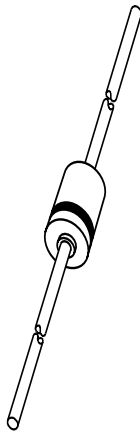


DATA SHEET



BYD52 series

Fast soft-recovery controlled
avalanche rectifiers

Preliminary specification

1998 Dec 03

Fast soft-recovery controlled avalanche rectifiers

BYD52 series

FEATURES

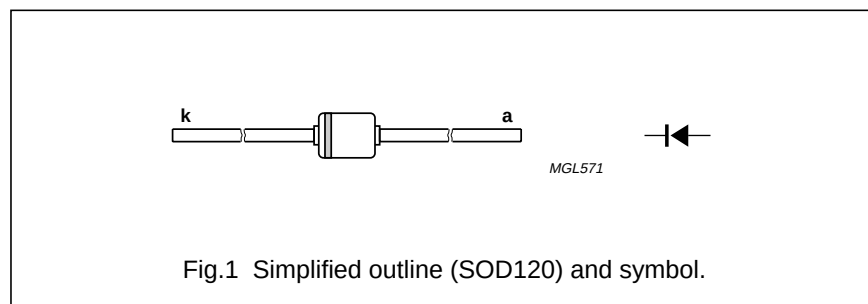
- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- Available in ammo-pack.

DESCRIPTION

Cavity free cylindrical glass SOD120 package through Implotec™⁽¹⁾ technology. This package is

hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.

(1) Implotec is a trademark of Philips.



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage				
	BYD52D		—	200	V
	BYD52G		—	400	V
	BYD52J		—	600	V
V_R	continuous reverse voltage				
	BYD52D		—	200	V
	BYD52G		—	400	V
	BYD52J		—	600	V
$I_{F(AV)}$	average forward current	$T_{amb} = 25\text{ °C}$; printed-circuit board mounting, pitch 5 mm, see Fig.6; averaged over any 20 ms period; see Fig.2	—	0.47	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = 25\text{ °C}$; $V_R = V_{RRMmax}$	—	5	A
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature	see fig.3	–65	+175	°C

ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	$I_F = 1\text{ A}$; see Fig.4	3.6	V
I_R	reverse current	$V_R = V_{RRMmax}$	1	μA
		$V_R = V_{RRMmax}$; $T_j = 165\text{ °C}$; see Fig.5	100	μA
t_{rr}	reverse recovery time	when switched from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; measured at $I_R = 0.25\text{ A}$; see Fig.7	30	ns

