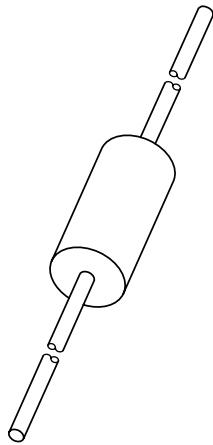


# DATA SHEET



## **BY9200 series**

Ultra fast high-voltage soft-recovery  
controlled avalanche rectifier

Product specification

1998 Dec 04

## Ultra fast high-voltage soft-recovery controlled avalanche rectifier

## BY9200 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.

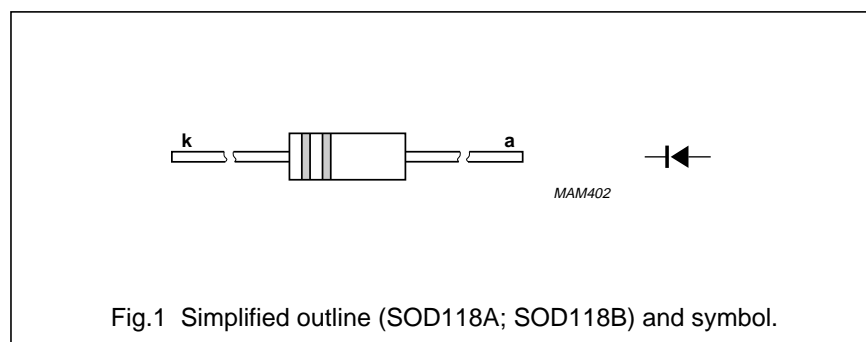
### DESCRIPTION

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

- Colour television and monitors up to 130 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
BY9206	SOD118A	green	light blue
BY9208	SOD118A	red	light blue
BY9210	SOD118B	violet	light blue
BY9212	SOD118B	orange	light blue

### 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				
	BY9206		–	6	kV
	BY9208		–	8	kV
	BY9210		–	10	kV
V <sub>RRM2</sub>	repetitive peak reverse voltage	max. 5 sec.			
	BY9206		–	8.4	kV
	BY9208		–	11.2	kV
	BY9210		–	14.0	kV
	BY9212		–	16.8	kV

# Ultra fast high-voltage soft-recovery controlled avalanche rectifier

## BY9200 series

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT		
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; see Figs 2, 3, 4 and 5	–	10	mA		
	BY9206						
	BY9208						
	BY9210						
	BY9212	5	5	5	5		
$I_{FRM}$	repetitive peak forward current	note 1	–	500	mA		
$T_{stg}$	storage temperature		–65	+175	°C		
$T_j$	junction temperature		–65	+160	°C		
	BY9206						
	BY9208						
	BY9210						
	BY9212	–65	+145	+150	+155	+145	°C

