

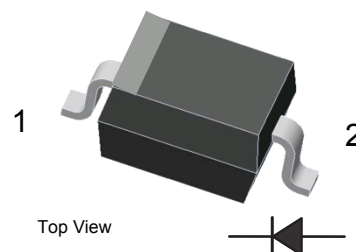
Low-leakage Diode

BAS416

■ Features

- Plastic SMD package
- Low leakage current: typ. 3 pA
- Switching time: typ. 0.8 μ s
- Continuous reverse voltage: max. 75 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

SOD-323



PIN DESCRIPTION

PIN	DESCRIPTION
1	Cathode
2	Anode

■ Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Rating	Unit
Repetitive Peak Reverse Voltage	VRRM	85	V
Continuous Reverse Voltage	VR	75	
Continuous Forward Current (see Fig.1)	IF	200	mA
Repetitive Peak Forward Current	IFRM	500	
Non-Repetitive Peak Forward Current (Square Wave, TJ = 25°C prior to surge, see Fig.3)	IFSM	4	A
t = 1 μ s		1	
t = 1 ms		0.5	
t = 1 s			
Total Device Dissipation (Note 1)	Ptot	250	mW
Thermal Resistance Junction to Ambient	R θ JA	450	°C/W
Junction Temperature	TJ	150	°C
Storage Temperature range	Tstg	-55 to 150	

Note 1. Device mounted on an FR4 printed-circuit board.

■ Electrical Characteristics (TA = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Forward voltage (see Fig.2)	VF1	IF = 1 mA			0.9	V
	VF2	IF = 10 mA			1	
	VF3	IF = 50 mA			1.1	
	VF4	IF = 150 mA			1.25	
Reverse voltage leakage current (see Fig.4)	IR1	VR = 75 V		0.003	5	nA
	IR2	VR = 75 V, TJ = 150°C		3	80	
Diode Capacitance (see Fig.5)	CD	VR = 0 V, f = 1 MHz		2		pF
Reverse recovery time (see Fig.6)	trr	when switched from IF = 10 mA to IR = 10 mA; RL = 100 Ω ; measured at IR = 1 mA;		0.8	3	μ s

