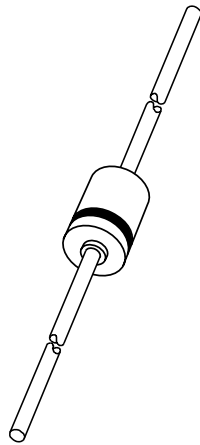


DATA SHEET



BYD72 series Ultra fast low-loss controlled avalanche rectifiers

Preliminary specification

1998 Dec 03

Ultra fast low-loss controlled avalanche rectifiers

BYD72 series

FEATURES

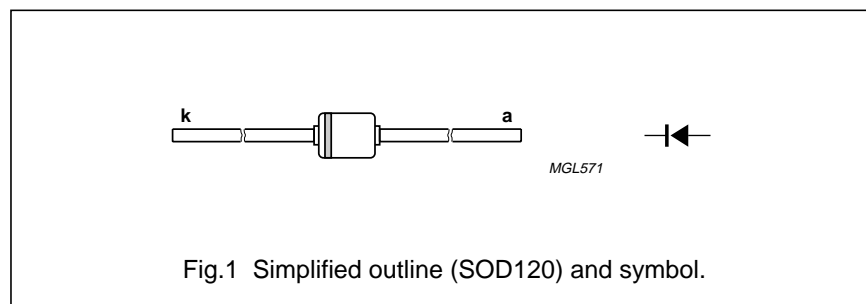
- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- Available in ammo-pack.

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				
	BYD72A		–	50	V
	BYD72B		–	100	V
	BYD72C		–	150	V
	BYD72D		–	200	V
	BYD72E		–	250	V
	BYD72F BYD72G		–	300 400	V V
V _R	continuous reverse voltage				
	BYD72A		–	50	V
	BYD72B		–	100	V
	BYD72C		–	150	V
	BYD72D		–	200	V
	BYD72E		–	250	V
	BYD72F BYD72G		–	300 400	V V
I _{F(AV)}	average forward current				
	BYD72A to D BYD72E to G	T _{amb} = 25 °C; printed-circuit board mounting, pitch 5 mm, see Fig.8; averaged over any 20 ms period; see Figs 2 and 3	–	1.02 0.95	A A
I _{FSM}	non-repetitive peak forward current	t = 10 ms half sine wave; T _j = 25 °C; V _R = V _{RRMmax}	–	15	A
T _{stg}	storage temperature		–65	+175	°C
T _j	junction temperature	see Fig.7	–65	+175	°C

Ultra fast low-loss controlled avalanche rectifiers

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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage BYD72A to D BYD72E to G	$I_F = 1\text{ A}$; see Figs 4 and 5	0.98	V
			1.05	V
I_R	reverse current	$V_R = V_{RRMmax}$	1	μA
		$V_R = V_{RRMmax}$; $T_j = 165\text{ °C}$; see Fig.6	100	μA
t_{rr}	reverse recovery time BYD72A to D BYD72E to G	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.9	25	ns
			50	ns
V_{FRM}	forward recovery voltage BYD72A to D BYD72E to G	when switched to $I_F = 1\text{ A}$ in 50 ns	1.55	V
			3.40	V