### Note

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

### ELECTRICAL CHARACTERISTICS

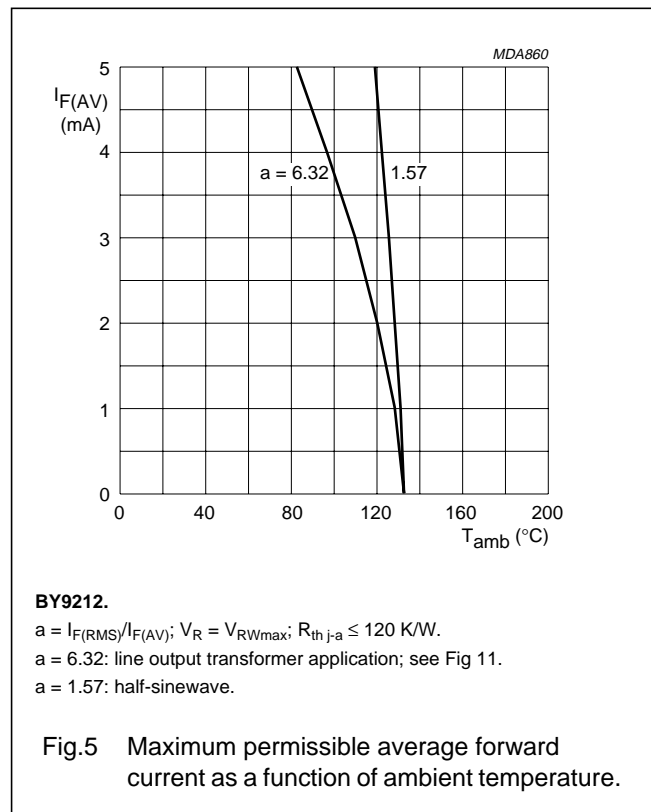
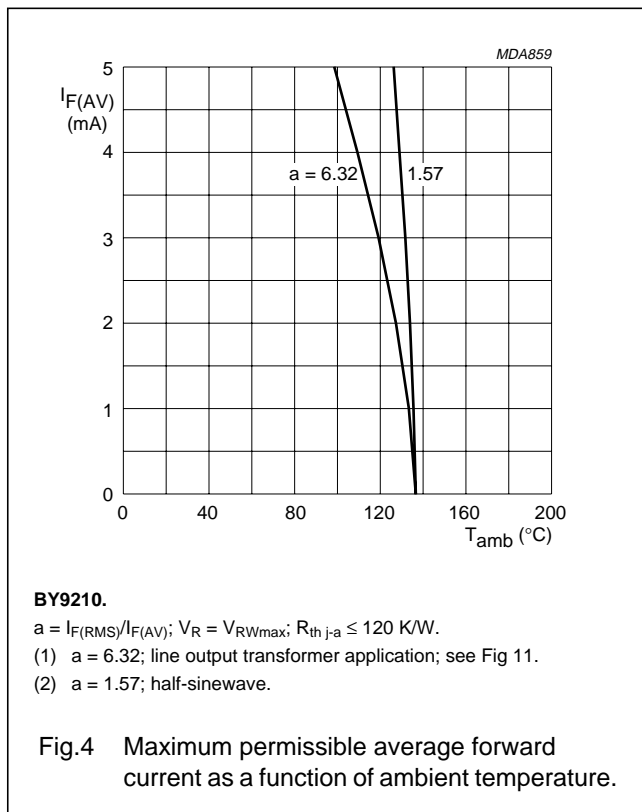
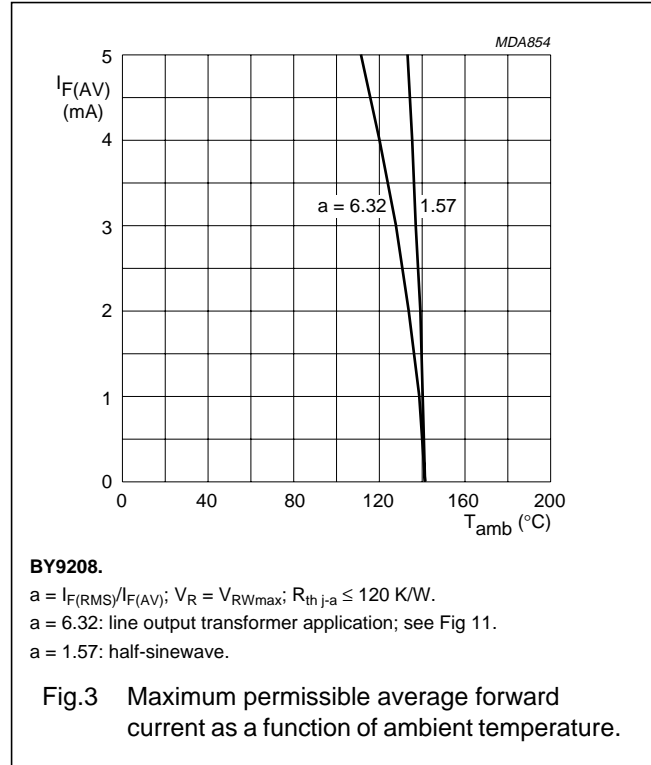
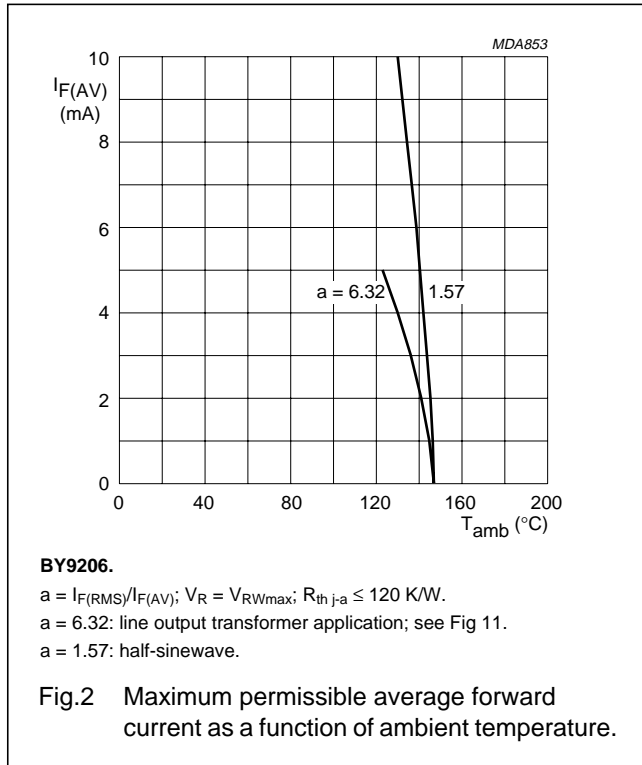
$T_j = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 10\text{ mA}$ ; see Figs 6, 7, 8 and 9	–	18	V
	BY9206				
	BY9208				
	BY9210				
	BY9212	–	36	36	V
$I_R$	reverse current	$V_R = V_{RRM1}$ ; $T_j = 120\text{ °C}$	–	3	μA
$t_{rr}$	reverse recovery time	when switched from $I_F = 2\text{ mA}$ to $I_R = 4\text{ mA}$ ; measured at $I_R = 1\text{ mA}$ ; see Fig 10	–	< 35	ns
$C_d$	diode capacitance	$V_R = 0$ ; $f = 1\text{ MHz}$	0.34	–	pF
	BY9206				
	BY9208				
	BY9210				
	BY9212	0.23	–	–	pF

