SD103AWT

List

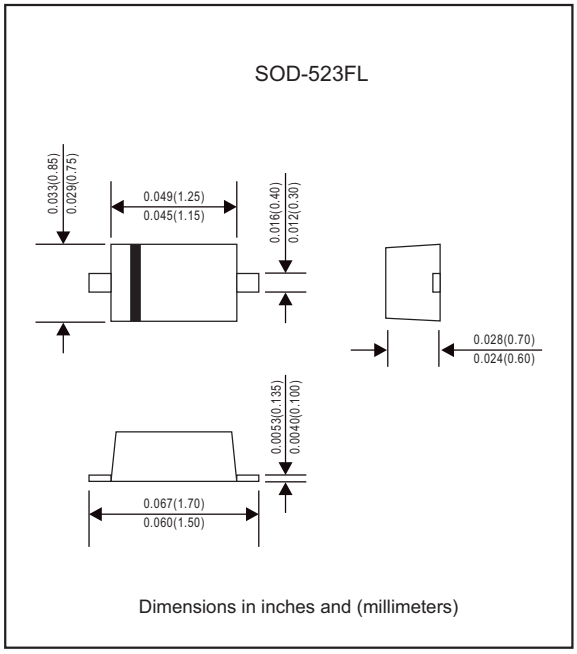
SD103AWT

350mA Surface Mount Small Signal Schottky Diode 40V

Features

- Low forward voltage drop
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free part, ex.SD103AWT-H

Package outline



Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-523FL
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting position : Any
- Weight : Approximated 0.002 gram

Maximum ratings (AT T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak repetitive reverse voltage	V_{RRM}	40	V
Reverse voltage	V_R	40	V
Average forward rectified current	$I_{F(AV)}$	350	mA
Non-repetitive peak forward surge current at t = 1 s	I_{FSM}	2	A
Power dissipation	P_D	200	mW
Operating junction temperature range	T_J	-65 to +125	°C
Storage temperature range	T_{STG}	-65 to +125	°C

Electrical characteristics (at T_A=25°C unless otherwise noted)

Parameter	Condition	Symbol	MIN.	TYP.	MAX.	Unit
Reverse breakdown voltage	I_R=10μA	$V_{(BR)R}$	40			V
Reverse leakage current	V_R=30V	I_R			5	μA
Forward voltage	I_F=20mA I_F=200mA	V_F			0.37 0.60	V
Reverse recovery time	I_F= I_R =200mA, I_{rr}=0.1*I_R,R_L=100Ω	t_{rr}		10		ns
Total capacitance	V_R=0V, f=1MHz	C_T		50		pF

Rating and characteristic curves (SD103AWT)

