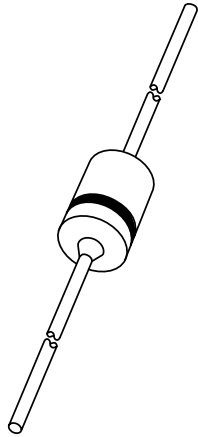


DATA SHEET



BAX12; BAX12A Controlled avalanche diodes

Product specification
Supersedes data of 1996 Sep 17

2002 Apr 08

Controlled avalanche diodes

BAX12; BAX12A

FEATURES

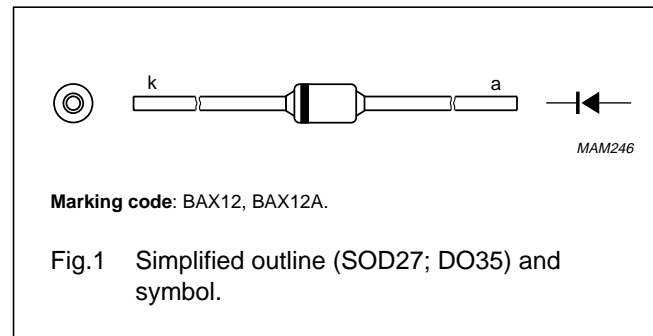
- Hermetically sealed leaded glass SOD27 (DO-35) package
- Switching speed: max. 50 ns
- General application
- Continuous reverse voltage: max. 90 V
- Repetitive peak reverse voltage: max. 90 V
- Repetitive peak forward current: max. 800 mA
- Repetitive peak reverse current: max. 600 mA
- Capable of absorbing transients repetitively.

APPLICATIONS

- Switching of inductive loads in semi-electronic telephone exchanges.

DESCRIPTION

The BAX12 and BAX12A are controlled avalanche diodes, fabricated in planar technology and encapsulated in the hermetically sealed leaded glass SOD27 (DO-35) package.



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage	note 1	–	90	V
V_R	continuous reverse voltage	note 1	–	90	V
I_F	continuous forward current	see Fig.2; note 2	–	400	mA
I_{FRM}	repetitive peak forward current		–	800	mA
I_{FSM}	non-repetitive peak forward current	square wave; $T_j = 25\text{ °C}$ prior to surge; see Fig.4 $t = 1\ \mu\text{s}$ $t = 100\ \mu\text{s}$ $t = 10\ \text{ms}$	–	55 15 9	A A A
P_{tot}	total power dissipation	$T_{amb} = 25\text{ °C}$; note 2	–	450	mW
I_{RRM}	repetitive peak reverse current		–	600	mA
E_{RRM}	repetitive peak reverse energy	$t_p \geq 50\ \mu\text{s}$; $f \leq 20\ \text{Hz}$; $T_j = 25\text{ °C}$	–	5	mJ
T_{stg}	storage temperature		–65	+200	°C
T_j	junction temperature		–	200	°C

Notes

1. It is allowed to exceed this value; see Figs 8 and 9. Care should be taken not to exceed the I_{RRM} rating.
2. Device mounted on an FR4 printed circuit-board; lead length 10 mm.

Controlled avalanche diodes

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ELECTRICAL CHARACTERISTICST_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _F	forward voltage	see Fig.3			
		I _F = 10 mA	–	750	mV
		I _F = 50 mA	–	840	mV
		I _F = 100 mA	–	900	mV
		I _F = 200 mA	–	1	V
		I _F = 400 mA	–	1.25	V
I _R	reverse current	see Fig.5			
		V _R = 90 V	–	100	nA
		V _R = 90 V; T _j = 150 °C	–	100	μA
V _{(BR)R}	reverse avalanche breakdown voltage				
		BAX12	I _R = 1 mA	120	170
	BAX12A	I _R = 0.1 mA	120	170	V
C _d	diode capacitance	f = 1 MHz; V _R = 0; see Fig.6	–	35	pF
t _{rr}	reverse recovery time	when switched from I _F = 30 mA to I _R = 30 mA; R _L = 100 Ω; measured at I _R = 3 mA; see Fig.10	–	50	ns