Ultra fast high-voltage soft-recovery controlled avalanche rectifier

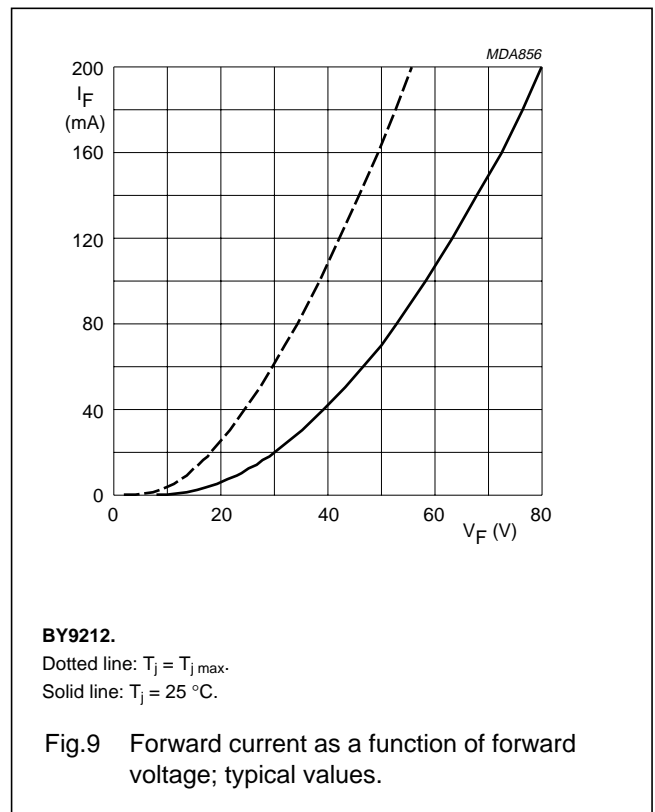
