Small Signal Fast Switching Diode

General Description

General-purpose switching diodes, fabricated in planar technology, and packaged in small SOD-523 surface mounted device (SMD) packages.



SOD-523

Features and Benefits

- Silicon epitaxial planar diode
- High switching speed: trr≤4ns
- Low forward drop voltage and low leakage current
- “Green” device and RoHS compliant device
- Available in full lead (Pb)-free device

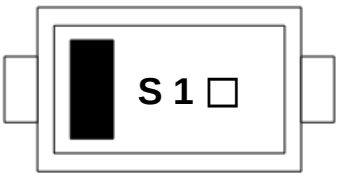
Applications

- Ultra high speed switching application

Ordering Information

Part Number	Marking Code	Package	Packaging
SDS511Q	S1 □	SOD-523	Tape & Reel

Marking Information

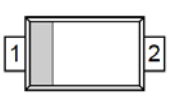
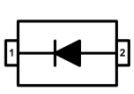


S 1 = Specific Device Code

□ = 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℃, Unless otherwise specified)

Characteristic	Symbol	Ratings	Unit
Maximum repetitive peak reverse voltage	V_{RM}	85	V
Continuous reverse voltage	V_R	80	V
Maximum average forward rectified current	I_O	100	mA
Forward current (DC)	I_F	100	mA
Maximum repetitive peak forward current	I_{FM}	300	mA
Non-repetitive peak forward surge current(t=10ms)	I_{FSM}	2	A
Power dissipation [1]	P_D	150	mW

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

Thermal Characteristics (T_{amb}=25℃, Unless otherwise specified)

Characteristic	Symbol	Ratings	Unit
Thermal resistance, junction to ambient [1]	$R_{th(j-a)}$	830	°C/W
Operating junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 ~ 150	°C

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

Electrical Characteristics (T_{amb}=25℃, Unless otherwise specified)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Forward voltage [2]	$V_{F(1)}$	I_F=1mA	-	0.6	-	V
	$V_{F(2)}$	I_F=10mA	-	0.7	-	V
	$V_{F(3)}$	I_F=100mA	-	0.9	1.2	V
Reverse leakage current [3]	I_R	V_R=80V	-	-	0.5	uA
Total capacitance	C_T	V_R=0V, f=1㎒	-	2.2	4.0	pF
Reverse recovery time	t_{rr}	I_F=10mA (Fig. 5)	-	1.6	4.0	ns