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-tp}	thermal resistance from junction to tie-point	lead length 10 mm	240	K/W
R _{th j-a}	thermal resistance from junction to ambient	lead length 10 mm; note 1	375	K/W

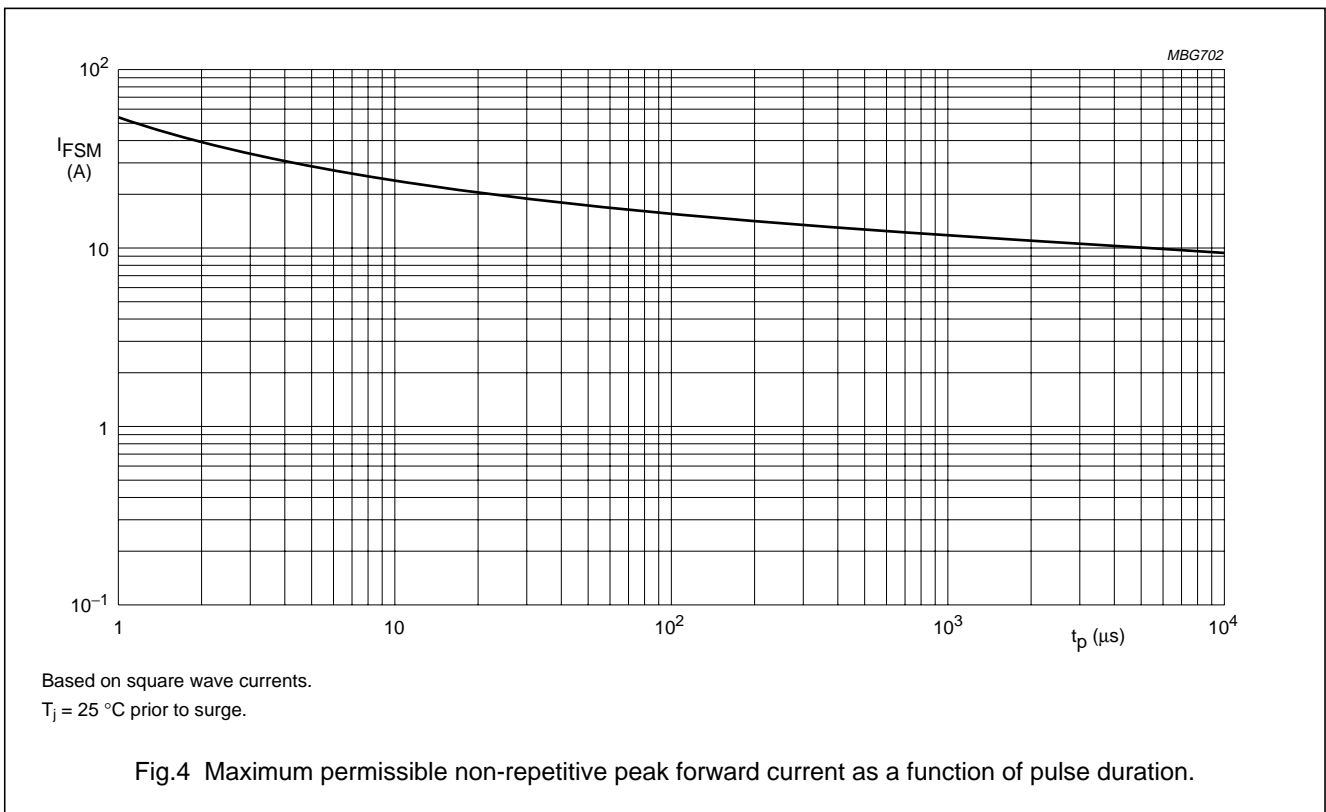
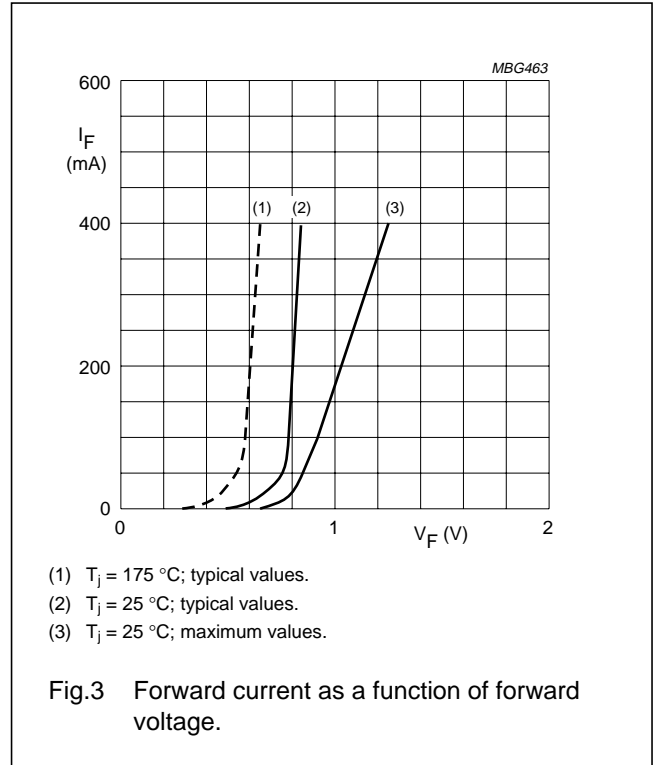
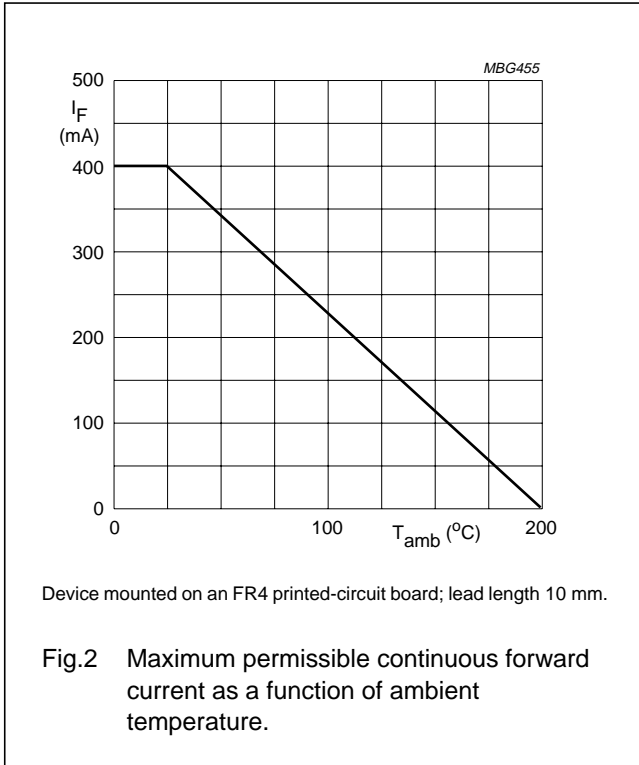
Note