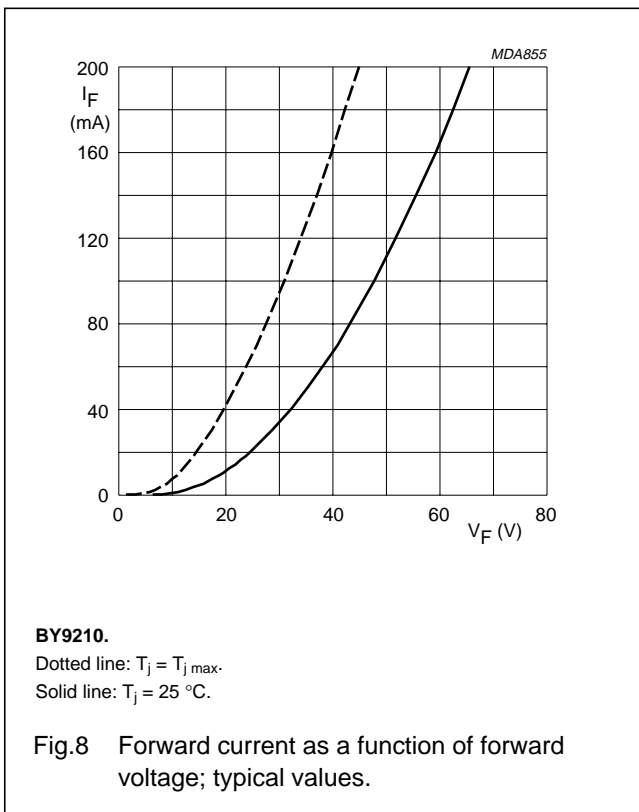
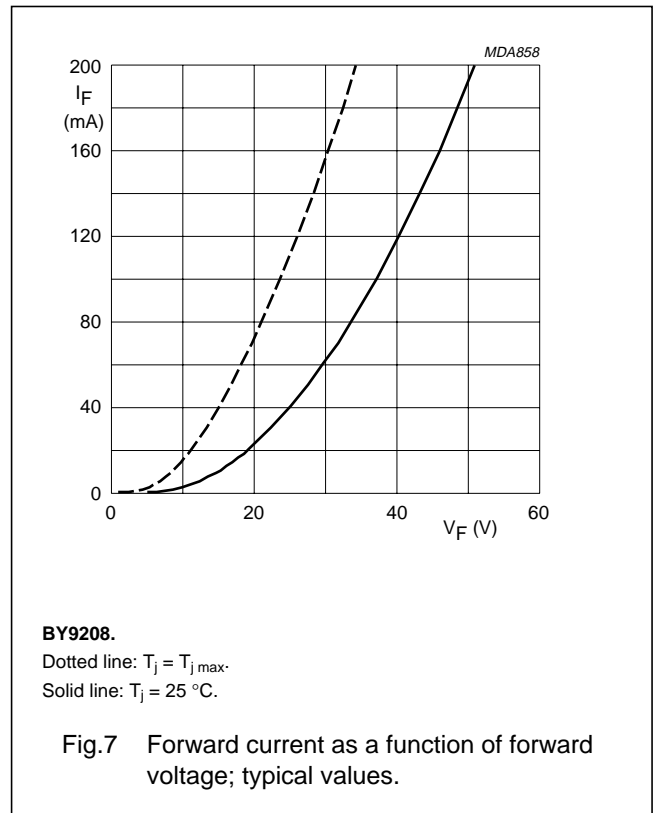
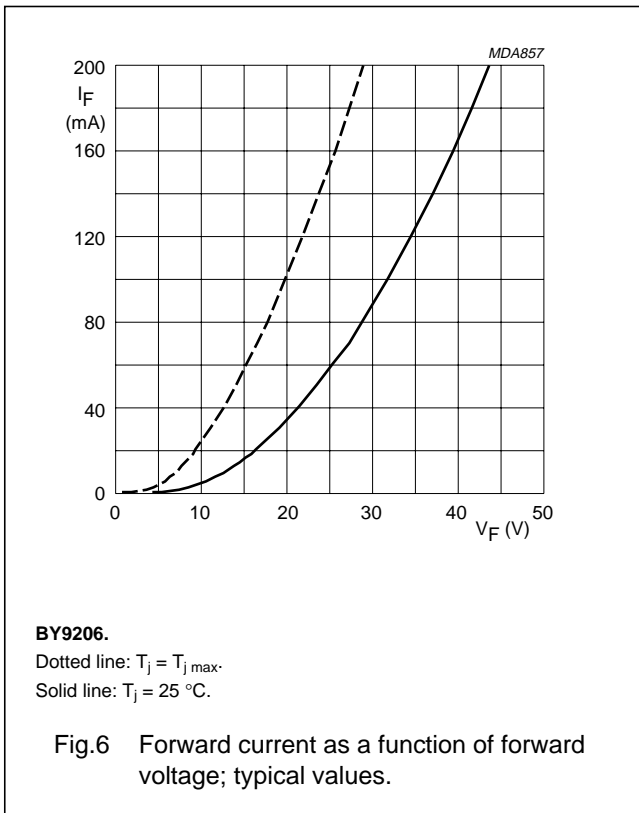
BY9200 series

