

BAS70WS-Q1

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BAS70WS-Q1

70mA Surface Mount Small Signal Schottky Diodes 70V

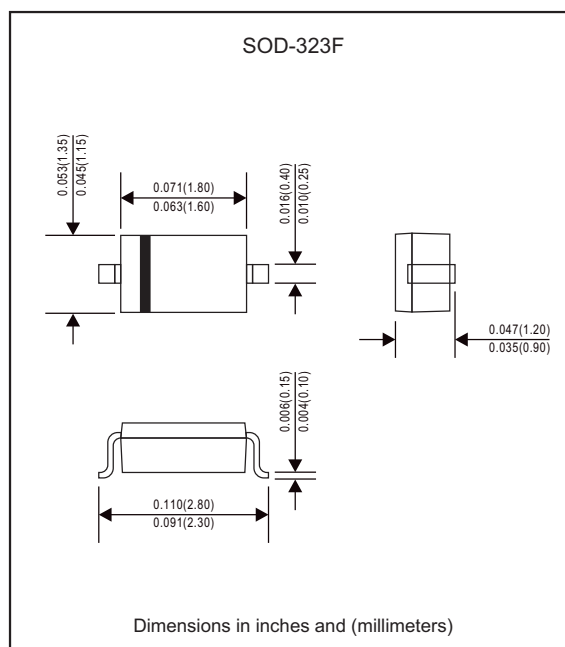
Features

- Low current rectification and high speed switching.
- Small surface mount type.
- Up to 70mA current capability.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Qualified to AEC-Q101 standards for high reliability.
- Suffix "-H" indicates Halogen-free parts, ex. BAS70WS-Q1-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323F
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.005 gram

Package outline



Maximum ratings and Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Repetitive peak reverse voltage		V_{RRM}			70	V
Reverse voltage		V_R			70	V
Repetitive peak forward current	@t=10ms	I_{FSM}			1000	mA
Forward current		I_F			70	mA
Power Dissipation		P_D			230	mW
Thermal Resistance	Junction to Ambient	$R_{\theta JA}$			550	$^\circ\text{C/W}$
Junction temperature		T_J	-55		+125	$^\circ\text{C}$
Storage temperature		T_{STG}	-65		+150	$^\circ\text{C}$
Forward voltage	$I_F = 1.0 \text{ mA}$	V_F			0.41	V
	$I_F = 15 \text{ mA}$	V_F			1.00	V
Reverse current	$V_R = 50 \text{ V}$	I_R			100	nA
Diode capacitance	$V_R = 0 \text{ V}, f = 1 \text{ MHz}$	C_D			2	pF

Rating and characteristic curves for each diode (BAS70WS-Q1)

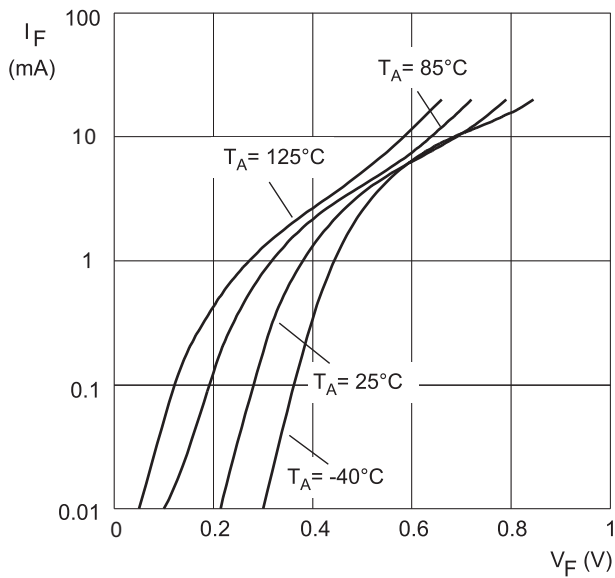


Fig.1 Forward current as a function of forward voltage; typical values.

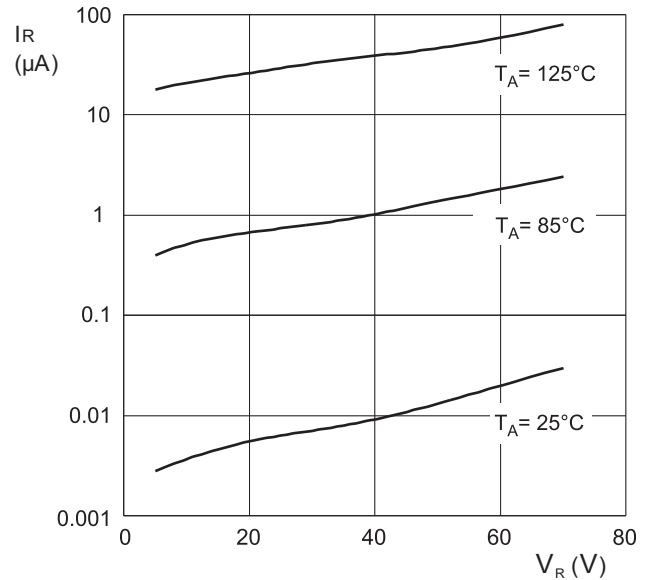


Fig.2 Reverse current as a function of reverse voltage; typical values.

