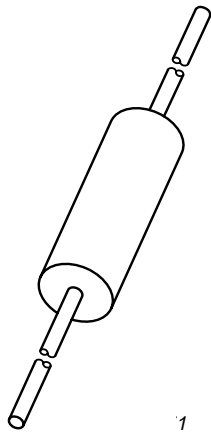


# DATA SHEET



## **BY9400 series**

Fast high-voltage soft-recovery  
controlled avalanche rectifiers

Preliminary specification

1998 Aug 05

# Fast high-voltage soft-recovery controlled avalanche rectifiers

## BY9400 series

### FEATURES

- Plastic package
- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- 40% overvoltage allowed during 5 sec
- Guaranteed avalanche energy absorption capability
- Very low reverse recovery time
- Soft-recovery switching characteristics
- Compact construction.

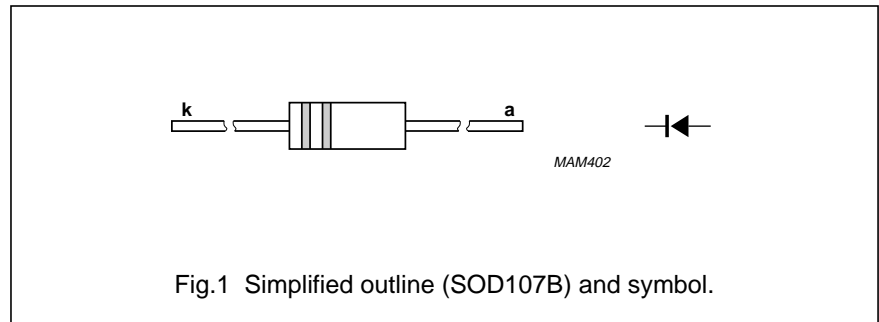
### DESCRIPTION

Plastic package, using glass passivation and 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 should be used in an insulating medium such as resin, oil or SF6 gas.



### APPLICATIONS

- For colour television and monitors up to 32 kHz (indication)
- High-voltage applications for:
  - multipliers
  - diode-split-transformers (FBT's).

### MARKING

#### Cathode band colour codes

TYPE NUMBER	PACKAGE CODE	INNER BAND	OUTER BAND
BY9410	SOD107B	violet	orange
BY9412	SOD107B	orange	orange
BY9414	SOD107B	lilac	orange
BY9416	SOD107B	grey	orange

### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>RRM1</sub>	repetitive peak reverse voltage				
	BY9410		–	10	kV
	BY9412		–	12	kV
	BY9414		–	14	kV
V <sub>RRM2</sub>	repetitive peak reverse voltage	max. 5 seconds			
	BY9410		–	14.0	kV
	BY9412		–	16.8	kV
	BY9414		–	19.6	kV
	BY9416		–	22.4	kV

## Fast high-voltage soft-recovery controlled avalanche rectifiers

## BY9400 series

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{F(AV)}$	average forward current	averaged over any 20 ms period	–	5	mA
	BY9410				
	BY9412				
	BY9414				
	BY9416	3	mA		
$I_{FRM}$	repetitive peak forward current	note 1	–	500	mA
$T_{stg}$	storage temperature		–65	+175	°C
$T_j$	junction temperature		–65	+150	°C
	BY9410				
	BY9412				
	BY9414				
	BY9416	+140	°C		

### Note

1. Withstands peak currents during flash-over in a picture tube.

### ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 10\text{ mA}$	–	–	24	V
	BY9410					
	BY9412					
	BY9414					
	BY9416	40	V			
$I_R$	reverse current	$V_R = V_{RRM1}$ ; $T_j = 120\text{ °C}$	–	–	3	μA
$Q_r$	recovery charge	when switched from $I_F = 100\text{ mA}$ to $V_R \geq 100\text{ V}$ and $dI_F/dt = -200\text{ mA}/\mu\text{s}$	–	0.7	–	nC
$t_{rr}$	reverse recovery time	when switched from $I_F = 2\text{ mA}$ to $I_R = 4\text{ mA}$ ; measured at $I_R = 1\text{ mA}$	–	–	<100	ns
$C_d$	diode capacitance	$V_R = 0\text{ V}$ ; $f = 1\text{ MHz}$	–	0.50	–	pF
	BY9410					
	BY9412					
	BY9414					
	BY9416	0.30	pF			

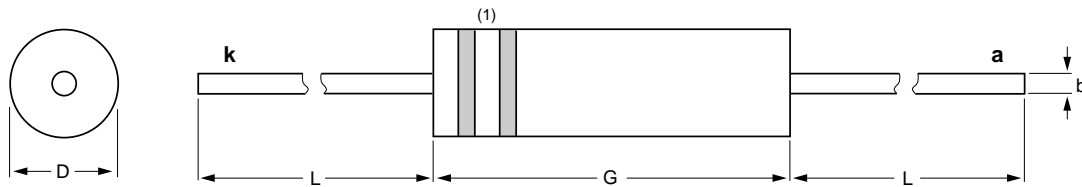
Fast high-voltage soft-recovery  
controlled avalanche rectifiers

BY9400 series

PACKAGE OUTLINE

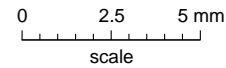
Hermetically sealed plastic package; axial leaded; 2 leads

SOD107B



DIMENSIONS (mm are the original dimensions)

UNIT	b	D	G	L min.
mm	0.6	3.1 2.9	10.5 9.5	29



Note

1. The marking bands indicate the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD107B						98-08-05

# Fast high-voltage soft-recovery controlled avalanche rectifiers

## BY9400 series

### DEFINITIONS

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
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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Fast high-voltage soft-recovery  
controlled avalanche rectifiers

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BY9400 series

**NOTES**

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Fast high-voltage soft-recovery  
controlled avalanche rectifiers

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BY9400 series

**NOTES**

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