GRAPHICAL DATA



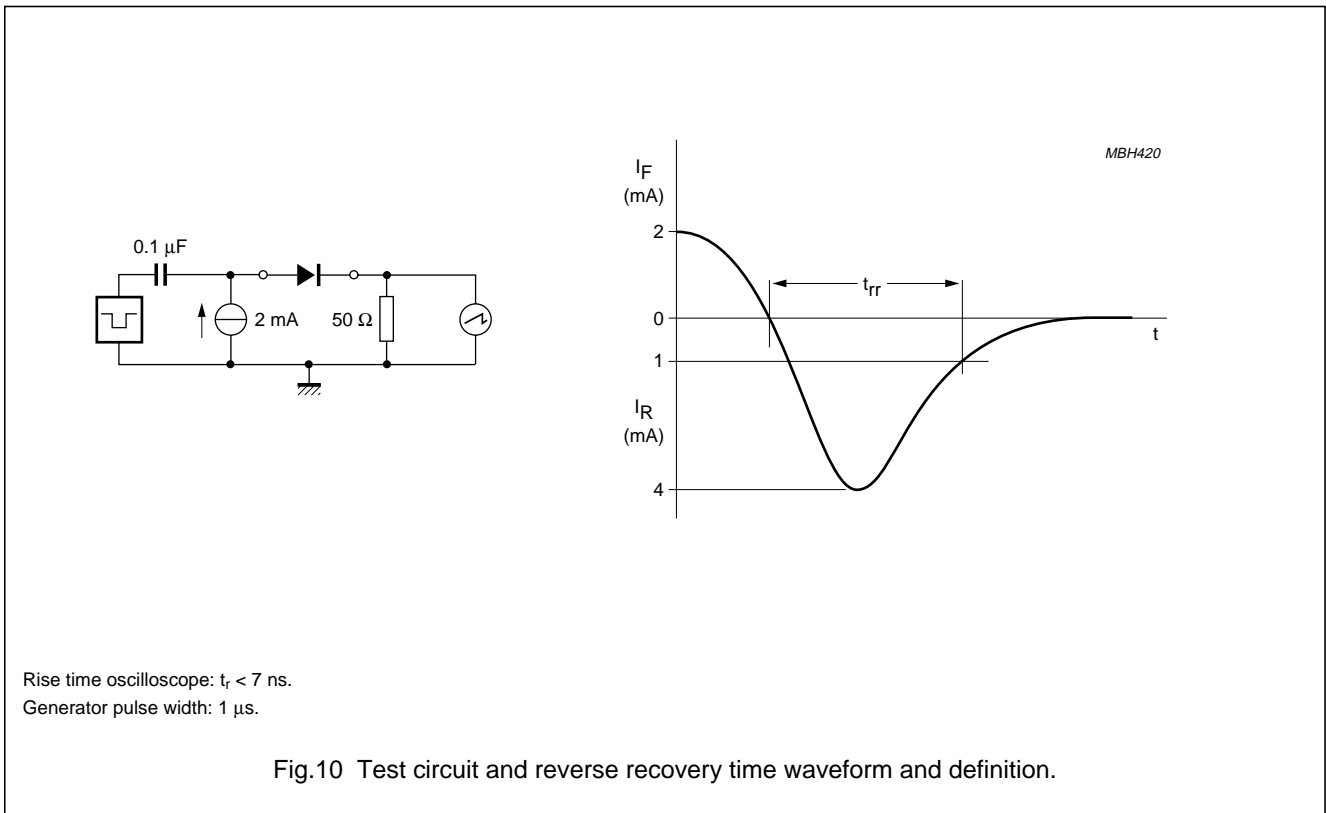
Ultra fast high-voltage soft-recovery controlled avalanche rectifier