THERMAL CHARACTERISTICS

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

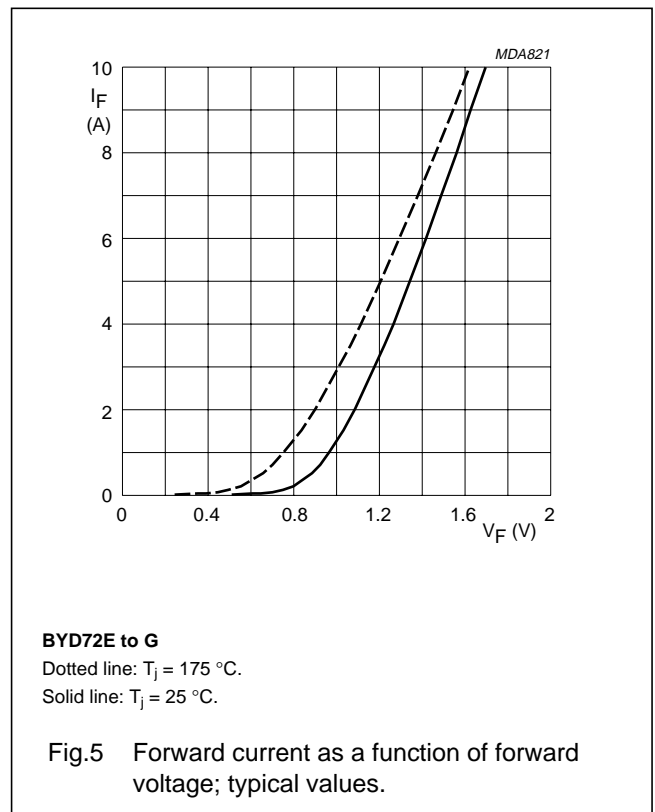
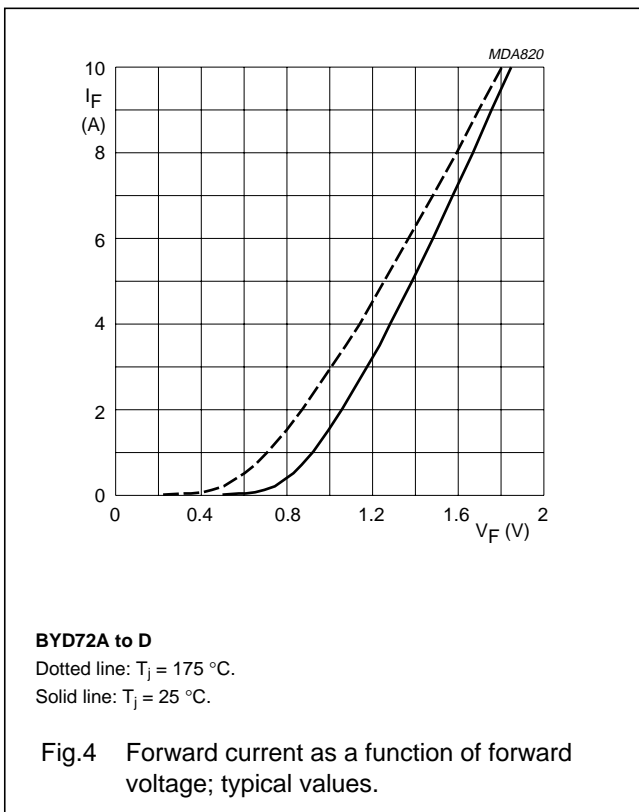
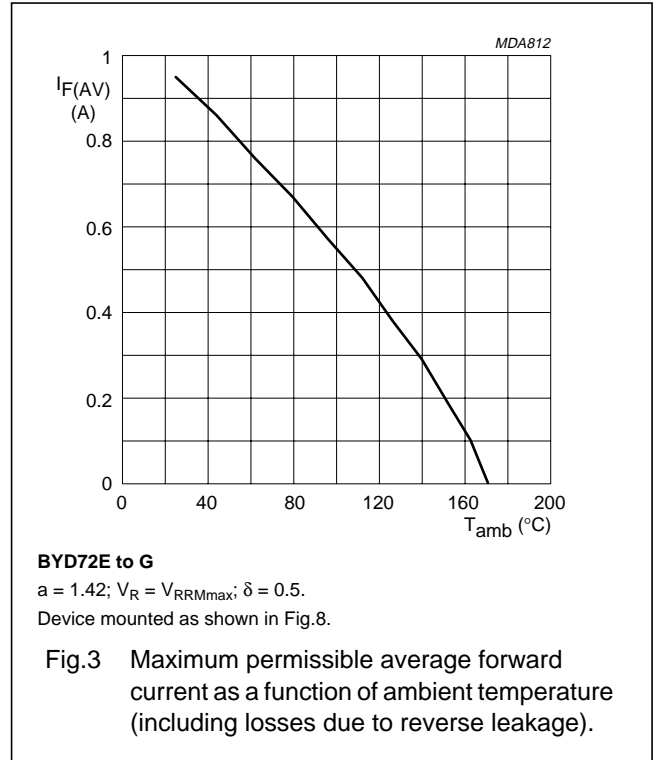
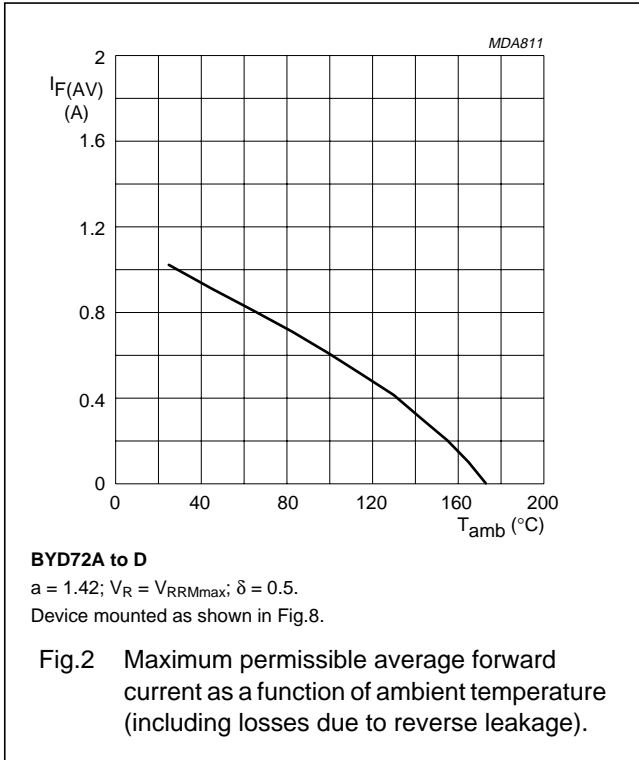
Note

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.8.

