

BAT46X

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BAT46X

150mA 100V Small Signal Schottky Diodes

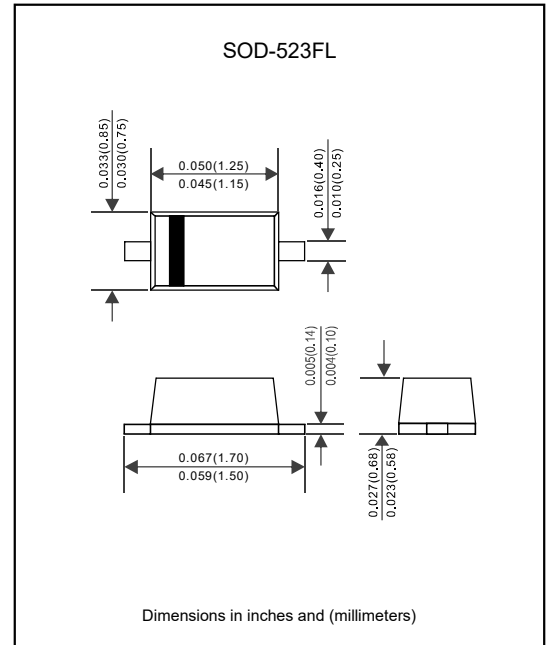
Features

- High breakdown voltage.
- Low turn-on voltage.
- Guard ring construction for transient protection.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. BAT46X-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOD-523FL.
- Polarity : Indicated by cathode band.

Package Outline



Maximum ratings (At $T_A=25^\circ\text{C}$ unless otherwise noted)

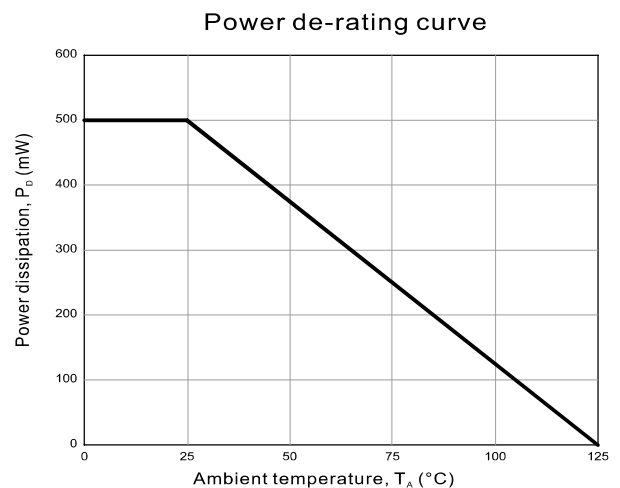
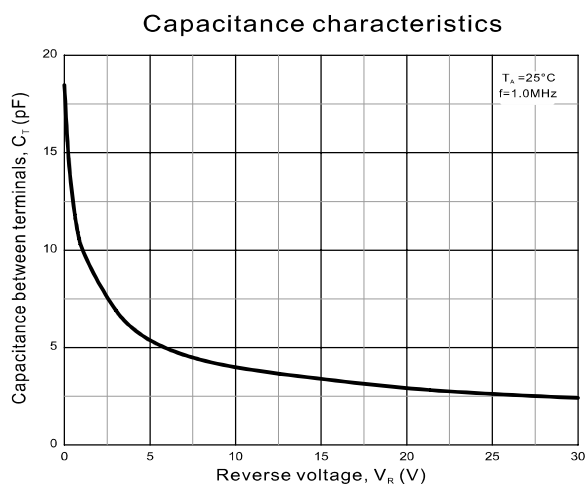
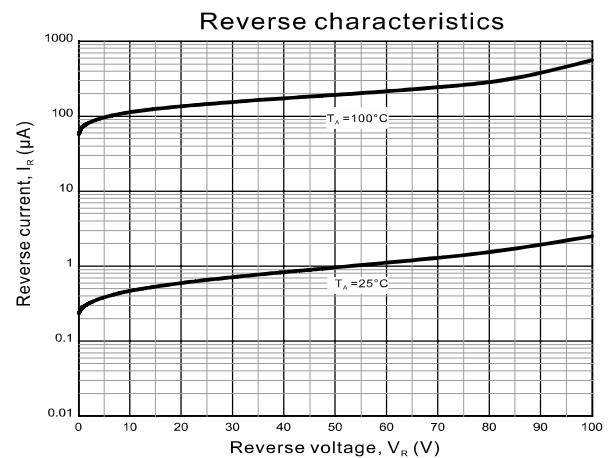
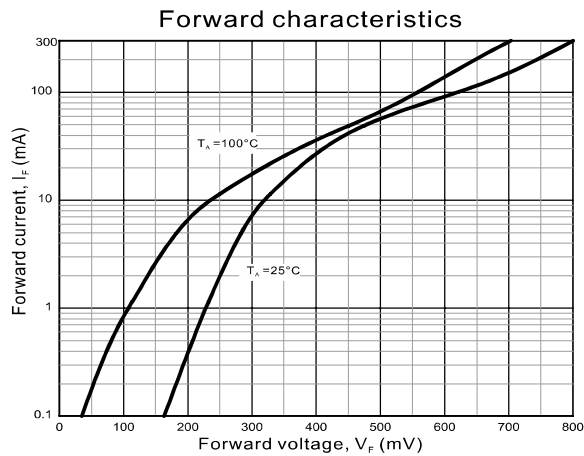
Parameter	Symbol	Ratings	Units
Peak repetitive reverse voltage	V_{RRM}	100	V
Working peak reverse voltage	V_{RWM}	100	V
Continuous forward current	I_F	150	mA
Repetitive peak forward current (Note1) (@ $t_p=1\text{s}$, Duty cycle<50%)	I_{FRM}	350	mA
Non-repetitive peak forward surge current (@ $t=8.3\text{ms}$)	I_{FSM}	750	mA
Power dissipation	P_D	500	mW
Thermal resistance, junction to ambient	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$
Junction temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

