

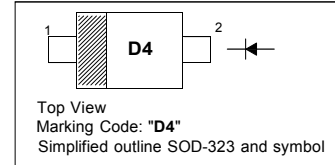
BAS416 Low-leakage Diode

FEATURES

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

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

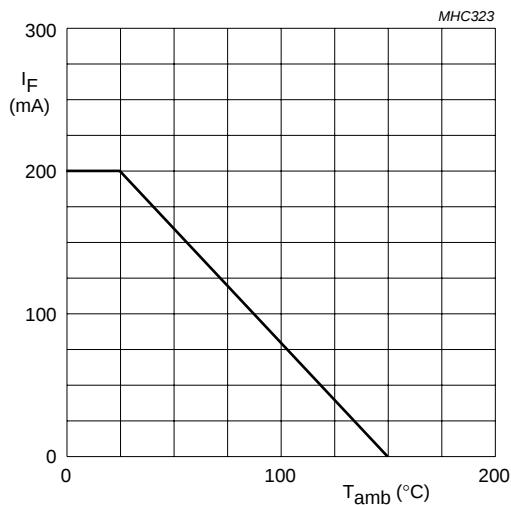
Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	85	V
Reverse Voltage	V_R	75	V
Continuous Forward Current	I_F	200	mA
Repetitive Peak Forward Current	I_{FRM}	500	mA
Non-repetitive Peak Forward Surge Current	I_{FSM}	0.5 1 4	A
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^\circ\text{C}$

CHARACTERISTICS

$T_{amb} = 25^\circ\text{C}$ unless otherwise specified.

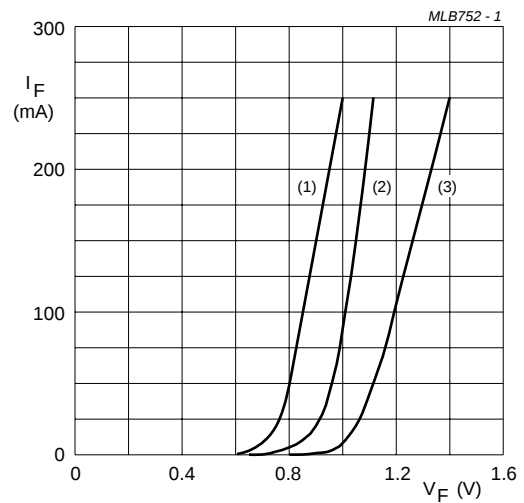
SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$ $I_F = 50\text{ mA}$ $I_F = 150\text{ mA}$	— — — —	0.9 1 1.1 1.25	V V V V
I_R	reverse current	$V_R = 75\text{ V}$ $V_R = 75\text{ V}; T_j = 150^\circ\text{C}$	3 3	5 80	nA nA
C_d	diode capacitance	$V_R = 0$; $f = 1\text{ MHz}$; see Fig.6	2	—	pF
t_{rr}	reverse recovery time	when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\ \Omega$; measured at $I_R = 1\text{ mA}$	0.8	3	μ s