BY9200 series

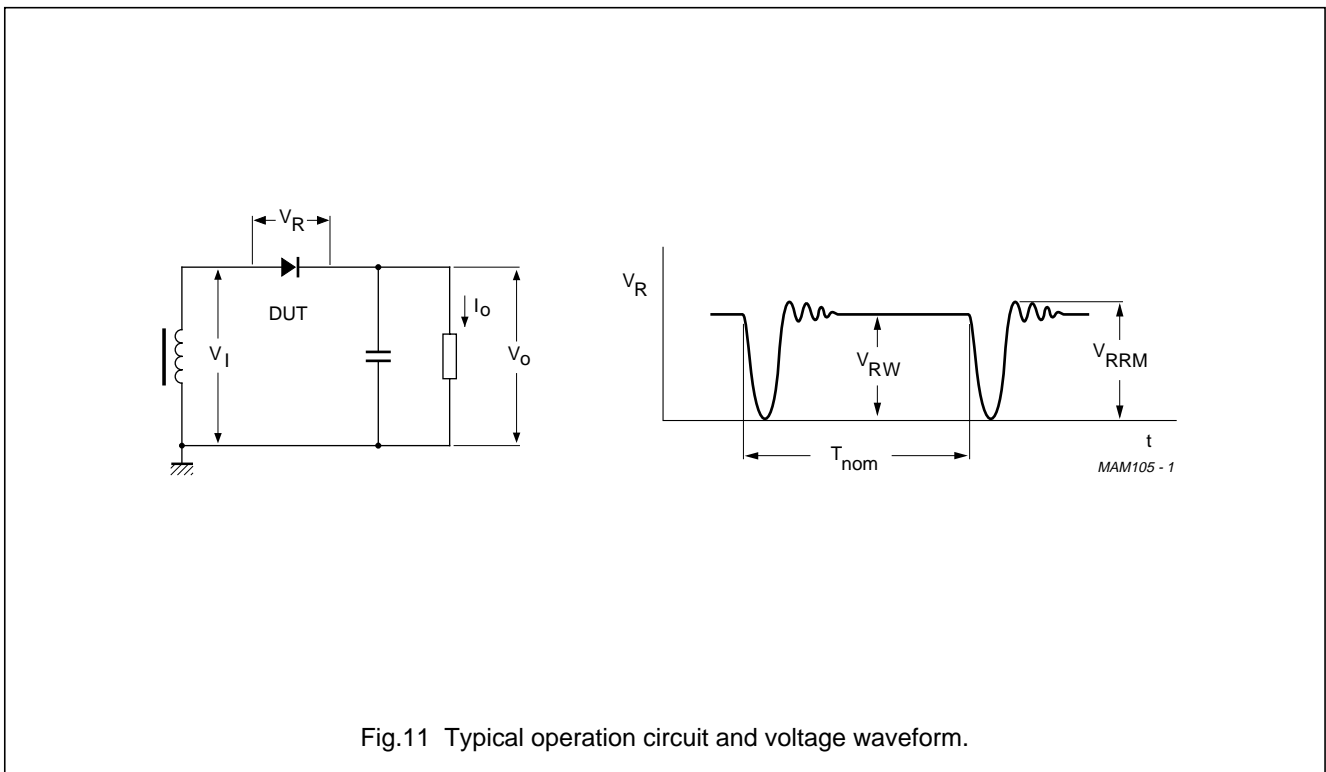


Ultra fast high-voltage soft-recovery controlled avalanche rectifier

BY9200 series



APPLICATION INFORMATION



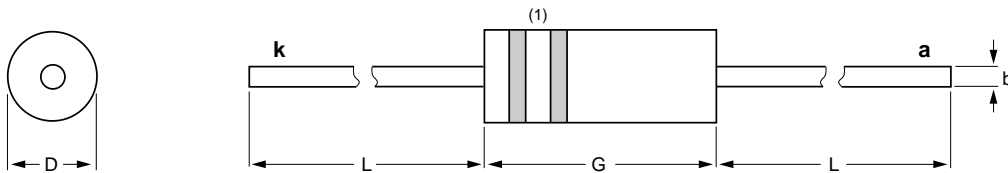
Ultra fast high-voltage soft-recovery  
controlled avalanche rectifier

BY9200 series

PACKAGE OUTLINES

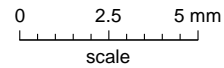
Hermetically sealed plastic package; axial leaded; 2 leads

SOD118A



DIMENSIONS (mm are the original dimensions)

UNIT	b	D	G	L min.
mm	0.5	2.6 2.4	6.7 6.3	31



Note

1. The marking bands indicate the cathode.

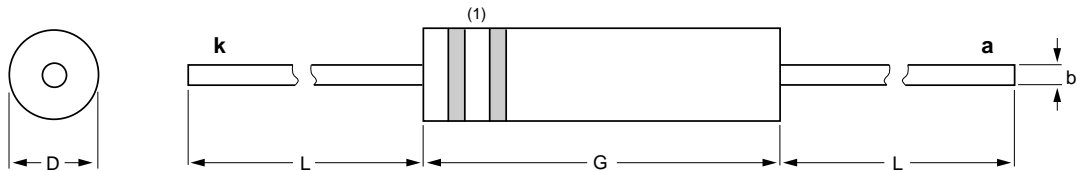
OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD118A						98-05-28

Ultra fast high-voltage soft-recovery  
controlled avalanche rectifier

BY9200 series

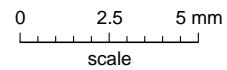
Hermetically sealed plastic package; axial leaded; 2 leads

SOD118B



DIMENSIONS (mm are the original dimensions)

UNIT	b	D	G	L min.
mm	0.5	2.6 2.4	10.5 9.5	29



Note

1. The marking bands indicate the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD118B						98-05-28



# Ultra fast high-voltage soft-recovery controlled avalanche rectifier

## BY9200 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.

Ultra fast high-voltage soft-recovery  
controlled avalanche rectifier

BY9200 series

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**NOTES**

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Ultra fast high-voltage soft-recovery  
controlled avalanche rectifier

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BY9200 series

**NOTES**

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