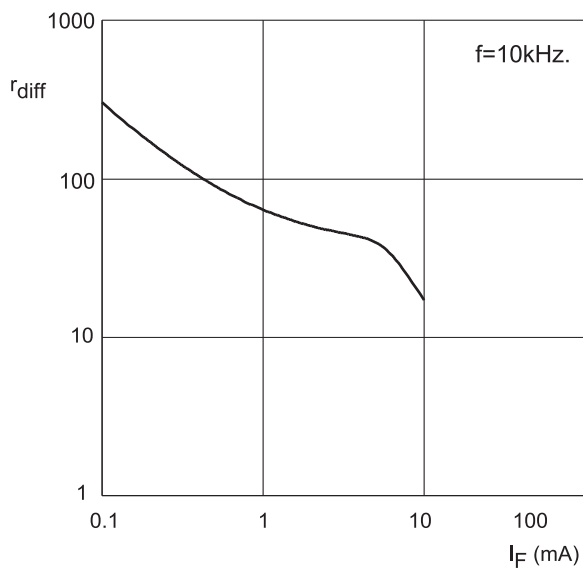


Fig.3 Differential forward resistance as a function

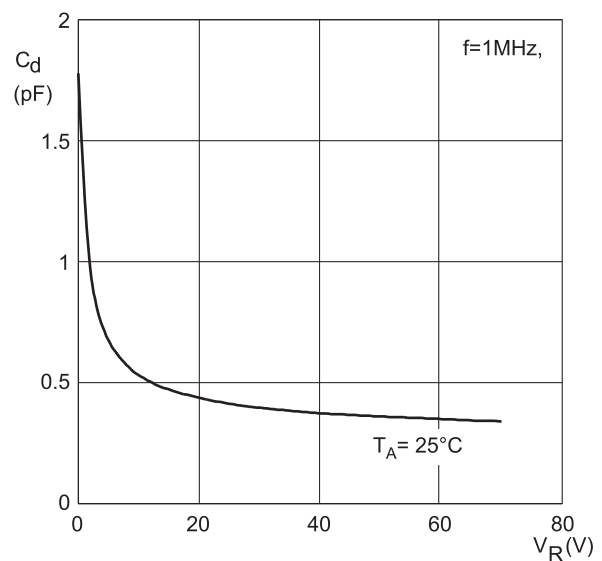


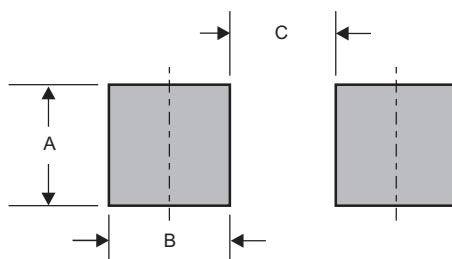
Fig.4 Diode capacitance as a function of reverse

BAS70WS-Q1**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
BAS70WS-Q1	K73,SX