Typical Characteristics



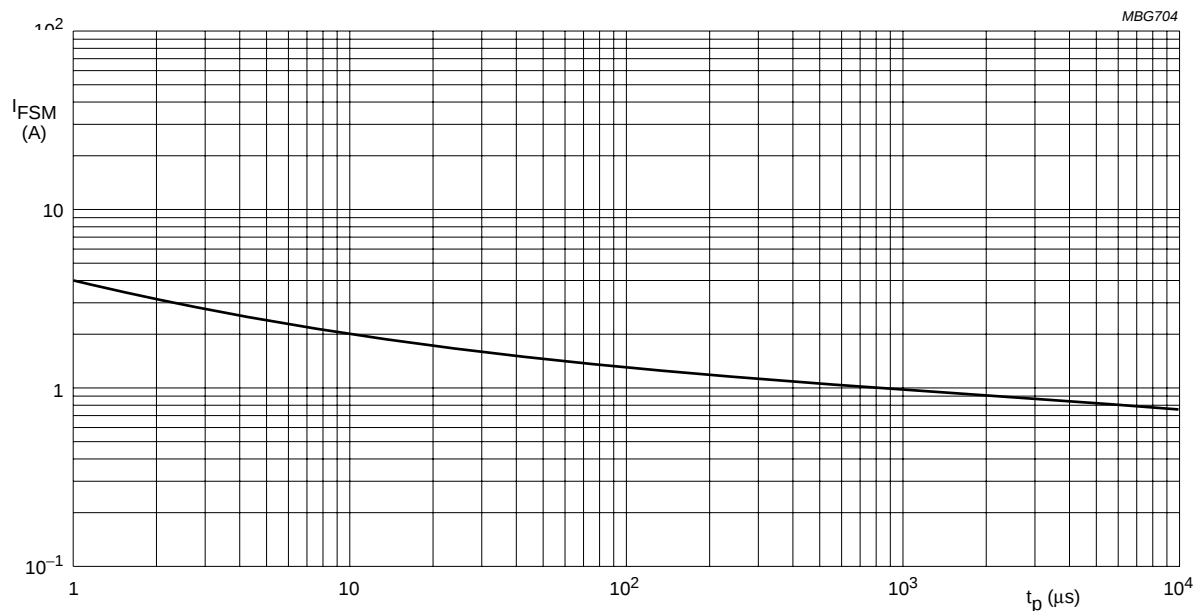
Device mounted on an FR4 printed-circuit board.

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



- (1) $T_j = 150\text{ }^{\circ}\text{C}$; typical values.
- (2) $T_j = 25\text{ }^{\circ}\text{C}$; typical values.
- (3) $T_j = 25\text{ }^{\circ}\text{C}$; maximum values.

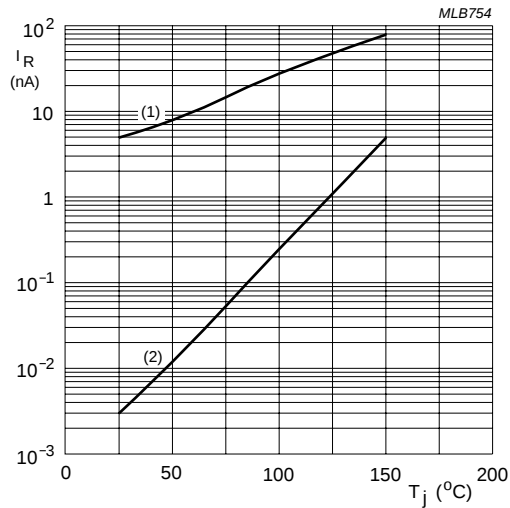
Fig.2 Forward current as a function of forward voltage.



Based on square wave currents.
 $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge.

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

Typical Characteristics

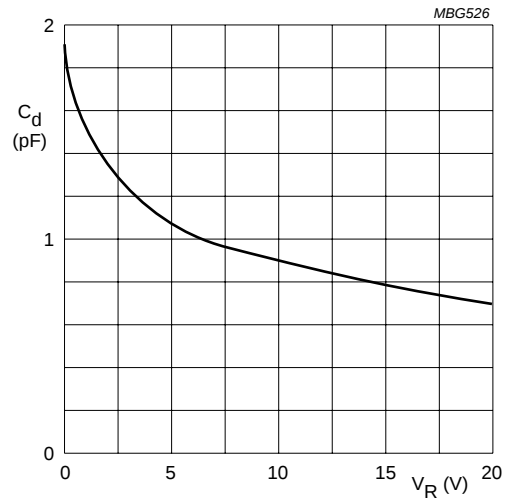


$V_R = 75 \text{ V}$.

(1) Maximum values.