Fig. 1 Power Derating Curve

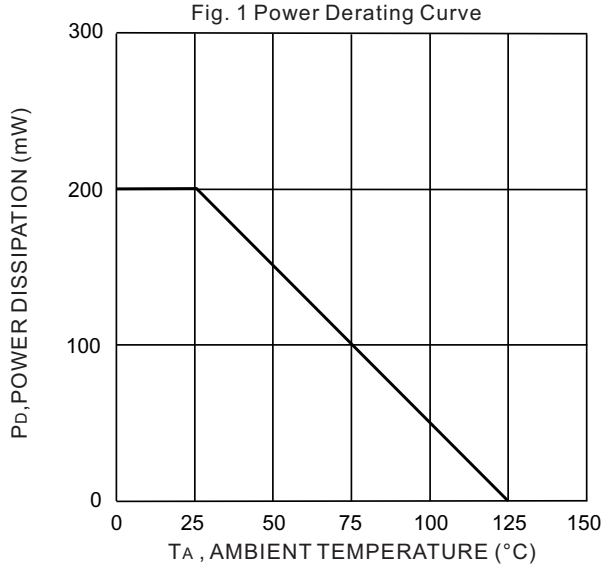


Fig. 2 Typical Forward Characteristics

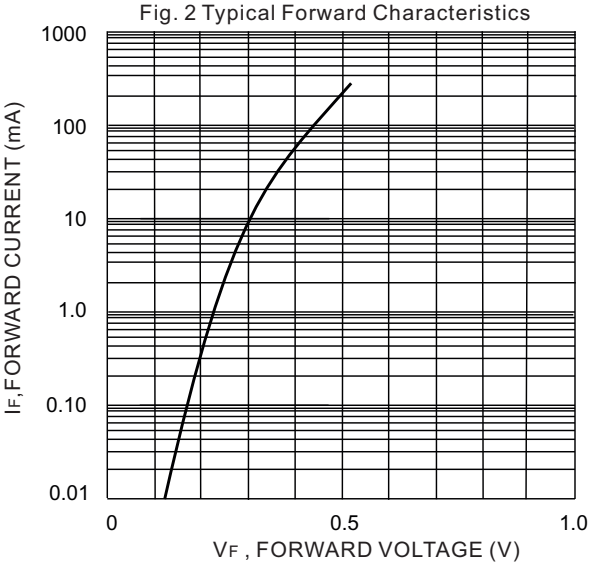
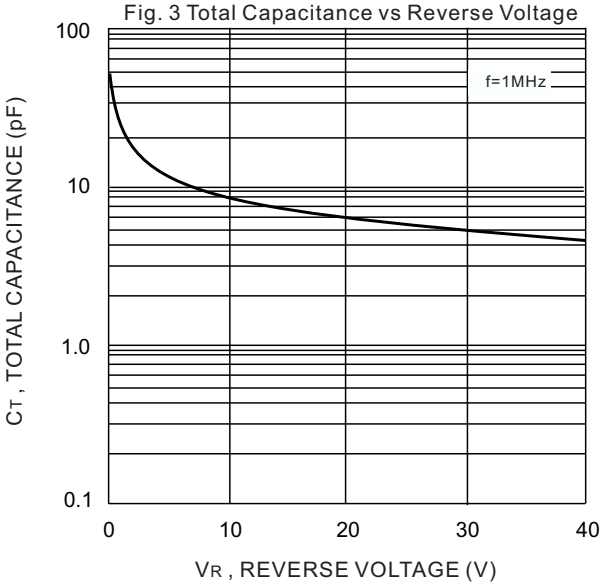


Fig. 3 Total Capacitance vs Reverse Voltage



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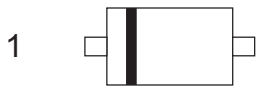
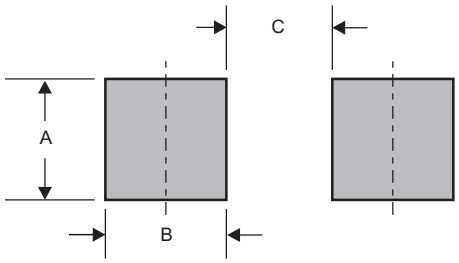
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
SD103AWT	S4

Suggested solder pad layout



Dimensions in inches and (millimeters)

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

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Packing information

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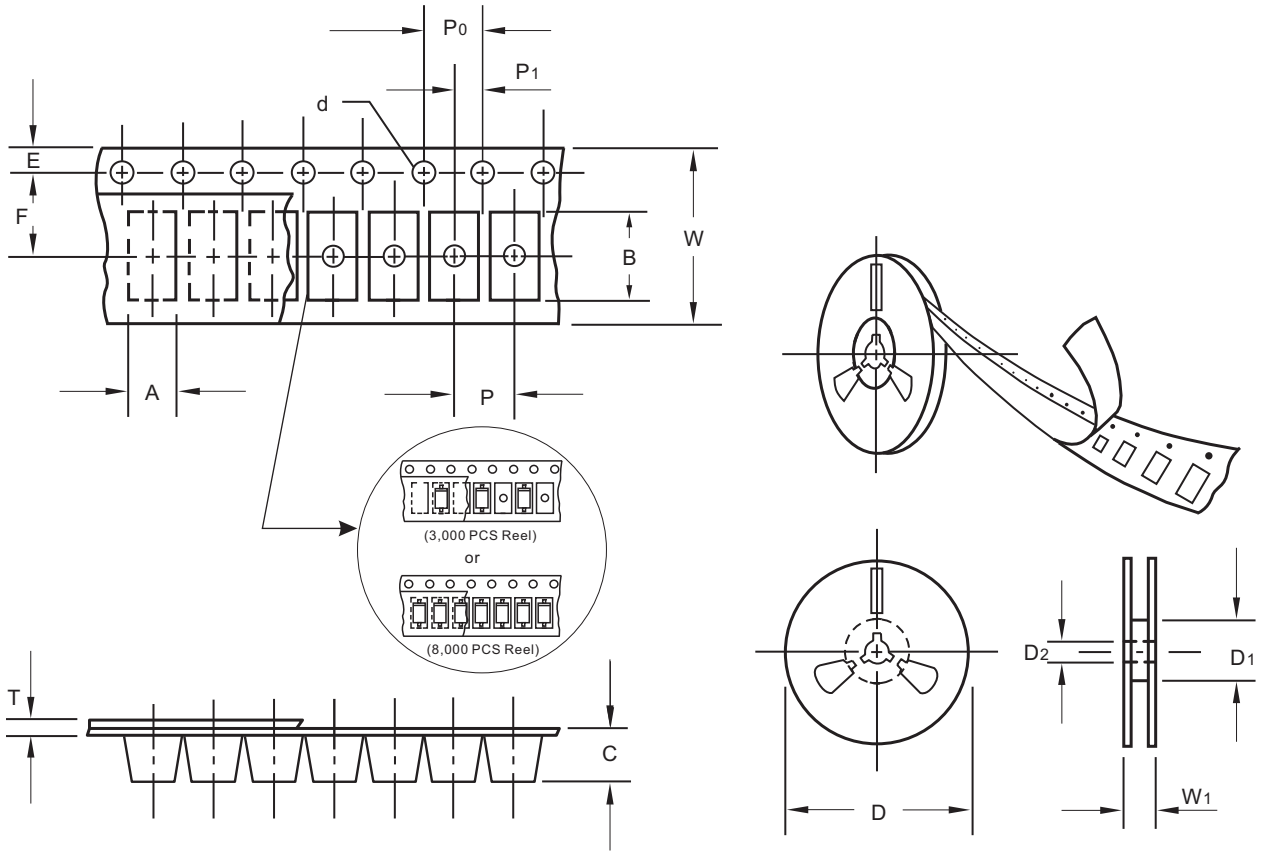

