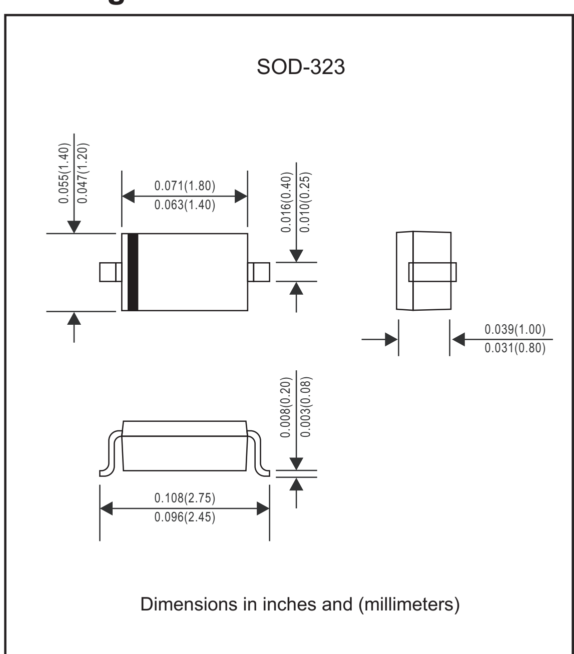
S1AD3 THRU S1MD3

1.0A Surface Mount General Purpose Rectifiers - 50V-1000V

Features

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- For surface mounted applications
- Low reverse leakage
- Built-in strain relief,ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed: 260°C/10 seconds at terminals
- Glass passivated chip junction

Package outline



Mechanical data

- **Case**: JEDEC SOD-323 molded plastic body
- **Terminals**: Solder plated, solderable per MIL-STD-750, Method 2026
- **Polarity**: Color band denotes cathode end
- **Mounting Position**: Any

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

	SYMBOLS	S1AD3	S1BD3	S1DD3	S1GD3	S1JD3	S1KD3	S1MD3	UNITS
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current at T_L =110°C	$I_{(AV)}$	1.0							A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	15.0							A
Maximum instantaneous forward voltage at 1.0A	V_F	1.1							V
Maximum DC reverse current T_A=25°C at rated DC blocking voltage T_A=100°C	I_R	5.0 50.0							µA
Typical junction capacitance (NOTE 1)	C_J	5.0							pF
Typical thermal resistance (NOTE 2)	$R_{\theta JA}$	55.0							°C/W
Operating junction and storage temperature range	T_J,T_{STG}	-55 to +150							°C

Note:1.Measured at 1MHz and applied reverse voltage of 4.0V D.C.
2.P.C.B. mounted with 0.2x0.2"(5.0x5.0mm) copper pad areas

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Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

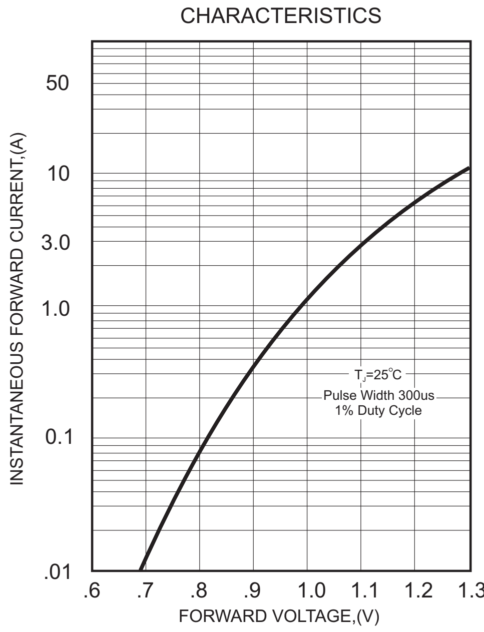
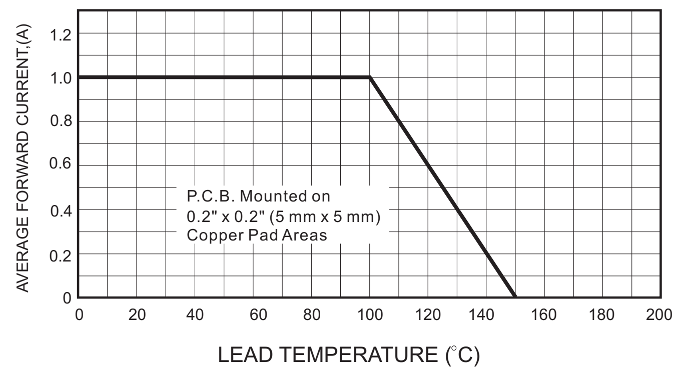
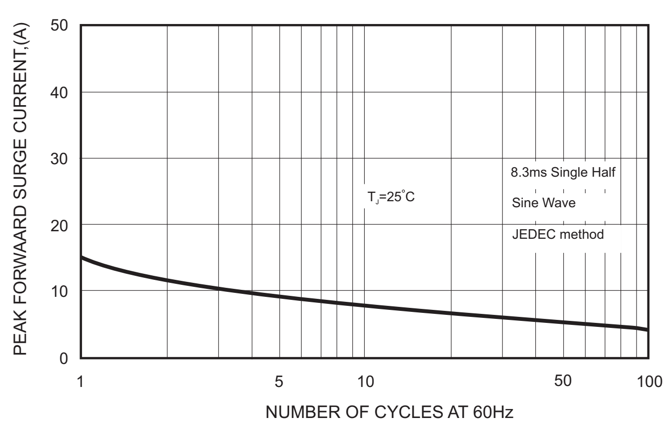


