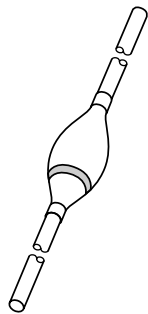


DATA SHEET



**BYX101G; BYX102G; BYX103G;
BYX104G**

High-voltage soft-recovery
controlled avalanche rectifiers

Product specification
Supersedes data of 1996 Oct 03

2000 Jan 13

High-voltage soft-recovery controlled avalanche rectifiers

BYX101G; BYX102G; BYX103G; BYX104G

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.

APPLICATIONS

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

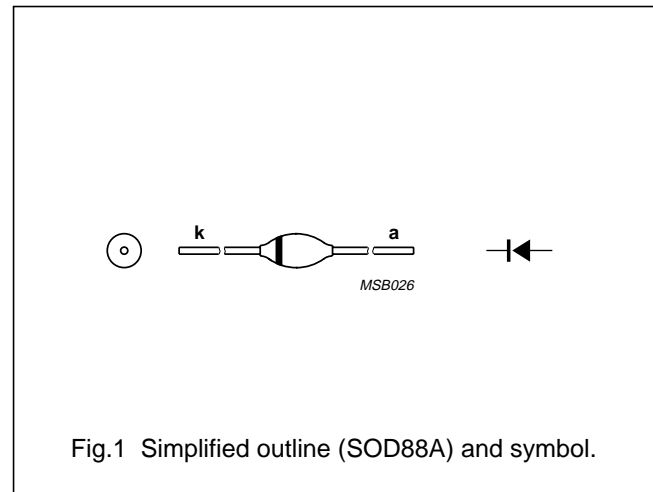


Fig.1 Simplified outline (SOD88A) and symbol.

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
BYX101G	black
BYX102G	red
BYX103G	green
BYX104G	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		–	10	kV
V_{RW}	working reverse voltage		–	9	kV
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; $T_{oil} = 25\text{ °C}$	–	400	mA
	BYX101G		–	360	mA
	BYX102G		–	310	mA
	BYX103G		–	225	mA
	BYX104G		–	225	mA
	average forward current	averaged over any 20 ms period; $T_{oil} = 70\text{ °C}$	–	285	mA
	BYX101G		–	255	mA
	BYX102G		–	220	mA
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$; half sinewave; $T_j = 45\text{ °C}$ prior to surge	–	20	A
	BYX101G		–	15	A
	BYX102G		–	14	A
	BYX103G		–	14	A

High-voltage soft-recovery controlled avalanche rectifiers

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
P_{RSM}	non-repetitive peak reverse power dissipation	$t = 10 \mu s$; triangular pulse; $T_j = T_{jmax}$ prior to surge	–	4	kW
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature		–65	+175	°C

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT			
V_F	forward voltage	$I_F = 1 \text{ A}$; $T_j = 165 \text{ °C}$					
	BYX101G				17.5	V	
	BYX102G				19.5	V	
	BYX103G				22.5	V	
	BYX104G	31	V				
	forward voltage	$I_F = 1 \text{ A}$					
	BYX101G					20.5	V
	BYX102G					23.9	V
BYX103G	29.7					V	
BYX104G	52	V					
I_R	reverse current	$V_R = V_{RWmax}$	15	μA			
		$V_R = V_{RWmax}$; $T_j = 165 \text{ °C}$	50	μA			
t_{rr}	reverse recovery time	when switched from $I_F = 50 \text{ mA}$ to $I_R = 100 \text{ mA}$; measured at $I_R = 25 \text{ mA}$					
	BYX101G				600	ns	
	BYX102G				350	ns	
	BYX103G				175	ns	
	BYX104G				50	ns	

THERMAL CHARACTERISTICS

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

Note

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

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BYX103G; BYX104G

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

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.

High-voltage soft-recovery
controlled avalanche rectifiers

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NOTES

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NOTES

High-voltage soft-recovery
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Type nr.	Title	Publication release date	Datasheet status	Page count	File size (kB)	Datasheet
BYX101G; BYX102G; BYX103G; BYX104G	High-voltage soft-recovery controlled avalanche rectifiers	13-Jan-00	Product Specification	8	41	<input type="checkbox"/> Download

Products, packages, availability and ordering

Partnumber	North American Partnumber	Order code (12nc)	marking/packing	package	device status	buy online
BYX101G	BYX101G T/R	9340 450 40113	Standard Marking * Reel Pack, Axial, Standard	SOD88	Full production	<input type="checkbox"/>
	BYX101G AMO	9340 450 40153	Standard Marking * Ammopack, Axial, Small	SOD88	Full production	<input type="checkbox"/>
BYX102G	BYX102G T/R	9340 450 50113	Standard Marking * Reel Pack, Axial, Standard	SOD88	Full production	<input type="checkbox"/>
	BYX102G AMO	9340 450 50153	Standard Marking * Ammopack, Axial, Small	SOD88	Full production	<input type="checkbox"/>
BYX103G	BYX103G T/R	9340 450 60113	Standard Marking * Reel Pack, Axial, Standard	SOD88	Full production	<input type="checkbox"/>
		9340 450 60153	Standard Marking * Ammopack, Axial, Small	SOD88	Full production	-
BYX104G	BYX104G T/R	9340 450 70113	Standard Marking * Reel Pack, Axial, Standard	SOD88	Full production	<input type="checkbox"/>
	BYX104G AMO	9340 450 70153	Standard Marking * Ammopack, Axial, Small	SOD88	Full production	<input type="checkbox"/>

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