1. Device mounted on a printed circuit-board without metallization pad.

Controlled avalanche diodes

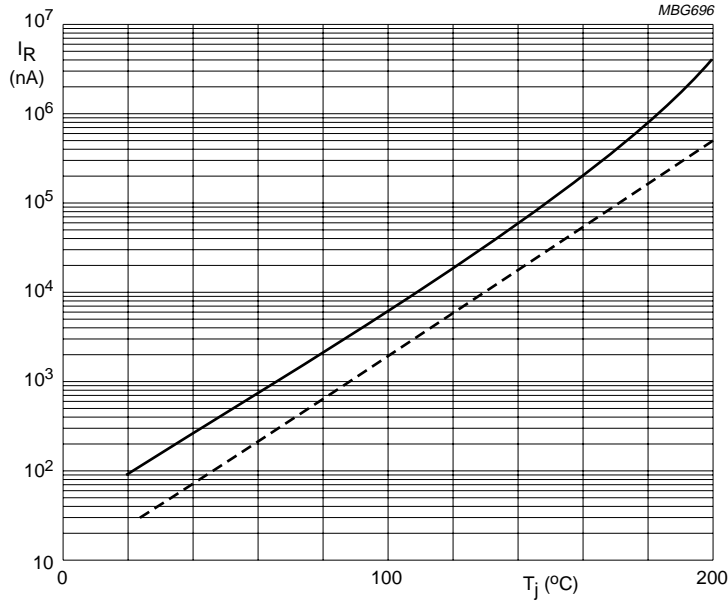
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GRAPHICAL DATA



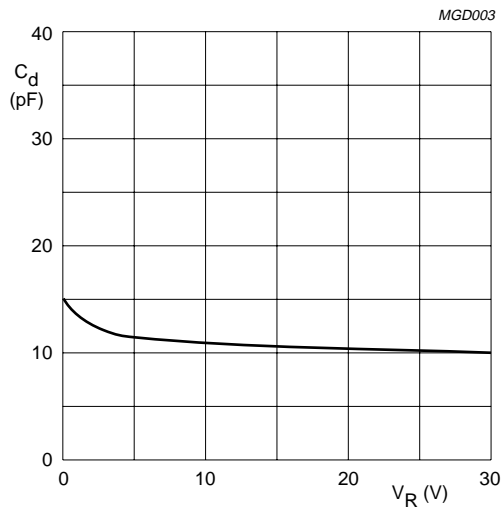
Controlled avalanche diodes

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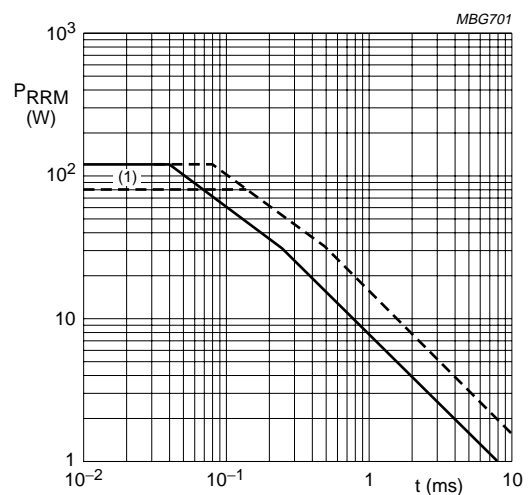
$V_R = 90\text{ V}$.
 Solid line: maximum values. Dotted line: typical values.

Fig.5 Reverse current as a function of junction temperature.



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

Fig.6 Diode capacitance as a function of reverse voltage; typical values.

