

# Silicon Diode

## **BY9210**

10kV/5mA

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

## 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.

### APPLICATIONS

- Colour television and monitors up to 130 kHz (indication)
- High-voltage applications for:
  - multipliers
  - diode-split-transformers (FBT's)

### 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.

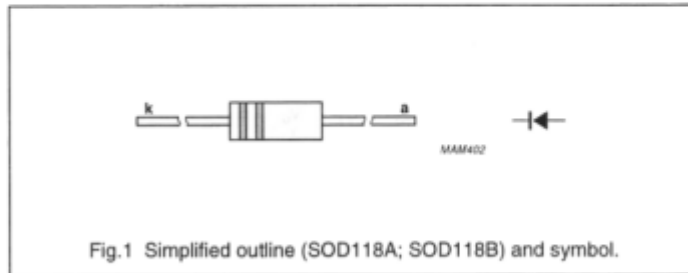


Fig.1 Simplified outline (SOD118A; SOD118B) and symbol.

### 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		–	6	kV
	BY9206		–	8	kV
	BY9210		–	10	kV
	BY9212		–	12	kV
V <sub>RRM2</sub>	repetitive peak reverse voltage	max. 5 sec.	–	8.4	kV
	BY9206		–	11.2	kV
	BY9210		–	14.0	kV
	BY9212		–	16.8	kV

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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							
	BY9206					-65	+160	°C
	BY9208					-65	+155	°C
	BY9210					-65	+150	°C
	BY9212	-65	+145	°C				

**Note**

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

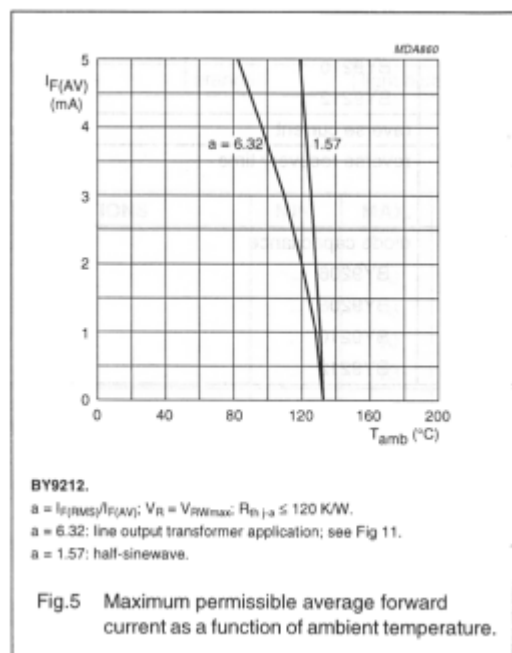
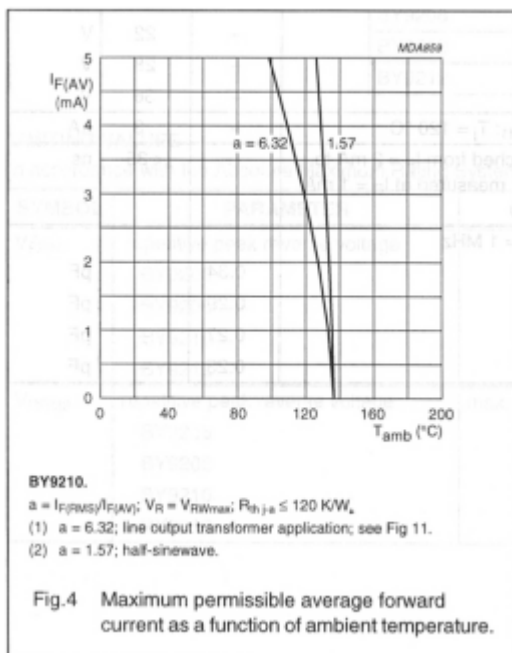
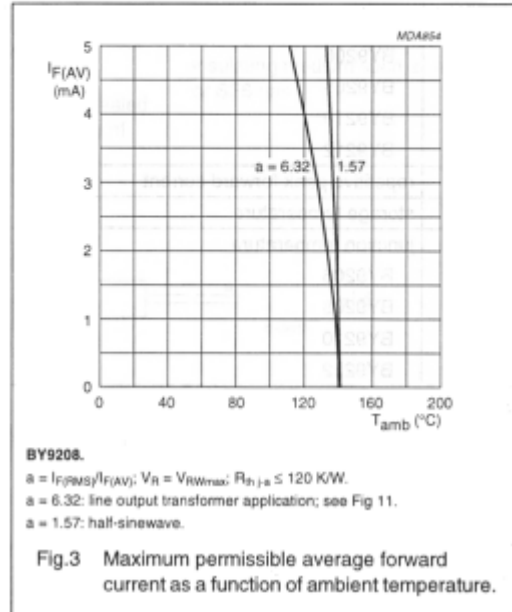
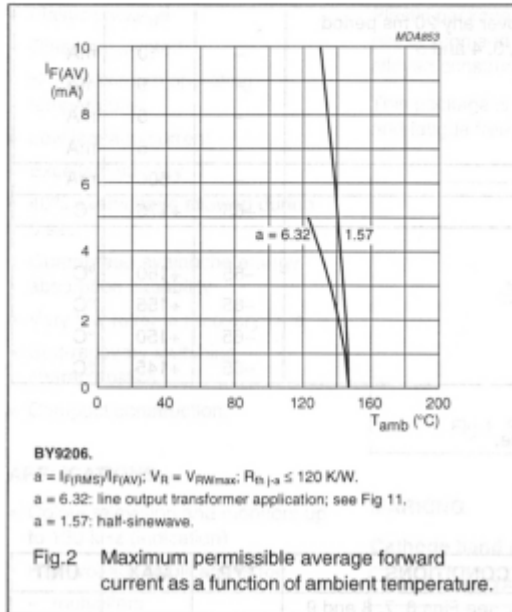
**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise specified.

