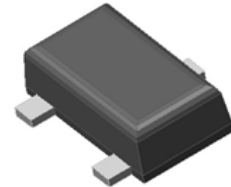


## Small Signal Fast Switching Diode

### General Description

Dual general-purpose switching diodes, fabricated in planar technology, and packaged in small SOT-323F surface mounted device (SMD) packages.



SOT-323F



### Features and Benefits

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

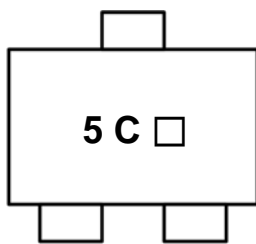
### Applications

- Ultra high speed switching application

### Ordering Information

Part Number	Marking Code	Package	Packaging
SDS142WMF	5C □	SOT-323F	Tape & Reel

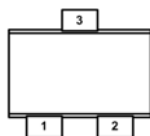
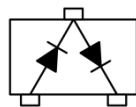
### Marking Information



5 C = Specific Device Code

□ = Year & Week Code Marking

### Pinning Information

Pin	Description	Simplified Outline	Graphic Symbol
1	Anode (Diode 1)		
2	Cathode (Diode 2)		
3	Cathode (Diode 1), Anode (Diode 2)		

## Absolute Maximum Ratings ( $T_{amb}=25^{\circ}\text{C}$ , 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( $t=10\text{ms}$ )	$I_{FSM}$	2	A
Power dissipation <sup>1)</sup>	$P_D$	150	mW

<sup>1)</sup> Device mounted on FR-4 board with recommended pad layout.

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

Characteristic	Symbol	Ratings	Unit
Thermal resistance, junction to ambient <sup>1)</sup>	$R_{th(j-a)}$	830	$^{\circ}\text{C}/\text{W}$
Operating junction temperature	$T_j$	150	$^{\circ}\text{C}$
Storage temperature range	$T_{stg}$	-55 ~ 150	$^{\circ}\text{C}$

<sup>1)</sup> Device mounted on FR-4 board with recommended pad layout.