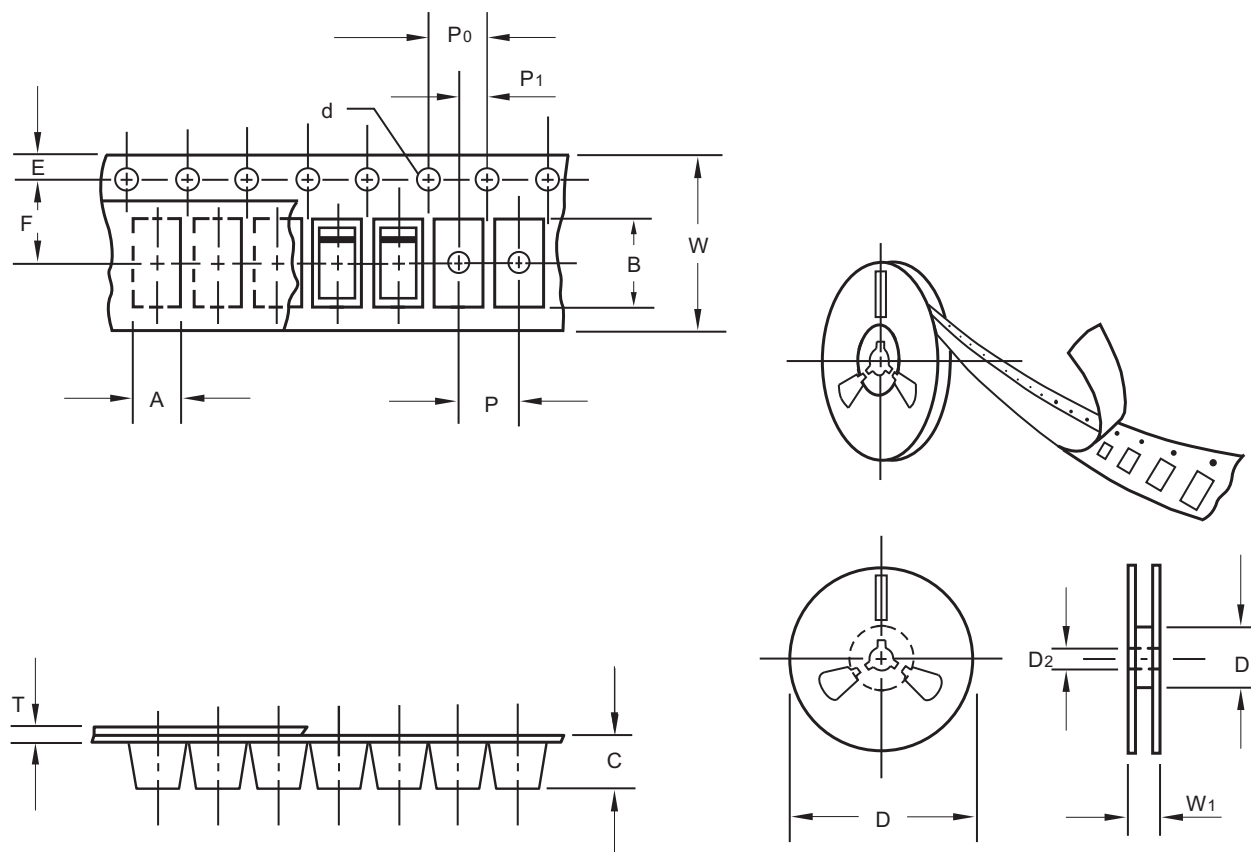
Suggested solder pad layout

Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323F	0.033 (0.83)	0.025 (0.63)	0.063 (1.60)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOD-323F
Carrier width	A	0.1	1.46
Carrier length	B	0.1	2.95
Carrier depth	C	0.1	1.25
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

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

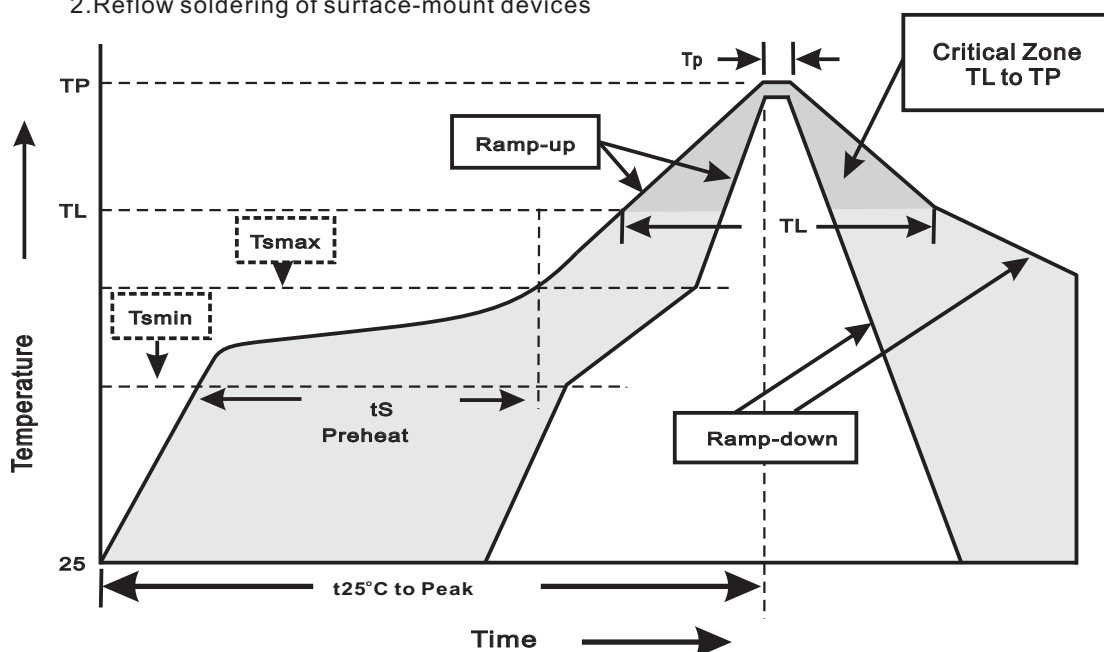
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Reel packing

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)	APPROX. GROSS WEIGHT (kg)
SOD-323F	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000	8.0

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

BAS70WS-Q1**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	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. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
9. Forward Surge	Peak forward surge current @ t < 1.0s	MIL-STD-750D METHOD-4066-2
10. Humidity	at T _A =85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
11. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031