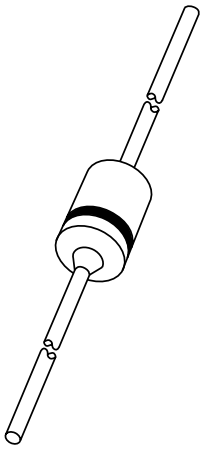
DATA SHEET



BYD143
Ultra fast low-loss rectifier

Product specification
Supersedes data of 1998 Dec 04

1999 Feb 10

Philips
Semiconductors

PHILIPS

Ultra fast low-loss rectifier BYD143

FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Available in ammo-pack.

DESCRIPTION

Cavity free cylindrical glass SOD81 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.

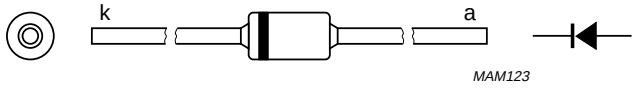


Fig.1 Simplified outline (SOD81) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		–	400	V
V_R	continuous reverse voltage		–	400	V
$I_{F(AV)}$	average forward current	T_{tp} = 110 °C; lead length = 10 mm; averaged over any 20 ms period; see Figs 5 and 6	–	1	A
I_{FSM}	non-repetitive peak forward current	t = 10 ms half sinewave; $V_R = V_{RRMmax}$	–	25	A
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–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.2; T_j = 150 °C	0.88	V
		I_F = 1 A; see Fig.2	1.05	V
I_R	reverse current	$V_R = V_{RRMmax}$; see Fig.3	5	μA
		$V_R = V_{RRMmax}$; T_j = 150 °C; see Fig.3	150	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	50	ns

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}tp}$	thermal resistance from junction to tie-point	lead length = 10 mm	60	K/W
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	120	K/W

Note

1. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper ≥40 μm, see Fig.7. For more information please refer to the *"General part of the associated handbook"*.

GRAPHICAL DATA

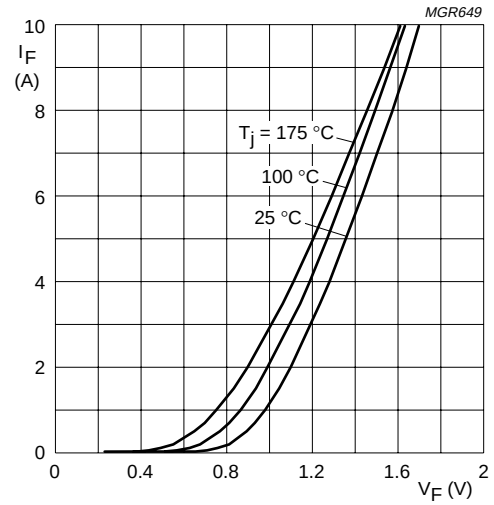


Fig.2 Forward current as a function of forward voltage; typical values.

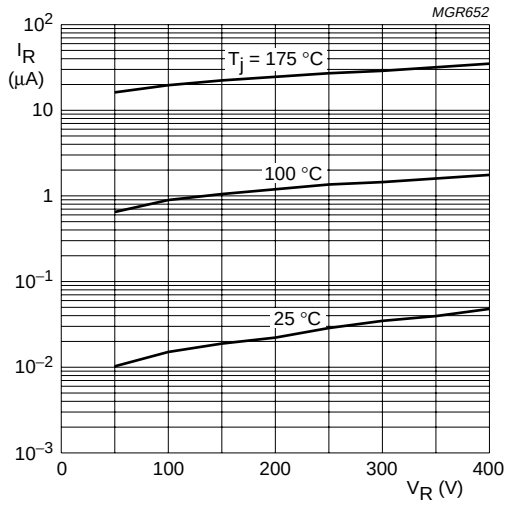


Fig.3 Reverse current as a function of reverse voltage; typical values.