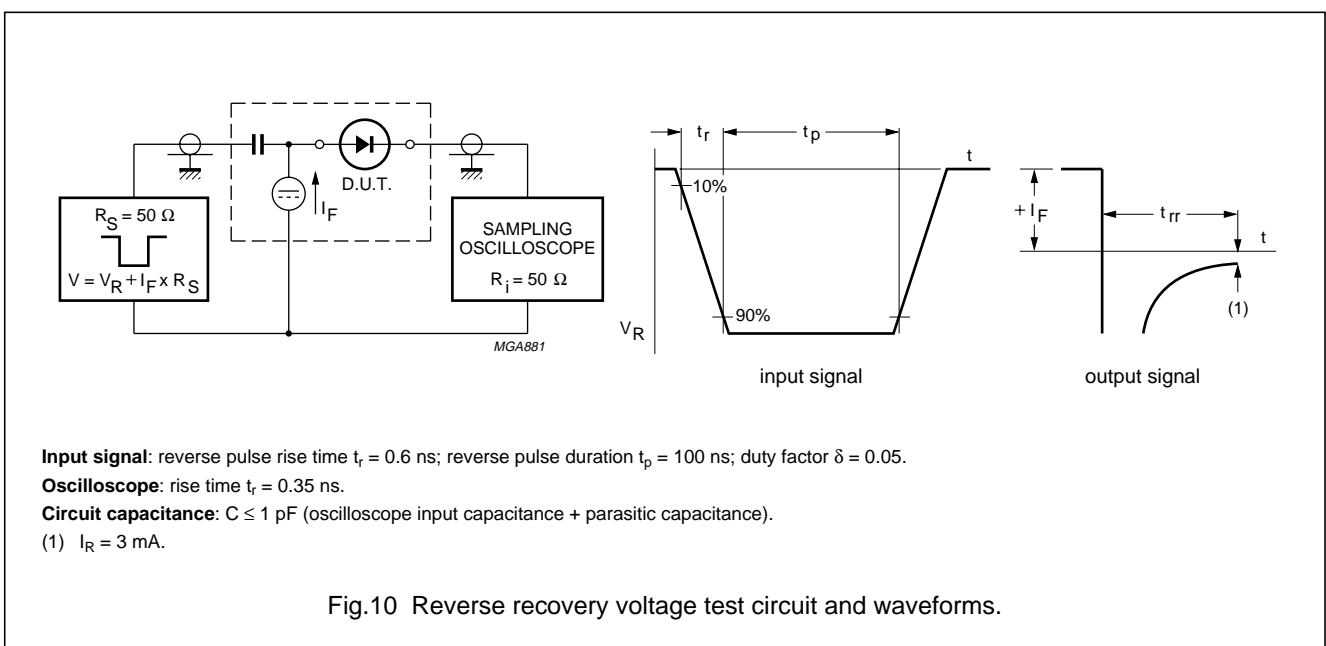
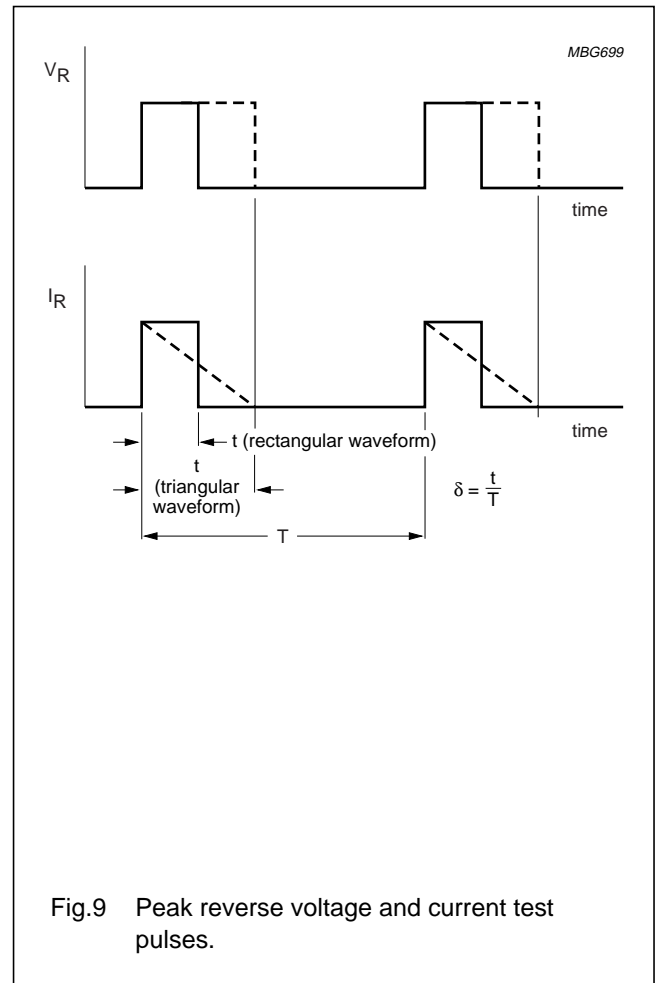