[2] Pulse test: $t_P \leq 380\mu s$, Duty cycle≤2%

[3] Pulse test: $t_P \leq 5ms$, Duty cycle≤2%

Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics

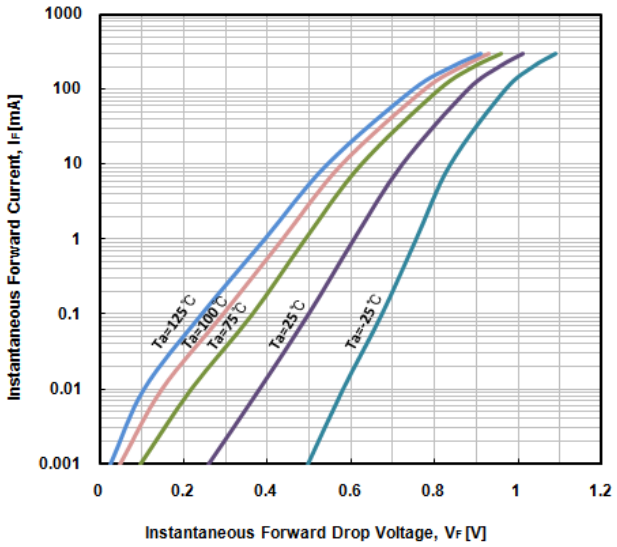


Fig. 2) Typical Reverse Characteristics

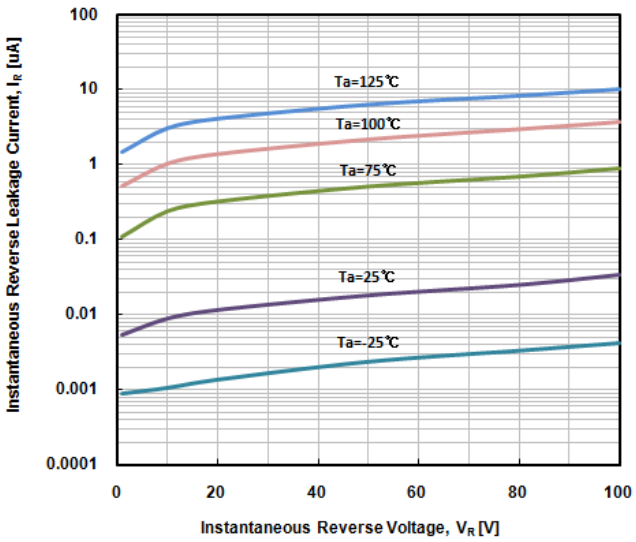


Fig. 3) Typical Total Capacitance Characteristics

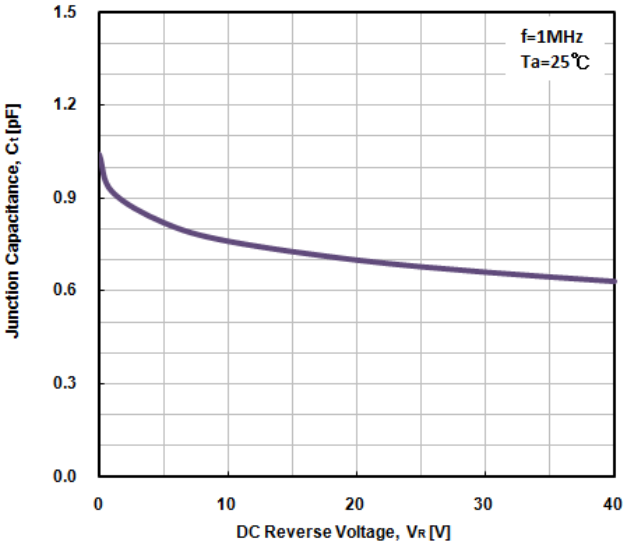


Fig. 4) Reverse Recovery Time vs. Forward Current

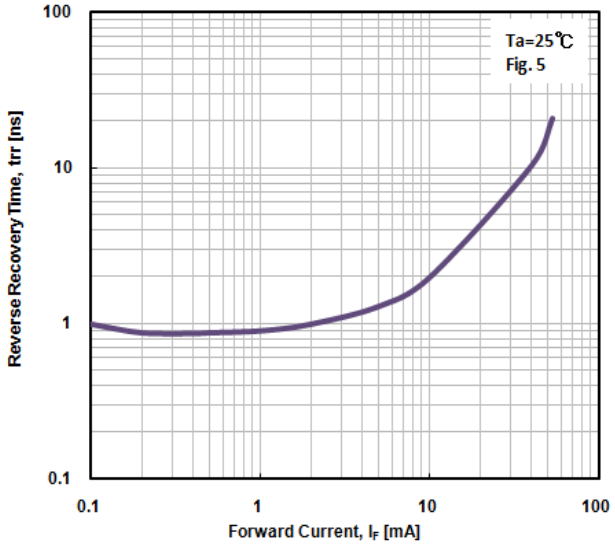
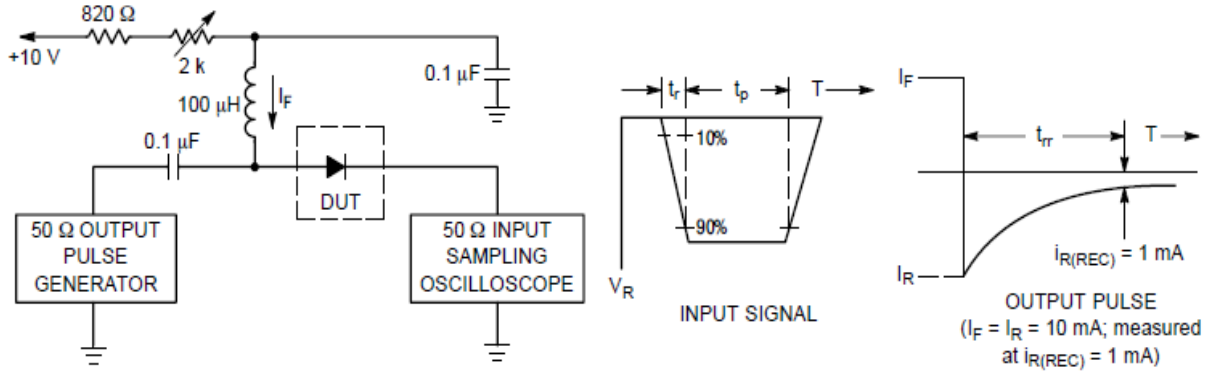
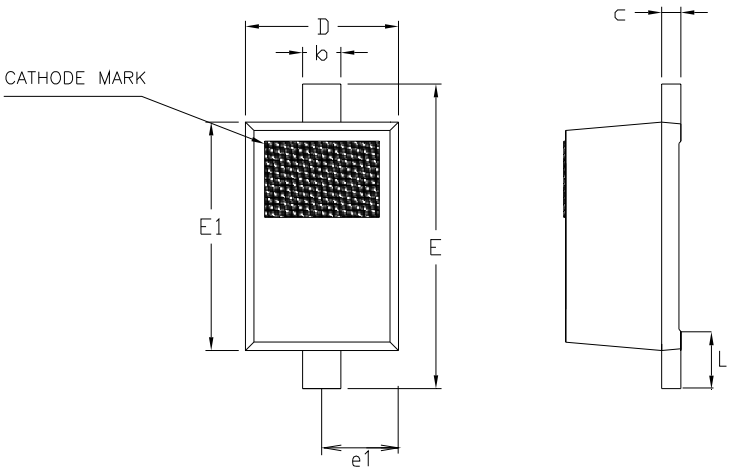
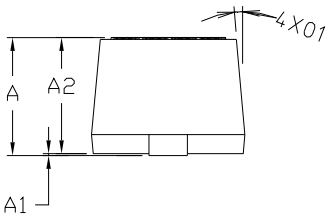


Fig. 5) Reverse recovery time equivalent test circuit



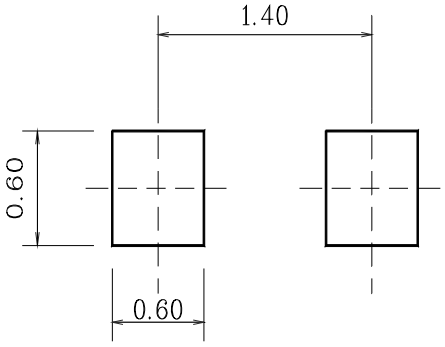
Package Outline Dimensions





SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	0.60	0.70	0.80	
A1	0.00	–	0.10	
A2	0.50	0.60	0.70	
b	0.18	0.25	0.32	
c	0.08	0.12	0.16	
D	0.70	0.80	0.90	
E	1.50	1.60	1.70	
E1	1.10	1.20	1.30	
e1	0.40 BSC			
L	0.20	0.30	0.40	
θ1	4°	–	10°	

※ Recommend PCB solder land (Unit : mm)



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