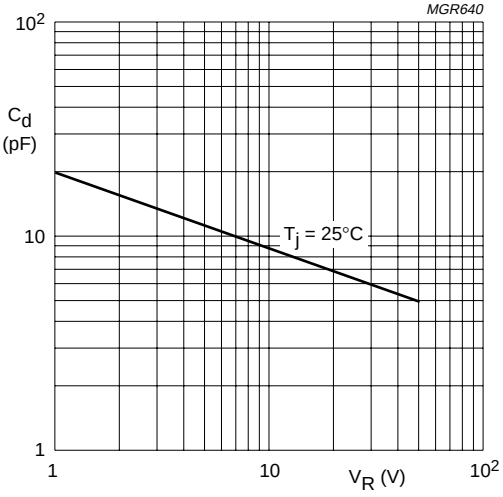


Fig.4 Diode capacitance as a function of reverse voltage; typical values.

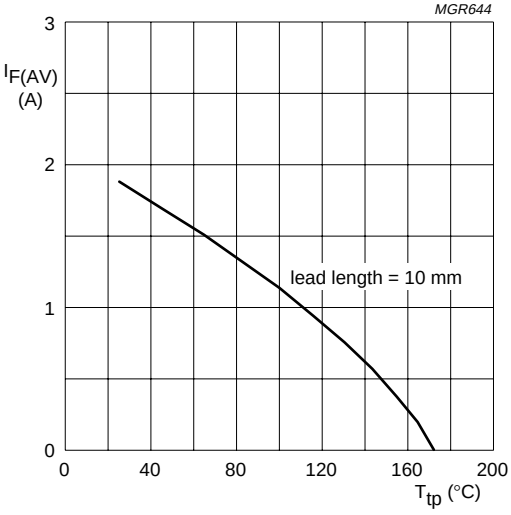


Fig.5 Maximum permissible average forward current as a function of tie-point temperature (including losses due to reverse leakage).

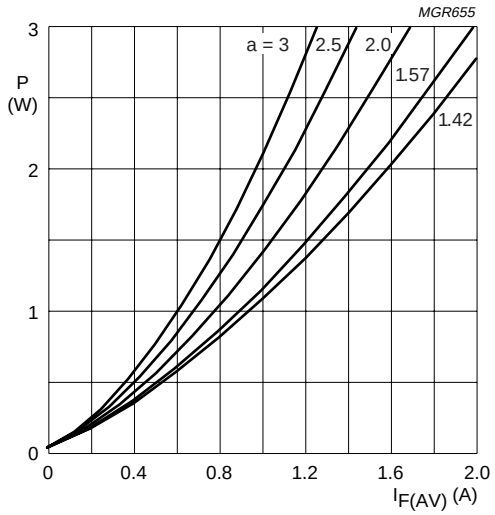
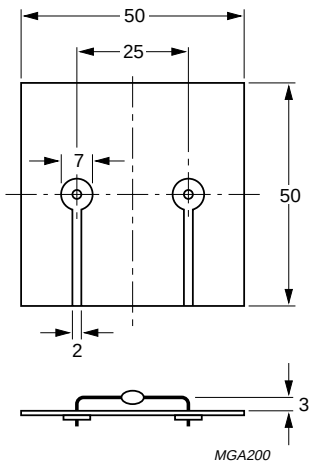


Fig.6 Maximum steady state power dissipation (forward plus leakage current losses, excluding switching losses) as a function of average forward current.

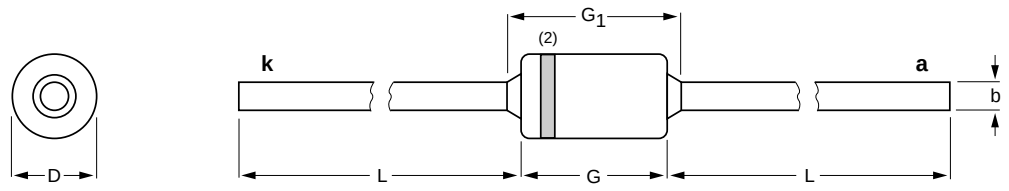


Dimensions in mm.

Fig.7 Device mounted on a printed-circuit board.

PACKAGE OUTLINE

Hermetically sealed glass package;
Implotec™(1) technology; axial leaded; 2 leads **SOD81**



DIMENSIONS (mm are the original dimensions)

UNIT	b max.	D max.	G max.	G_1 max.	L min.
mm	0.81	2.15	3.8	5	28

0 1 2 mm
scale

Notes

1. Implotec is a trademark of Philips.
2. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD81						97-06-20

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.	

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