Note : 1.Part mounted on FR-4 board with recommended pad layout.
2.Short duration pulse test used to minimize self-heating effect.

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Electrical characteristics (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Reverse breakdown voltage (Note2)	$I_R=100\mu\text{A}$	V_R	100			V
Instantaneous forward voltage (Note2)	$I_{F1}=0.1\text{mA}$	V_F			0.30	V
	$I_{F2}=10\text{mA}$				0.45	
	$I_{F3}=250\text{mA}$				1	
Reverse voltage leakage current	$V_{R1}=1.5\text{V}$	I_R			0.3	μA
	$V_{R2}=10\text{V}$				0.5	
	$V_{R3}=50\text{V}$				1	
	$V_{R4}=75\text{V}$				2	
Diode capacitance	$V_R=0\text{V}, f=1.0\text{MHz}$	C_T		20		pF
	$V_R=1\text{V}, f=1.0\text{MHz}$			12		

Rating and characteristic curves

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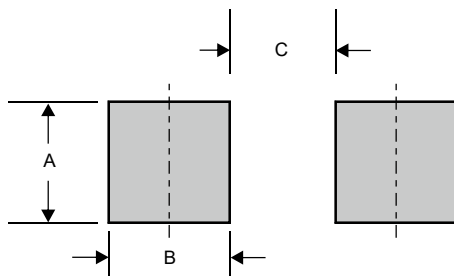
Pinning information

Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Anode		

Marking

Type number	Marking code
BAT46X	S9

Suggested solder pad layout

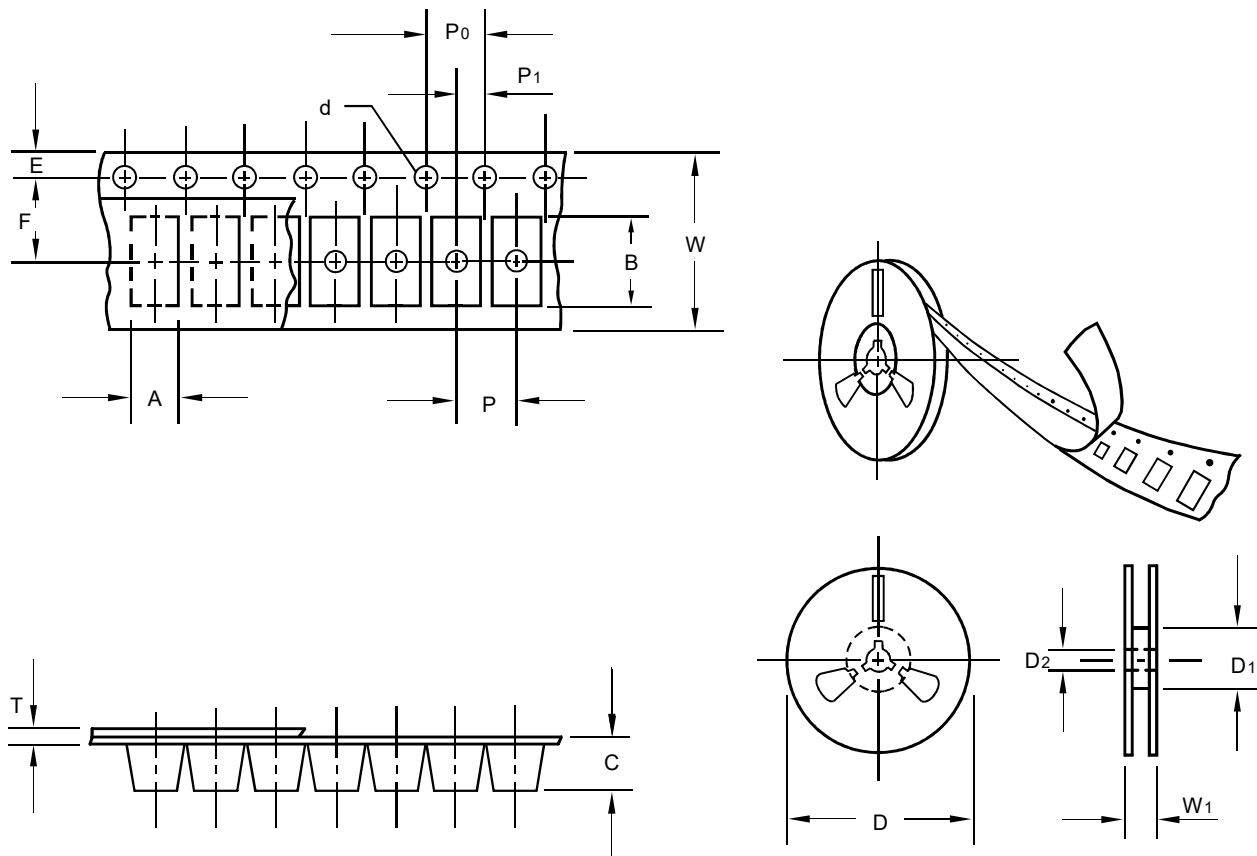


Dimensions in inches and (millimeters)

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

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Packing information



unit:mm

Item	Symbol	Tolerance	SOD-523FL
Carrier width	A	0.1	0.90
Carrier length	B	0.1	1.94
Carrier depth	C	0.1	0.76
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	50.00
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	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W ₁	1.0	9.50

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

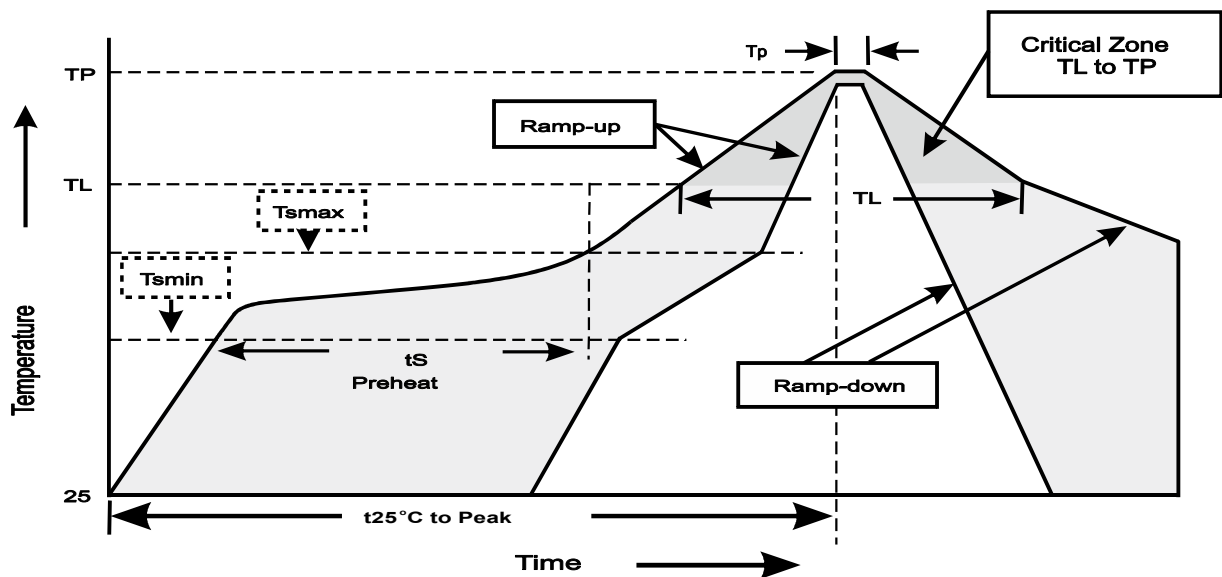
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Reel packing

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)
SOD-523FL	7"	3,000	2.0	30,000	183*123*183	178	382*257*387	240,000
		8,000	2.0	80,000	183*123*183	178	382*257*387	640,000

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(T _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} 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