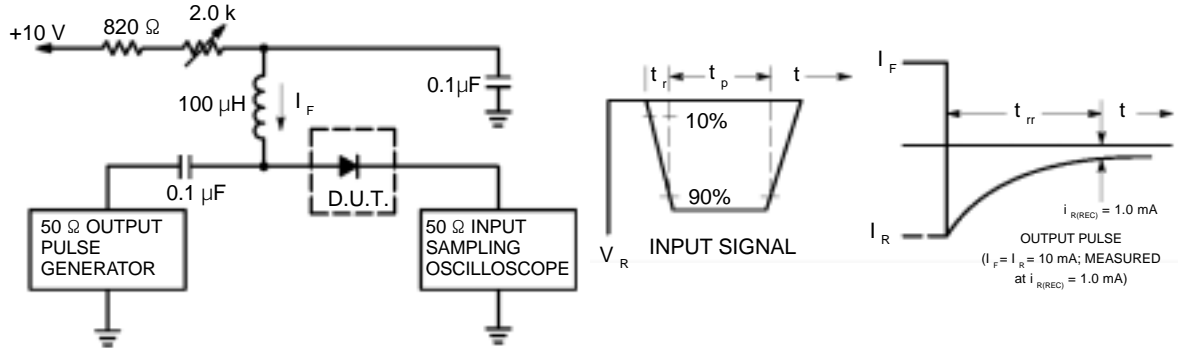
Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

### OFF CHARACTERISTICS

Reverse Voltage Leakage Current ( $V_R = 75\text{Vdc}$ ) ( $V_R = 75\text{Vdc}, T_J = 150^\circ\text{C}$ ) ( $V_R = 25\text{Vdc}, T_J = 150^\circ\text{C}$ )	$I_R$	—	1.0 50 30	$\mu\text{Adc}$
Reverse Breakdown Voltage ( $I_{BR} = 100\ \mu\text{Adc}$ )	$V_{(BR)}$	75	—	Vdc
Forward Voltage ( $I_F = 1.0\ \text{mAdc}$ ) ( $I_F = 10\ \text{mAdc}$ ) ( $I_F = 50\ \text{mAdc}$ ) ( $I_F = 150\ \text{mAdc}$ )	$V_F$	—	715 855 1000 1250	mV
Diode Capacitance ( $V_R = 0, f = 1.0\ \text{MHz}$ )	$C_D$	—	2.0	pF
Forward Recovery Voltage ( $I_F = 10\ \text{mAdc}, t_r = 20\text{ns}$ )	$V_{FR}$	—	1.75	Vdc
Reverse Recovery Time ( $I_F = I_R = 10\ \text{mAdc}, R_L = 50\ \Omega$ )	$t_{rr}$	—	6.0	ns
Stored Charge ( $I_F = 10\ \text{mAdc}$ to $V_R = 5.0\text{Vdc}, R_L = 500\ \Omega$ )	$Q_s$	—	45	pC

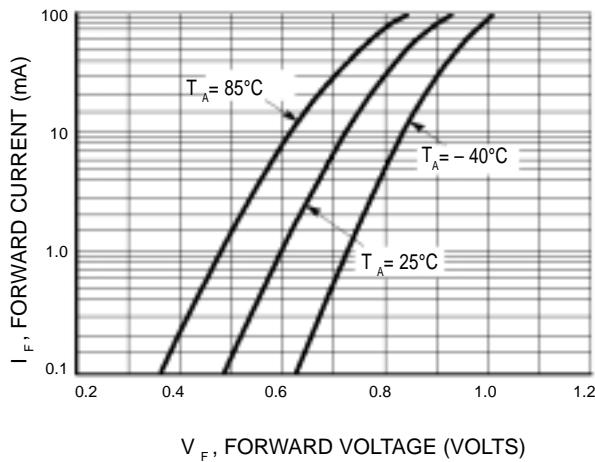
1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

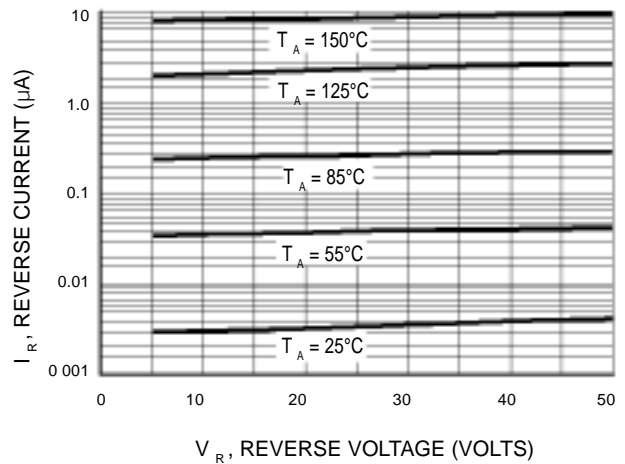


- Notes: 1. A 2.0 k $\Omega$  variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$

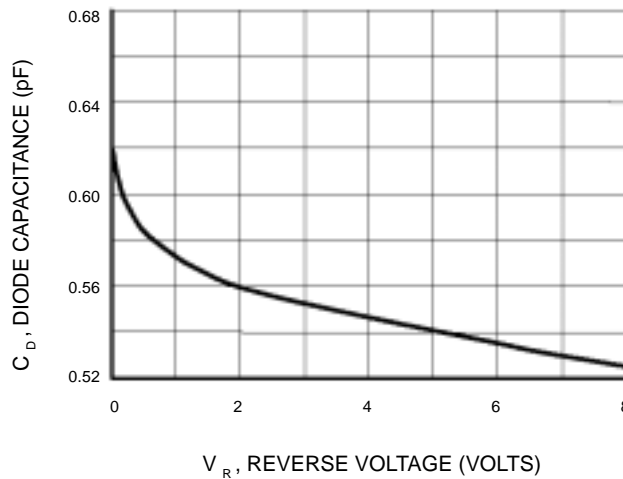
**Figure 1. Recovery Time Equivalent Test Circuit**



**Figure 2. Forward Voltage**

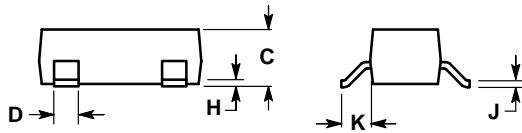
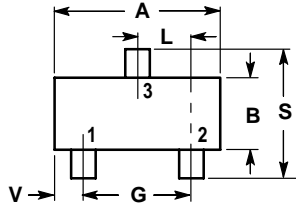


**Figure 3. Leakage Current**



**Figure 4. Capacitance**

## SOT-23



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

- P N 1. ANODE  
 2. NO CONECTION  
 3. CATHODE