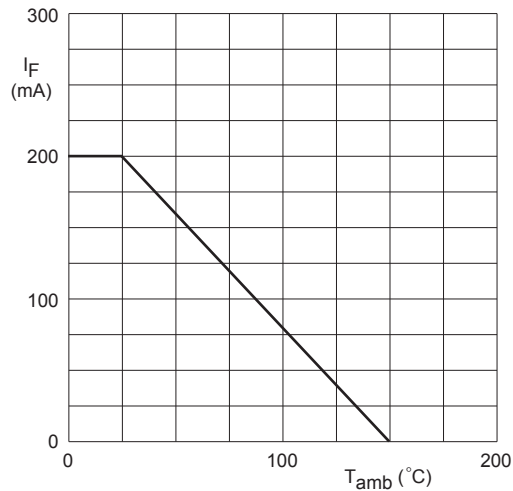
■ Marking

Marking	D4
---------	----

Low-leakage Diode

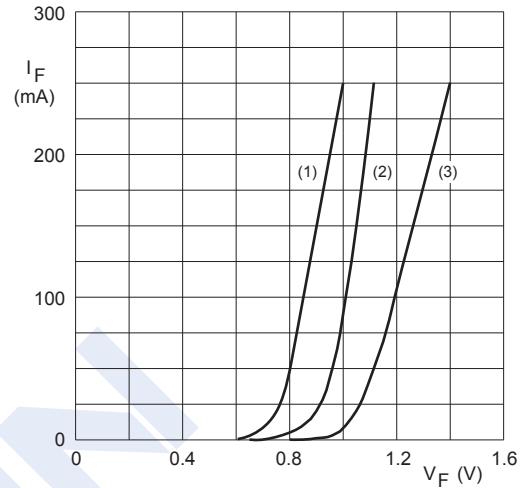
BAS416

■ Typical Characteristics



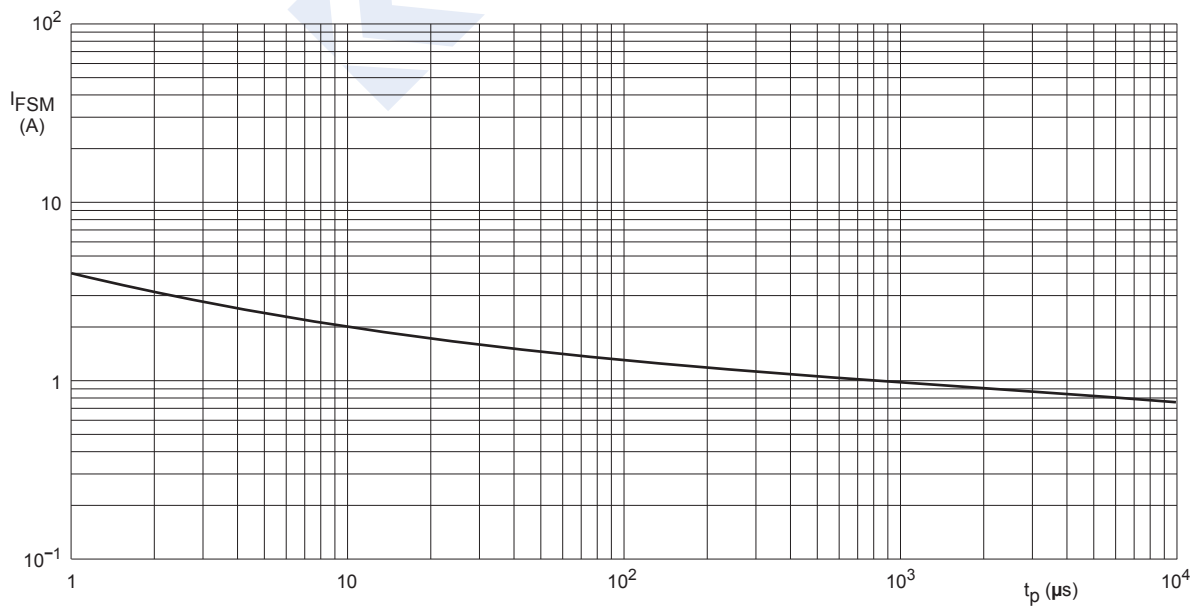
Device mounted on an FR4 printed-circuit board.

Fig.1 Maximum permissible continuous forward current as a function of ambient temperature.



- (1) $T_j = 150$ °C; typical values.
- (2) $T_j = 25$ °C; typical values.
- (3) $T_j = 25$ °C; maximum values.

Fig.2 Forward current as a function of forward voltage.

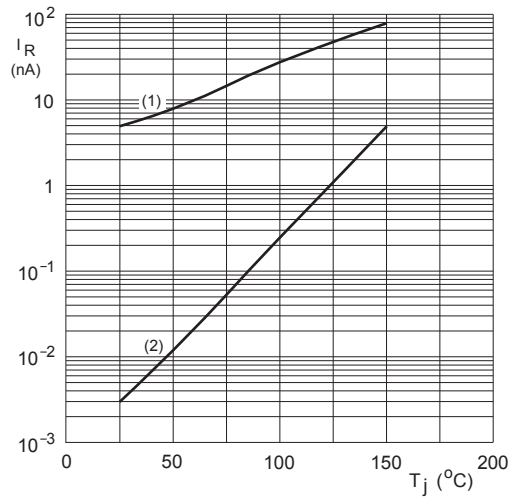


Based on square wave currents.
 $T_j = 25$ °C prior to surge.

Fig.3 Maximum permissible non-repetitive peak forward current as a function of pulse duration.

Low-leakage Diode

BAS416

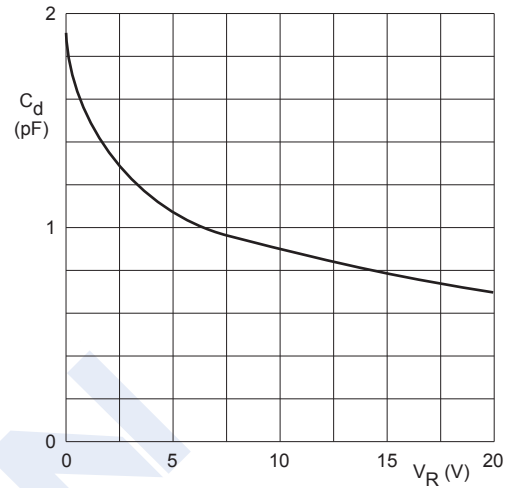


$V_R = 75 \text{ V}$.

(1) Maximum values.

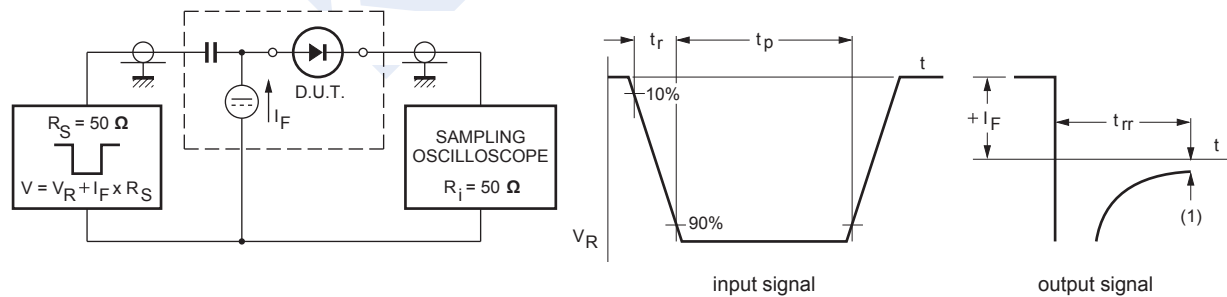
(2) Typical values.

Fig.4 Reverse current as a function of junction temperature.



$f = 1 \text{ MHz}$; $T_j = 25 \text{ }^\circ\text{C}$.