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE



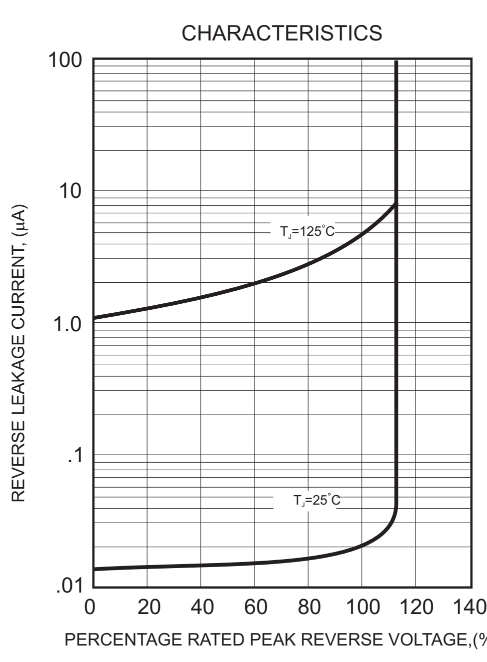
LEAD TEMPERATURE (°C)

FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



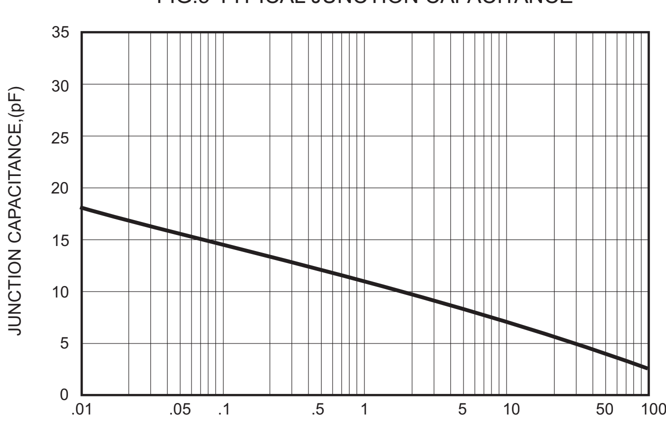
NUMBER OF CYCLES AT 60Hz

FIG.3 - TYPICAL REVERSE CHARACTERISTICS



PERCENTAGE RATED PEAK REVERSE VOLTAGE,(%)

FIG.5-TYPICAL JUNCTION CAPACITANCE



REVERSE VOLTAGE,(V)

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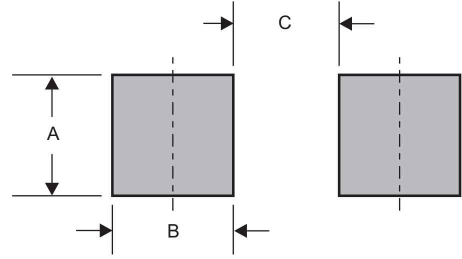
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode	1 2	1 2

Marking

Type number	Marking code
S1AD3	1A
S1BD3	2A
S1DD3	3A
S1GD3	4A
S1JD3	5A
S1KD3	6A
S1MD3	7A

Suggested solder pad layout



Dimensions in inches and (millimeters)

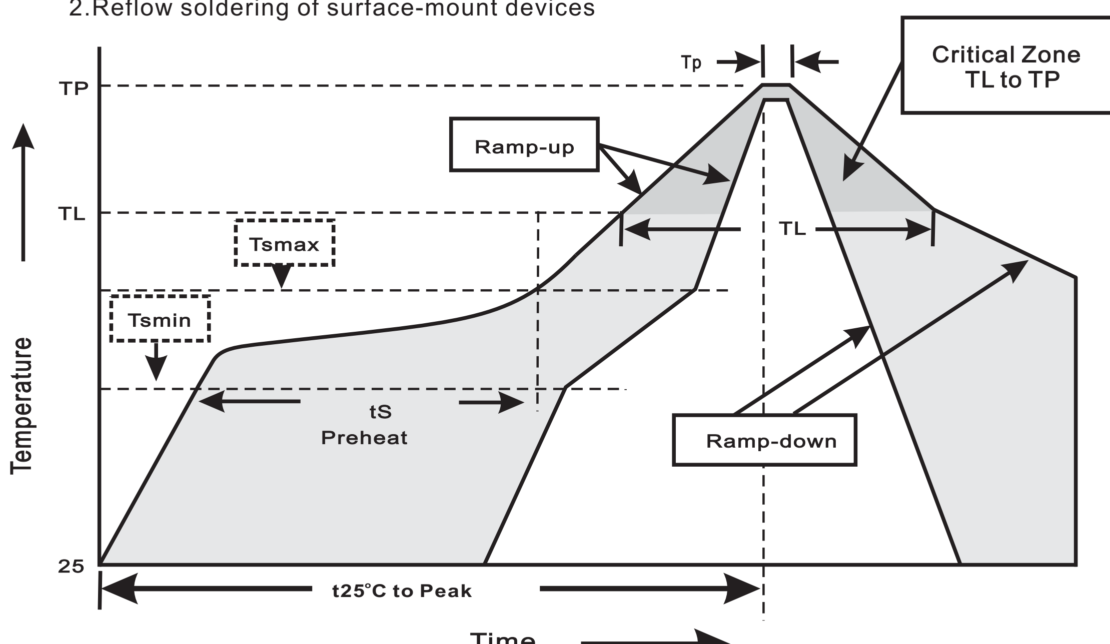
PACKAGE	A	B	C
SOD-323	0.047 (1.20)	0.047 (1.20)	0.055 (1.40)

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)
SOD-323	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000

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