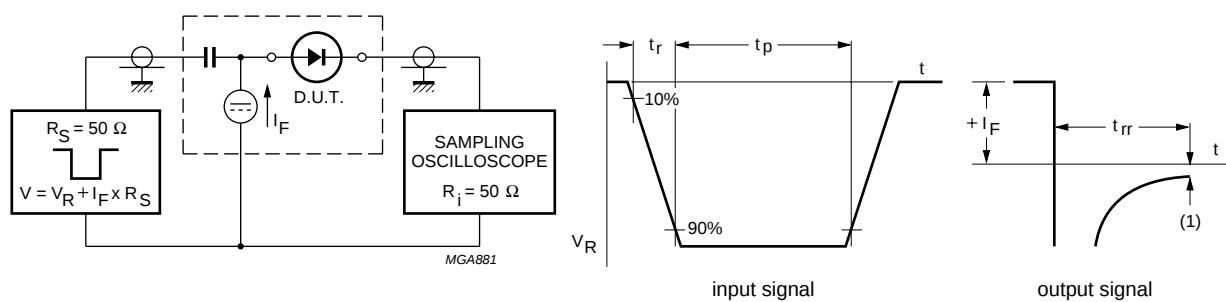
(2) Typical values.

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



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

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 $\delta = 0.05$;

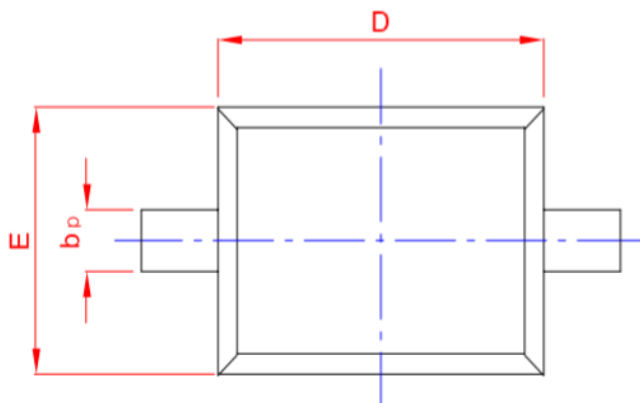
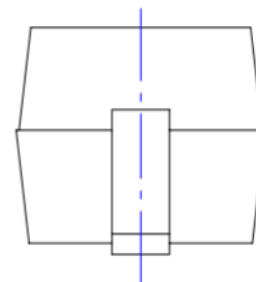
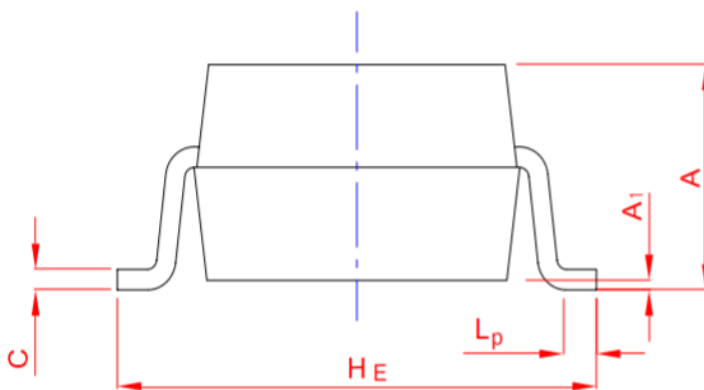
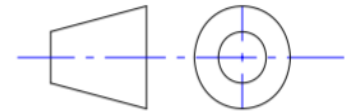
Oscilloscope: rise time $t_r = 0.35 \text{ ns}$.

Fig.6 Reverse recovery voltage test circuit and waveforms.

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD-323



UNIT	A	bp	C	D	E	HE	A1	Lp
mm	1.20 0.80	0.40 0.25	0.18 0.08	1.80 1.60	1.40 1.15	2.80 2.30	0.10 0.00	0.50 0.10