

Silicon Diode

BYX103G

9kV/310mA

DATASHEET

OEM – Philips

Source: Philips Databook 1999

High-voltage soft-recovery controlled avalanche rectifiers

BYX101G to 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.

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.

See also the chapter on custom made high-voltage rectifiers in the "General Part of Handbook SC01".

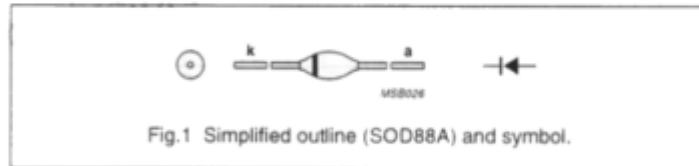


Fig.1 Simplified outline (SOD88A) and symbol.

APPLICATIONS

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

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; $T_{cbl} = 25\text{ °C}$	–	400	mA
	BYX101G		–	360	mA
	BYX102G		–	310	mA
	BYX103G		–	225	mA
	BYX104G		–	225	mA
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; $T_{cbl} = 70\text{ °C}$	–	285	mA
	BYX101G		–	255	mA
	BYX102G		–	220	mA
	BYX103G		–	160	mA
	BYX104G		–	160	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
	BYX104G		–	14	A

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
P_{RSM}	non-repetitive peak reverse power dissipation	$t = 10 \mu s$; triangular pulse; $T_j = T_{j,max}$ 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	MIN.	TYP.	MAX.	UNIT	
V_F	forward voltage	$I_F = 1 \text{ A}$; $T_j = 165 \text{ °C}$	–	–	17.5	V	
	BYX101G						
	BYX102G						
	BYX103G						
V_F	forward voltage	$I_F = 1 \text{ A}$	–	–	20.5	V	
	BYX101G						
	BYX102G						
	BYX103G						
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 $I_R = 25 \text{ mA}$	–	–	600	ns
BYX102G							
BYX103G							
t_{rr}	reverse recovery time		–	–	175	ns	
							BYX104G

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 Handbook SC01".