unit:mm

Item	Symbol	Tolerance	SOD-523FL
Carrier width	A	0.05	0.96
Carrier length	B	0.05	1.94
Carrier depth	C	0.05	0.73
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	54.40
Feed hole diameter	D_2	0.2	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	2.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.05	2.00
Overall tape thickness	T	0.02	0.18
Tape width	W	0.3	8.00
Reel width	W_1	1.0	12.3

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

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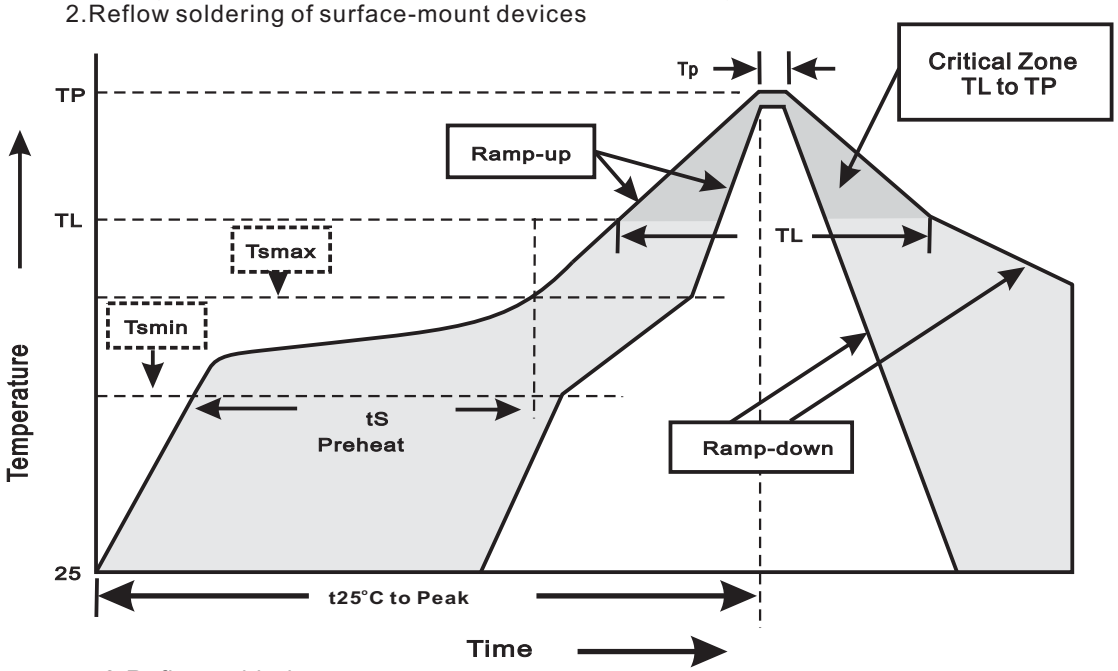
Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOD-523FL	7"	3,000	2.0	30,000	183*123*183	178	382*257*387	240,000	8
		8,000	2.0	80,000	183*123*183	178	382*257*387	640,000	10

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%

2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_R=80% rate at T_J=125°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at T_A=25°C for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	T_A = 25°C, I_F = I_O On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	15P_{SIG} at T_A=121°C for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Humidity	at T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
9. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031