**Fast soft-recovery controlled
avalanche rectifiers**

BYD52 series

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	150	K/W

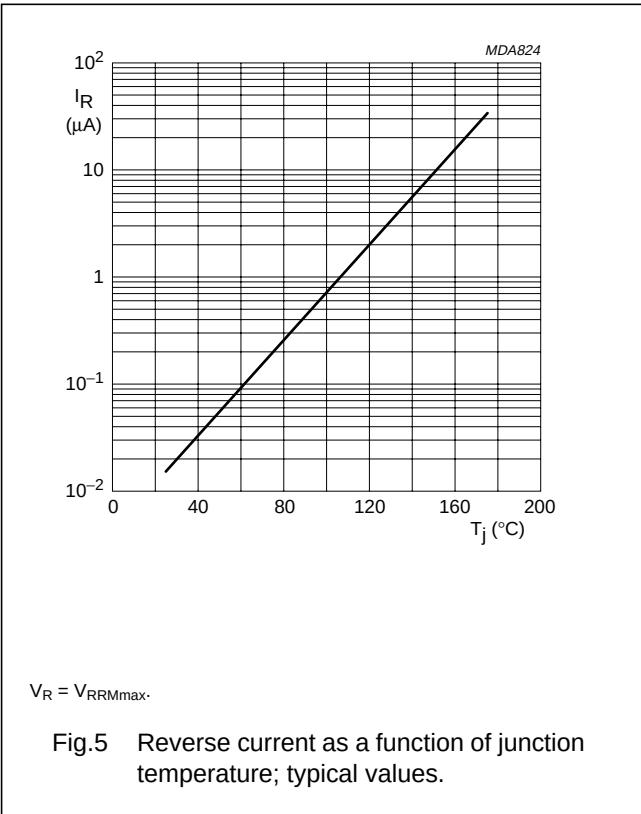
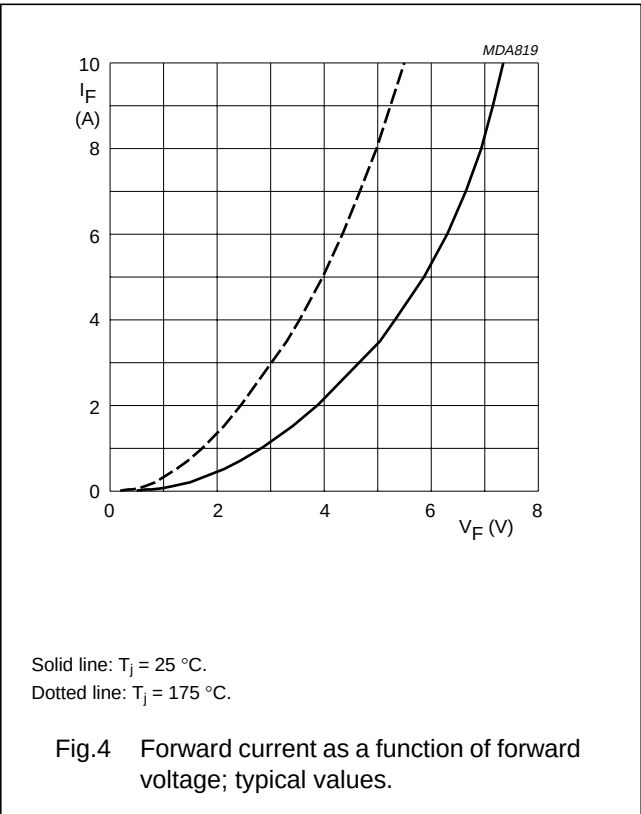
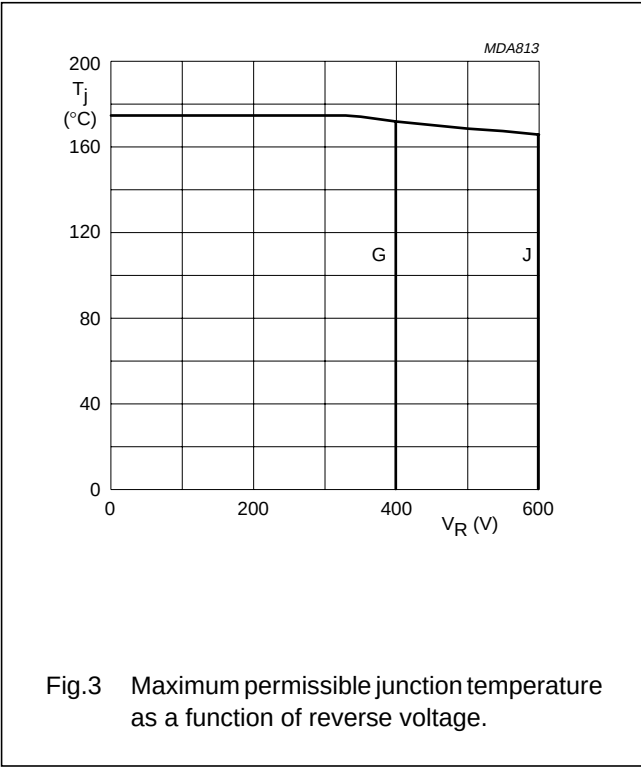
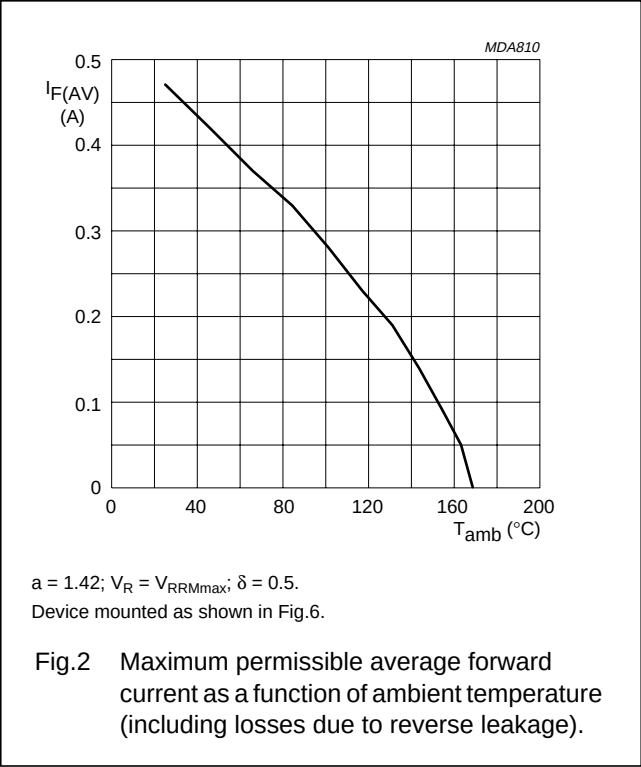
Note

1. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper layer $\geq 40\ \mu\text{m}$, pitch 5 mm; see Fig.6.

