

Small Signal Fast Switching Diode

General Description

General-purpose switching diodes, fabricated in planar technology, and packaged in small SOD-123 surface mounted device (SMD) packages.

Features and Benefits

- Æ Silicon epitaxial planar diode
- Æ High switching speed: $t_{rF} \leq 4\text{ns}$
- Æ Low forward drop voltage and low leakage current
- Æ Green device and RoHS compliant device
- Æ Available in full lead (Pb)-free device



SOD-123



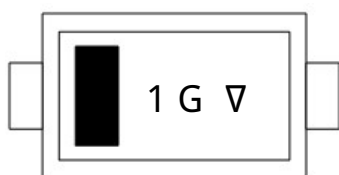
Applications

- Æ Ultra high speed switching application

Ordering Information

Part Number	Marking Code	Package	Packaging
SDS4148G	1G ▽	SOD-123	Tape & Reel

Marking Information

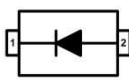


1 G = Specific Device Code

▽ = Year & Week Code Marking

■ = Color band denote cathode

Pinning Information

Pin	Description	Simplified Outline	Graphic Symbol
1	Cathode		
2	Anode		

Absolute Maximum Ratings ($T_{amb}=25\text{ }^{\circ}\text{C}$, Unless otherwise specified)

Characteristic	Symbol	Ratings	Unit
Maximum repetitive peak reverse voltage	V_{RM}	100	V
Continuous reverse voltage	V_R	75	V
Maximum average forward rectified current	I_O	150	mA
Forward current (DC)	I_F	150	mA
Maximum repetitive peak forward current	I_{FM}	300	mA
Non-repetitive peak forward surge current($t=10\text{ms}$)	I_{FSM}	2	A
Power dissipation ¹⁾	P_D	500	mW

¹⁾ Device mounted on FR-4 board with recommended pad layout.

Thermal Characteristics ($T_{amb}=25\text{ }^{\circ}\text{C}$, Unless otherwise specified)

Characteristic	Symbol	Ratings	Unit
Thermal resistance, junction to ambient ¹⁾	$R_{th(j-a)}$	250	$^{\circ}\text{C/W}$
Operating junction temperature range	T_j	-55 ~ 150	$^{\circ}\text{C}$
Storage temperature range	T_{stg}	-55 ~ 150	$^{\circ}\text{C}$

¹⁾ Device mounted on FR-4 board with recommended pad layout.

Electrical Characteristics ($T_{amb}=25\text{ }^{\circ}\text{C}$, Unless otherwise specified)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Reverse breakdown voltage	V_{BR}	$I_R=100\mu\text{A}$	100	-	-	V
Forward voltage ²⁾	V_F	$I_F=50\text{mA}$	-	0.85	1.0	V
Reverse leakage current ³⁾	$I_{R(1)}$	$V_R=20\text{V}$	-	-	25	nA
	$I_{R(2)}$	$V_R=20\text{V}, T_a=150^{\circ}\text{C}$	-	-	50	μA
	$I_{R(3)}$	$V_R=75\text{V}$	-	-	5	μA
Total capacitance	C_T	$V_R=0\text{V}, f=1\text{kHz}$	-	-	4.0	pF
Reverse recovery time	t_{rr}	$I_F=10\text{mA}, V_R=6\text{V}$ $I_{rr}=0.1 \times I_R, R_L=100\Omega$	-	-	4.0	ns