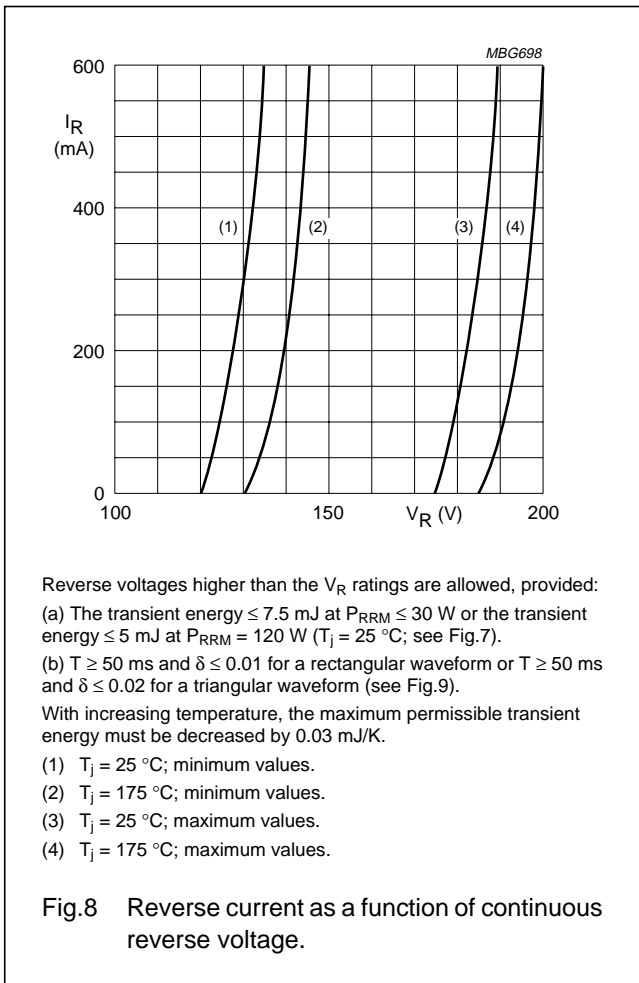