Fast soft-recovery controlled
avalanche rectifiers

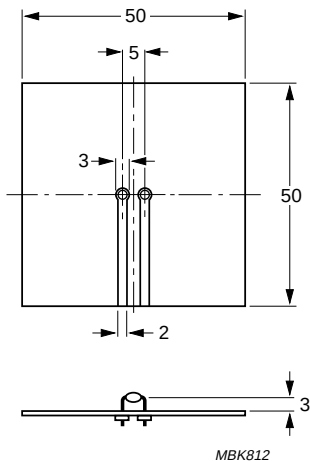
BYD52 series

GRAPHICAL DATA



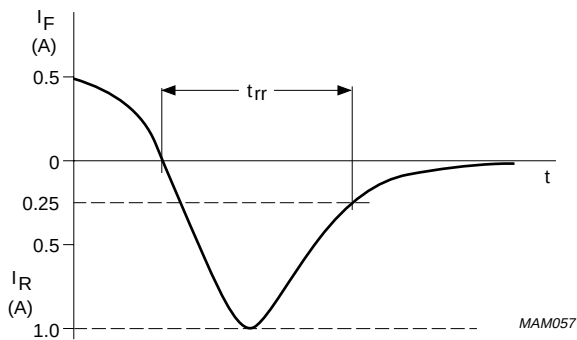
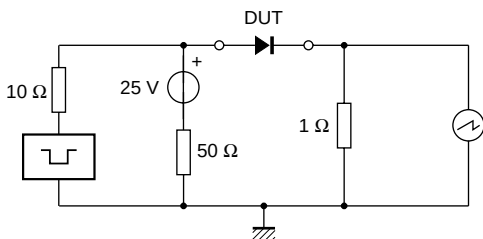
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avalanche rectifiers

BYD52 series



Dimensions in mm.

Fig.6 Device mounted on a printed-circuit board.



Input impedance oscilloscope: 1 MΩ, 22 pF; $t_r \leq 7$ ns.
Source impedance: 50 Ω; $t_r \leq 15$ ns.

Fig.7 Test circuit and reverse recovery time waveform and definition.

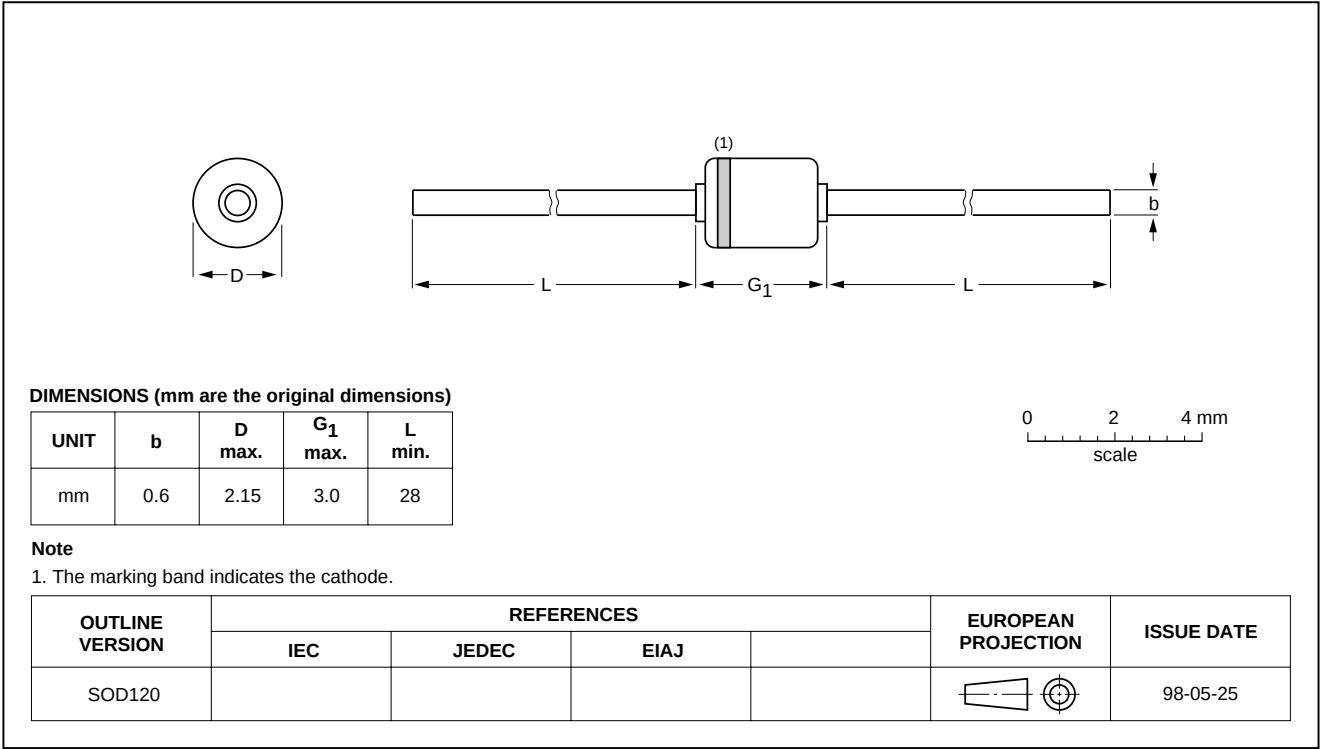
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avalanche rectifiers

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PACKAGE OUTLINE

Hermetically sealed glass package; axial leaded; 2 leads

SOD120



DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

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