Fig.5 Diode capacitance as a function of reverse voltage; typical values.



(1) $I_R = 1 \text{ mA}$.

Input signal: reverse pulse rise time $t_r = 0.6 \text{ ns}$; reverse voltage pulse duration $t_p = 100 \text{ ns}$; duty factor $\delta = 0.05$;

Oscilloscope: rise time $t_r = 0.35 \text{ ns}$.

Fig.6 Reverse recovery voltage test circuit and waveforms.

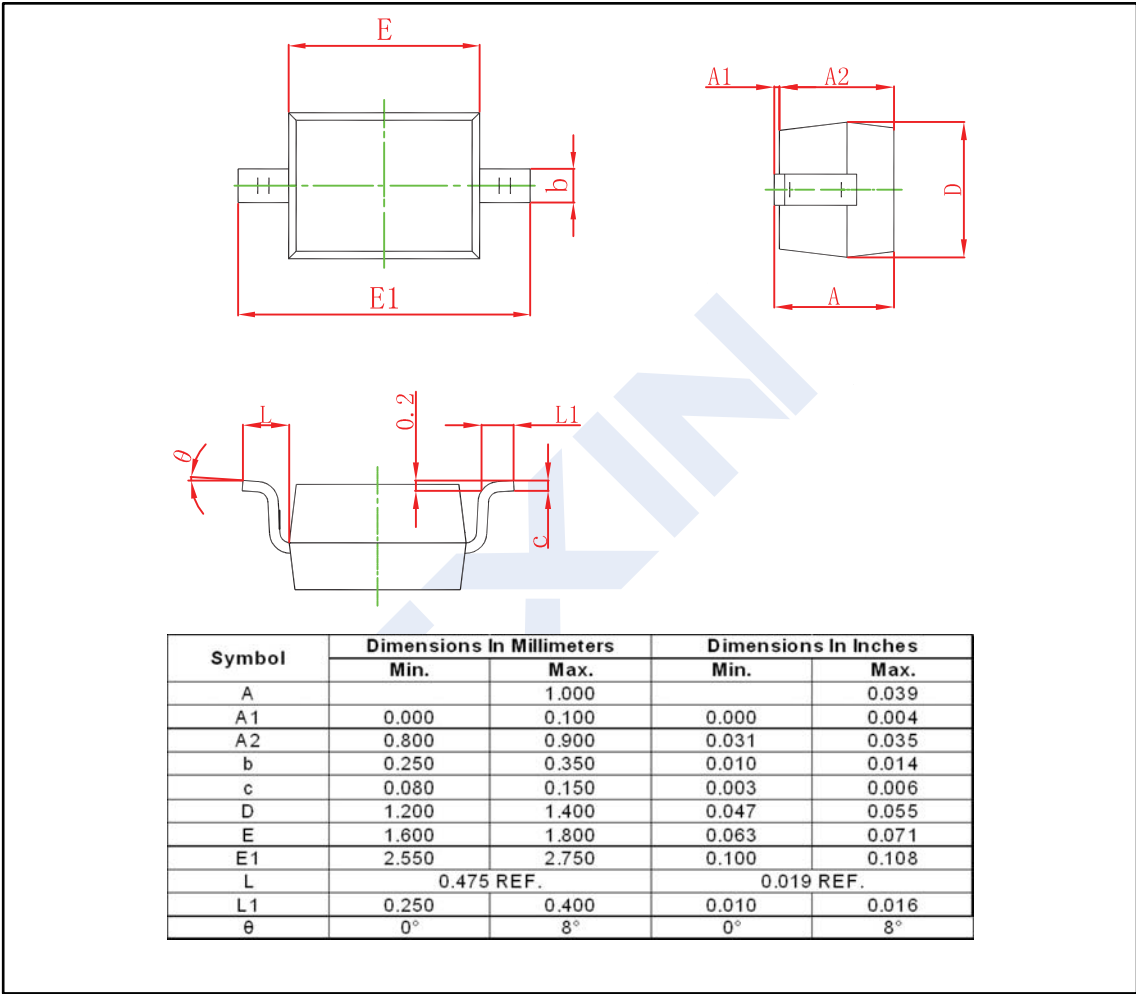
Low-leakage Diode

BAS416

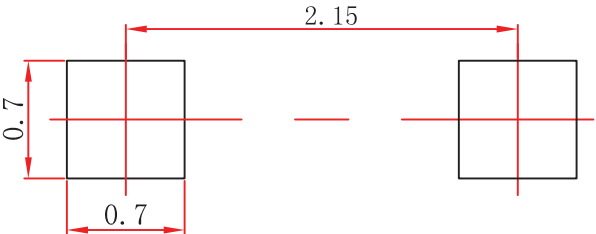
■ Package Outline Dimensions

Plastic surface mounted package; 2 leads

SOD-323



■ The Recommended Mounting Pad Size



- Note:**
- 1.Controlling dimension: in millimeters.
 - 2.General tolerance: $\pm 0.05\text{mm}$.
 - 3.The pad layout is for reference purposes only.