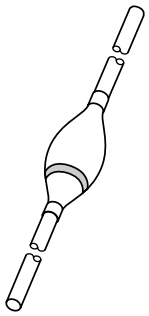
DATA SHEET



BYX105G; BYX106G; BYX107G; BYX108G

High-voltage soft-recovery controlled avalanche rectifiers

Product specification
Supersedes data of 1996 Oct 03

2000 Jan 13

Philips
Semiconductors

PHILIPS

High-voltage soft-recovery controlled avalanche rectifiers

BYX105G; BYX106G; BYX107G; BYX108G

FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- Recovery times ranging from 600 to 50 ns
- Soft-recovery switching characteristics
- Compact construction.

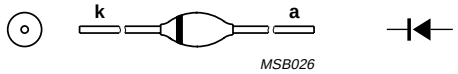


Fig.1 Simplified outline (SOD88A) and symbol.

APPLICATIONS

- High-voltage power supply units in, for example, X-ray or radar systems.

DESCRIPTION

Rugged glass package, using a high temperature alloyed construction.

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

The package is designed to be used in an insulating medium such as resin, oil or SF6 gas.

MARKING

TYPE NUMBER	CATHODE BAND
BYX105G	black
BYX106G	red
BYX107G	green
BYX108G	violet

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		–	5	kV
V_{RW}	working reverse voltage		–	4.5	kV
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; T_{oil} = 25 °C			
	BYX105G		–	650	mA
	BYX106G		–	575	mA
	BYX107G		–	480	mA
	BYX108G		–	340	mA
	average forward current	averaged over any 20 ms period; T_{oil} = 70 °C			
	BYX105G		–	460	mA
	BYX106G		–	400	mA
	BYX107G		–	340	mA
	BYX108G		–	240	mA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{FSM}	non-repetitive peak forward current	t = 10 ms; half sinewave; T_j = 45 °C prior to surge			
	BYX105G		–	20	A
	BYX106G		–	15	A
	BYX107G		–	14	A
	BYX108G		–	14	A
P_{RSM}	non-repetitive peak reverse power dissipation	t = 10 μs; triangular pulse; $T_j = T_{j\,max}$ prior to surge	–	2	kW
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; T_j = 165 °C		
	BYX105G		9.3	V
	BYX106G		10.4	V
	BYX107G		12	V
	BYX108G		16.5	V
	forward voltage	I_F = 1 A		
	BYX105G		10.9	V
	BYX106G		12.7	V
	BYX107G		15.8	V
	BYX108G		27.7	V
I_R	reverse current	$V_R = V_{RWmax}$	15	μA
		$V_R = V_{RWmax}$; T_j = 165 °C	50	μA
t_{rr}	reverse recovery time	when switched from I_F = 50 mA to I_R = 100 mA; measured at I_R = 25 mA		
	BYX105G		600	ns
	BYX106G		350	ns
	BYX107G		175	ns
	BYX108G		50	ns

THERMAL CHARACTERISTICS

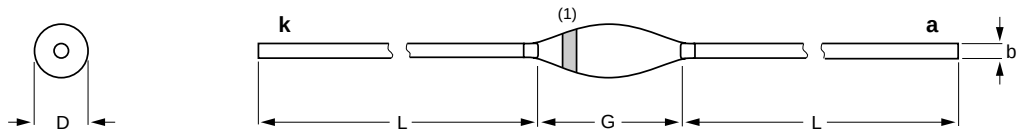
SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}oil}$	thermal resistance from junction to oil	note 1	20	K/W

Note

1. For more information please refer to the *"General Part of associated Handbook"*.

PACKAGE OUTLINE

Hermetically sealed glass package; axial leaded; 2 leads **SOD88A**



DIMENSIONS (mm are the original dimensions)

UNIT	b max.	D max.	G max.	L min.
mm	0.81	3.8	8	30.5

0 2.5 5 mm
scale

Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD88A						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.	

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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