Silicon Diode

BYD32D

200V/760mA

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Datasheet Rev. 1.3 – 04/19 – data without warranty / liability

Fast soft-recovery controlled avalanche rectifiers

BYD32 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 SOD 120 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.

Fig.1 Simplified outline (SOD120) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage				
	BYD32D		–	200	V
	BYD32G		–	400	V
	BYD32J		–	600	V
V_R	continuous reverse voltage				
	BYD32D		–	200	V
	BYD32G		–	400	V
	BYD32J		–	600	V
$I_{F(AV)}$	average forward current	T_{amb} = 25 °C; printed-circuit board mounting, pitch 5 mm, see Fig.6; averaged over any 20 ms period; see Fig.2	–	0.76	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.3	−65	+175	°C

ELECTRICAL CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	I_F = 1 A; see Fig.4	1.3	V
I_R	reverse current	$V_R = V_{RRMmax}$	1	µA
		$V_R = V_{RRMmax}$; T_j = 165 °C; see Fig.5	100	µA
t_{rr}	reverse recovery time	when switched from I_F = 0.5 A to I_R = 1 A; measured at I_R = 0.25 A; see Fig.7	250	ns

Fast soft-recovery controlled avalanche rectifiers BYD32 series

THERMAL CHARACTERISTICS

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

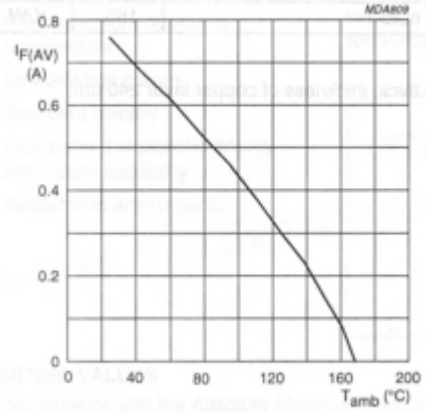
Note

1. Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper layer ≥40 µm, pitch 5 mm; see Fig.6.

Fast soft-recovery controlled avalanche rectifiers

BYD32 series

GRAPHICAL DATA



a = 1.42; $V_R = V_{RRMmax}$; δ = 0.5.
Device mounted as shown in Fig.6.

Fig.2 Maximum permissible average forward current as a function of ambient temperature (including losses due to reverse leakage).

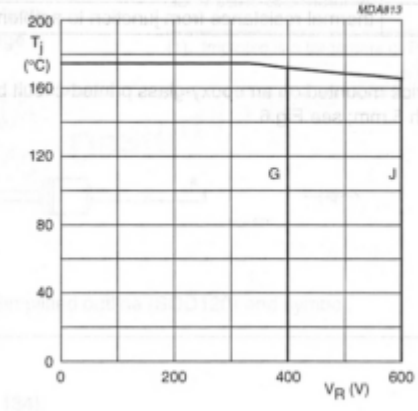
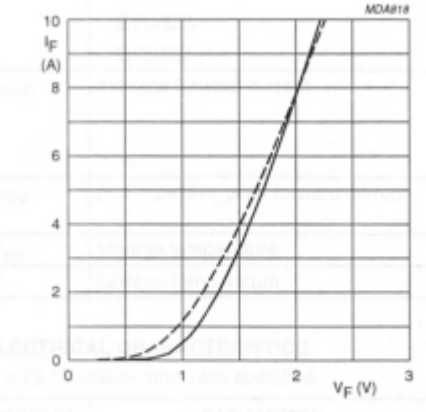
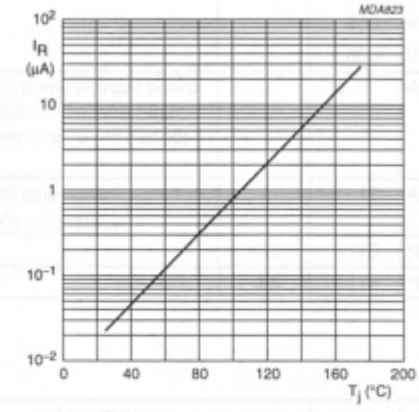


Fig.3 Maximum permissible junction temperature as a function of reverse voltage.



Solid line: T_j = 25 °C.
Dotted line: T_j = 175 °C.

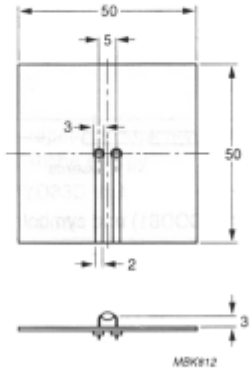
Fig.4 Forward current as a function of forward voltage; typical values.



$V_R = V_{RRMmax}$.

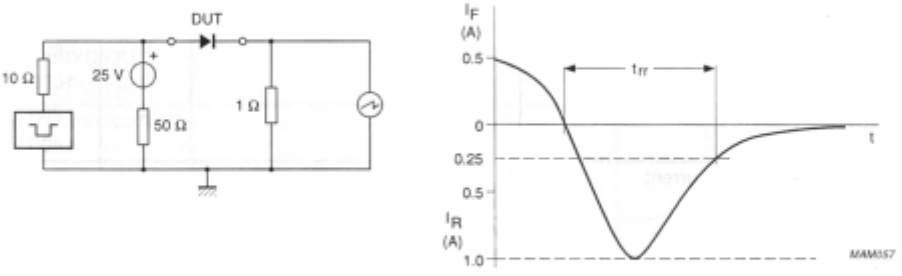
Fig.5 Reverse current as a function of junction temperature; typical values.

Fast soft-recovery controlled avalanche rectifiers BYD32 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.