Ultra fast low-loss
controlled avalanche rectifiers

BYD72 series

GRAPHICAL DATA



Ultra fast low-loss
controlled avalanche rectifiers

BYD72 series

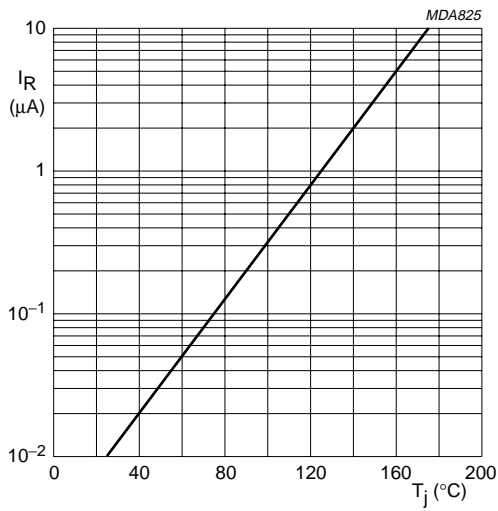


Fig.6 Reverse current as a function of junction temperature; typical values.

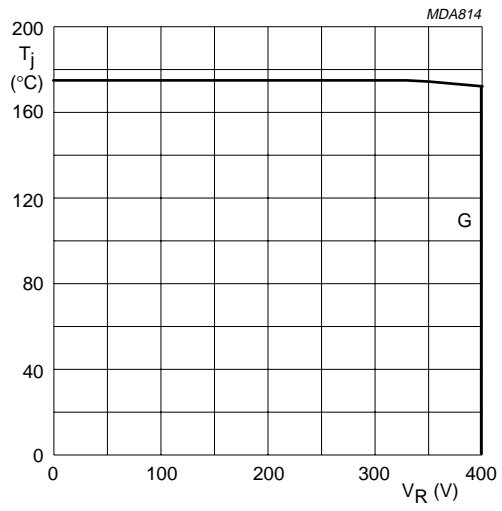
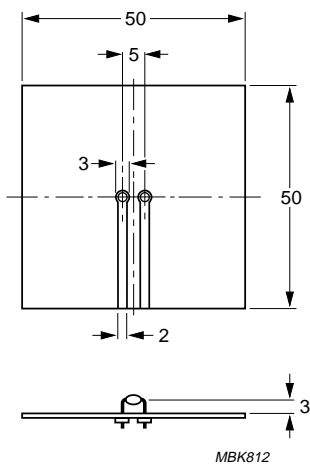


Fig.7 Maximum permissible junction temperature as a function of reverse voltage.

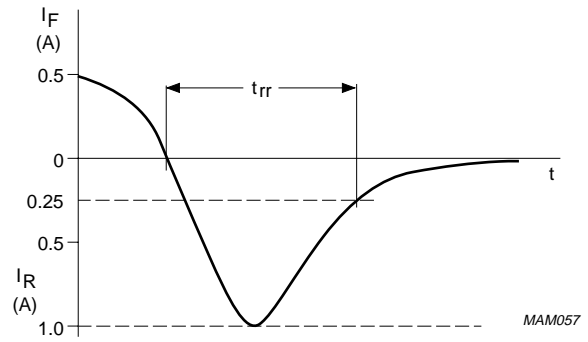
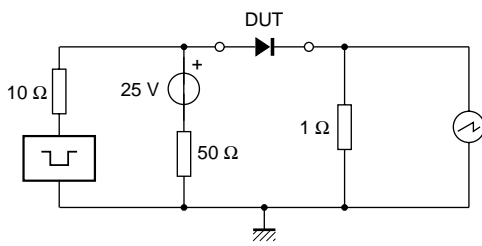


Dimensions in mm.

Fig.8 Device mounted on a printed-circuit board.

Ultra fast low-loss controlled avalanche rectifiers

BYD72 series



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

Fig.9 Test circuit and reverse recovery time waveform and definition.

Ultra fast low-loss
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BYD72 series

PACKAGE OUTLINE

Hermetically sealed glass package; axial leaded; 2 leads

SOD120

DIMENSIONS (mm are the original dimensions)

UNIT	b	D max.	G ₁ max.	L min.
mm	0.6	2.15	3.0	28

Note
1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD120						98-05-25

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

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