Solid line: rectangular waveform; $\delta \leq 0.01$;
 Dotted line: triangular waveform; $\delta \leq 0.02$;
 $f = 1\text{ MHz}$; $T_j = 25\text{ °C}$.
 (1) Limited by $I_{RMM} = 600\text{ mA}$.

Fig.7 Maximum permissible repetitive peak reverse power as a function of the pulse duration.

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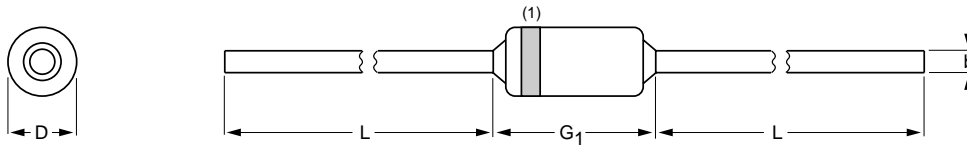
Controlled avalanche diodes

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PACKAGE OUTLINE

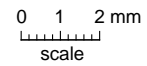
Hermetically sealed glass package; axial leaded; 2 leads

SOD27



DIMENSIONS (mm are the original dimensions)

UNIT	b max.	D max.	G ₁ max.	L min.
mm	0.56	1.85	4.25	25.4



Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD27	A24	DO-35	SC-40			97-06-09

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NOTES

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NOTES

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