²⁾ Pulse test: $t_p \leq 380\mu\text{s}$, Duty cycle $\leq 2\%$

³⁾ Pulse test: $t_p \leq 5\mu\text{s}$, Duty cycle $\leq 2\%$

Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics

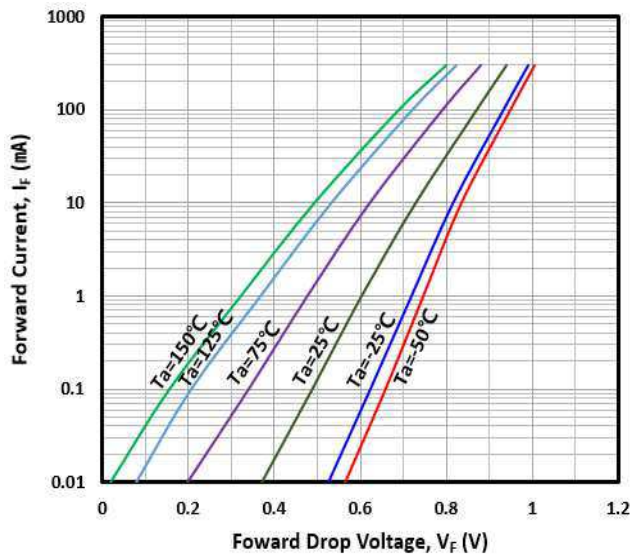


Fig. 2) Typical Reverse Characteristics

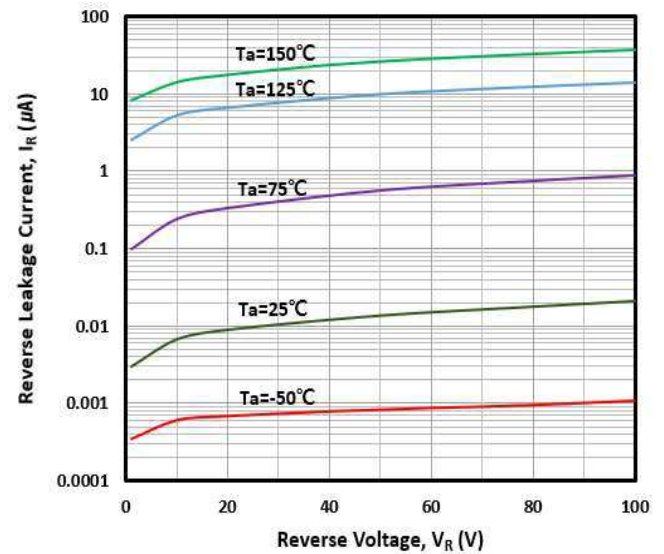


Fig. 3) Typical Total Capacitance Characteristics

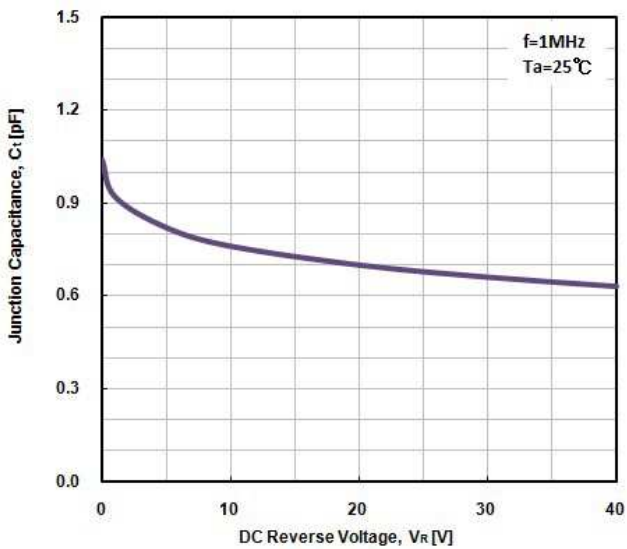


Fig. 4) Reverse Recovery Time vs. Forward Current

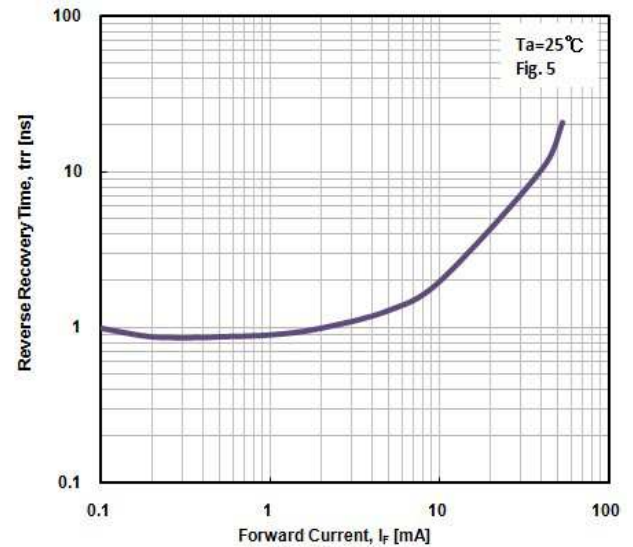