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

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

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

<sup>3)</sup> Pulse test:  $t_p \leq 5\text{ms}$ , Duty cycle  $\leq 2\%$

Rating and Characteristic Curves

Fig. 1) Typical Forward Characteristics

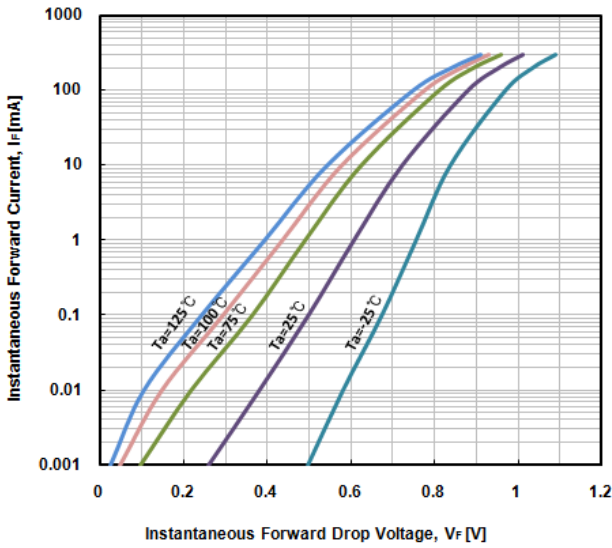


Fig. 2) Typical Reverse Characteristics

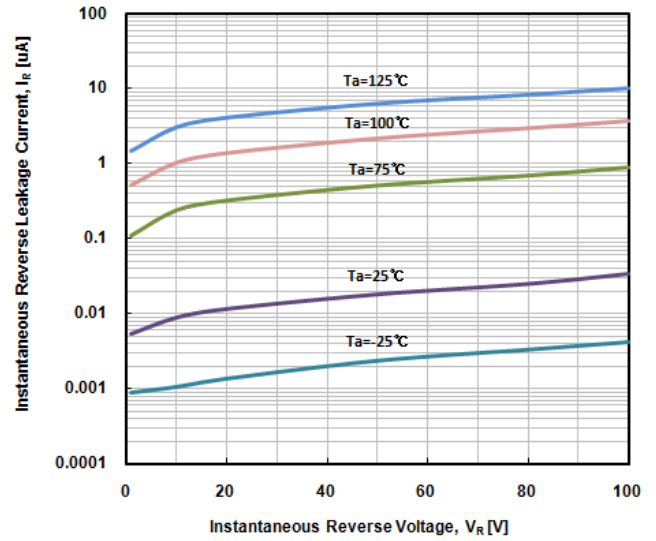


Fig. 3) Typical Total Capacitance Characteristics

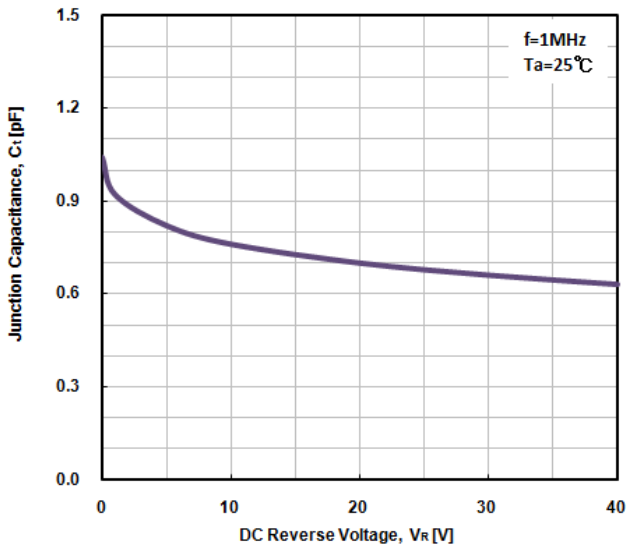


Fig. 4) Reverse Recovery Time vs. Forward Current

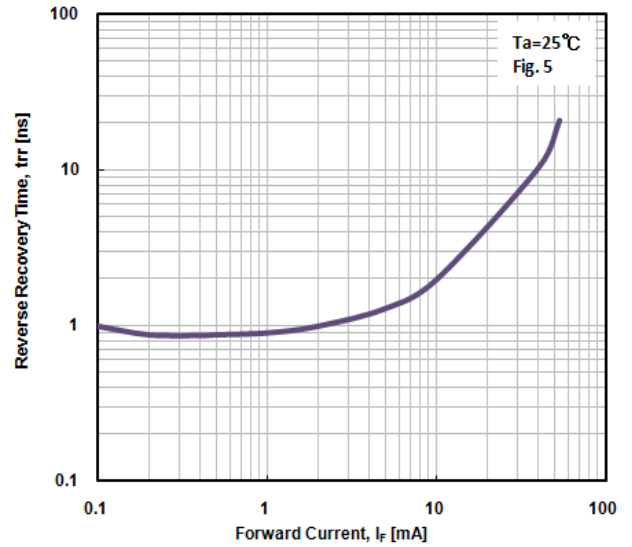
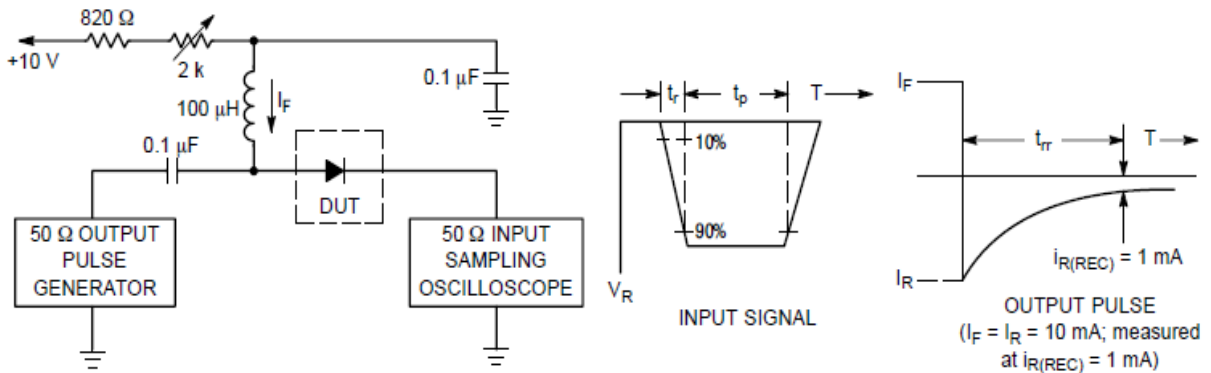
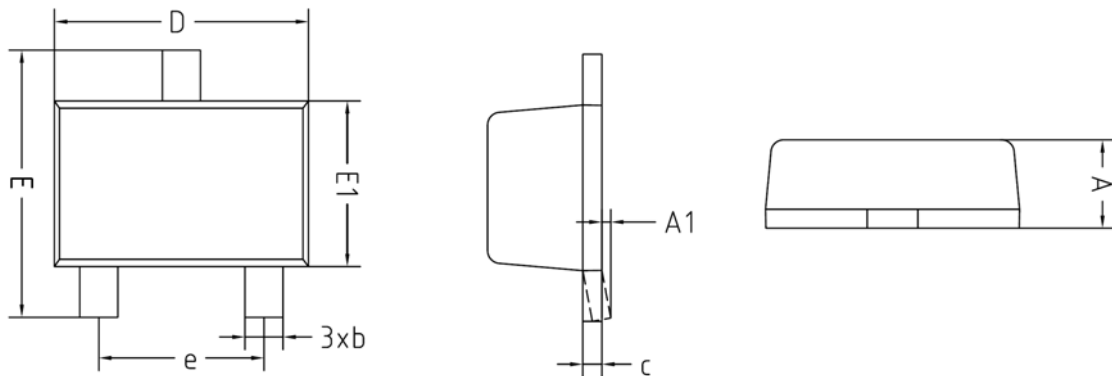


Fig. 5) Reverse recovery time equivalent test circuit

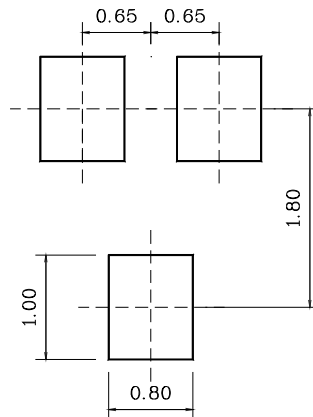


Package Outline Dimensions



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	0.60	-	0.80	
A1	0.00	-	0.10	
b	0.30	-	0.40	
c	0.08	-	0.16	
D	1.90	2.00	2.10	
E	1.95	2.10	2.25	
E1	1.20	1.30	1.40	
e	1.30BSC			

※ Recommend PCB solder land (Unit : mm)



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