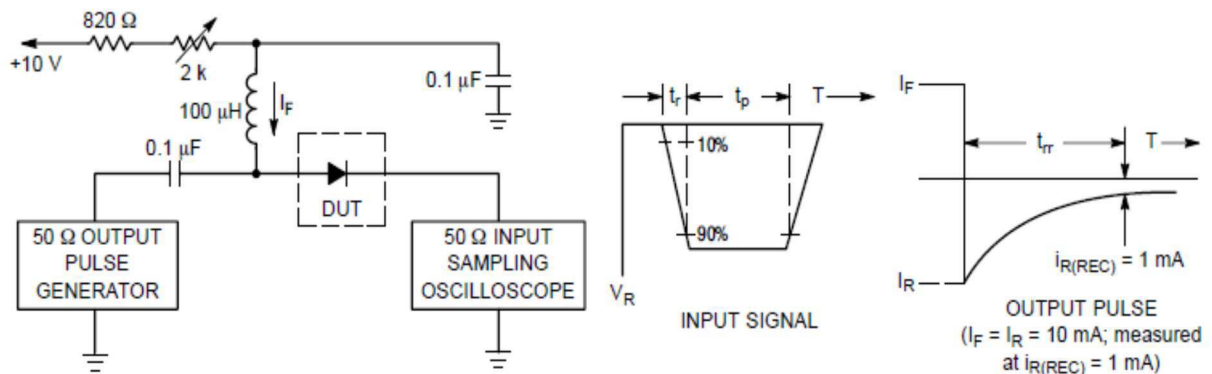
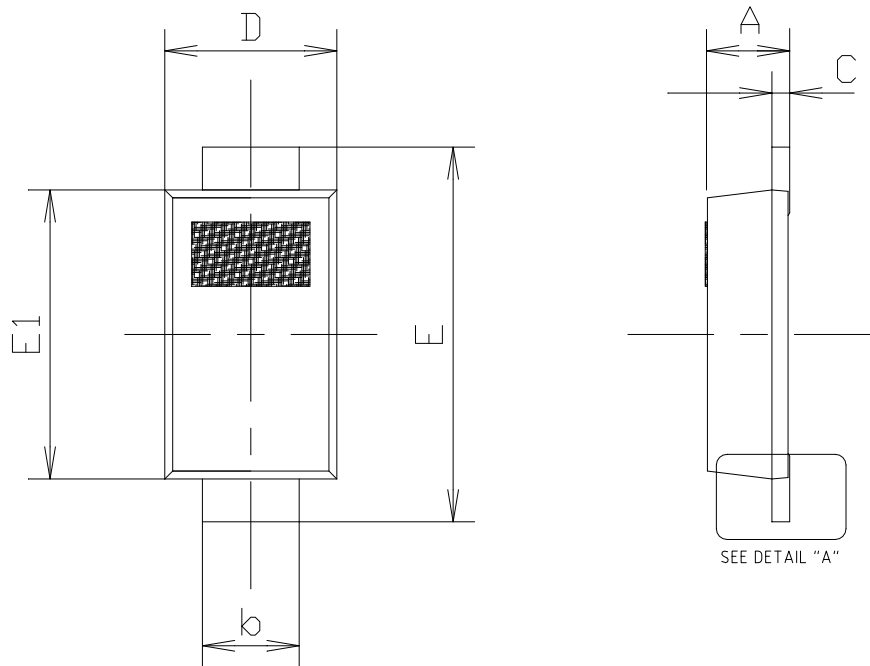


Fig. 5) Reverse recovery time equivalent test circuit

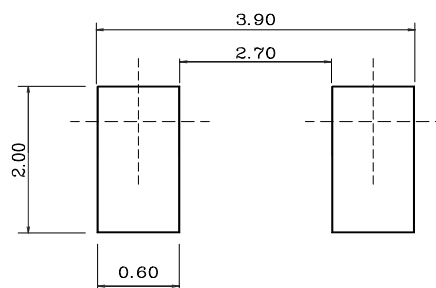


Package Outline Dimensions (Unit: mm)



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	0.80	0.90	1.00	
b	0.50	0.60	0.70	
c	0.12	0.16	0.20	
D	1.50	1.60	1.70	
E	3.30	3.50	3.70	
E1	2.50	2.60	2.70	

∝ Recommend PCB solder land (Unit : mm)



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