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					22	V	
	BY9210					28	V	
	BY9212	36	V					
$I_R$	reverse current	$V_R = V_{RRM1}$ ; $T_j = 120\text{ °C}$	-	3	$\mu\text{A}$			
$t_{rr}$	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	$V_R = 0$ ; $f = 1\text{ MHz}$						
	BY9206					0.34	-	pF
	BY9208					0.29	-	pF
	BY9210					0.27	-	pF
	BY9212	0.23	-	pF				

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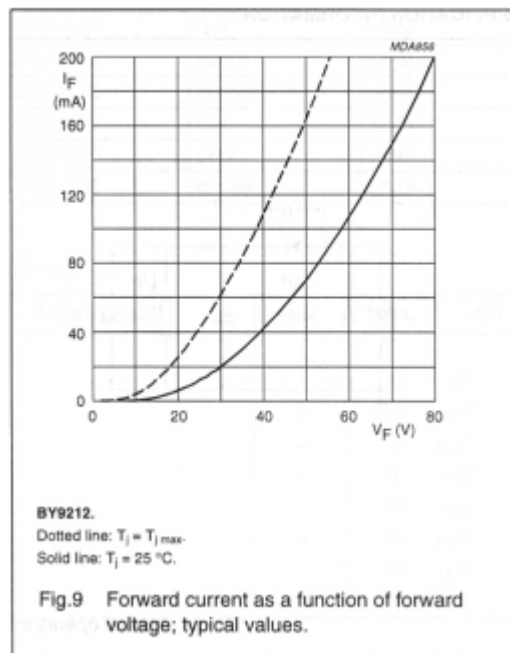
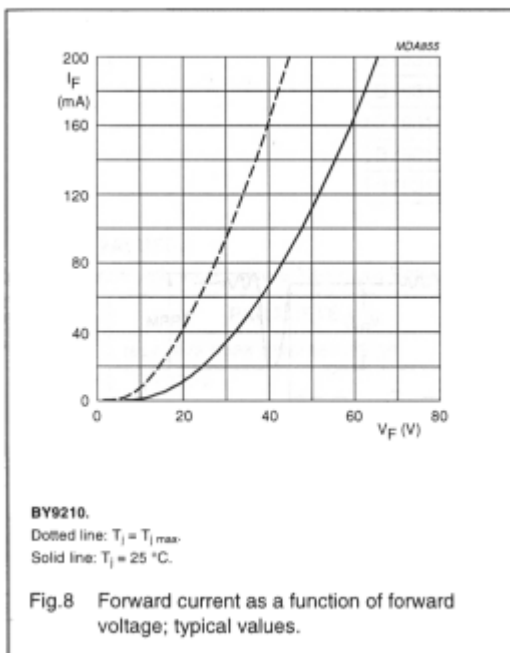
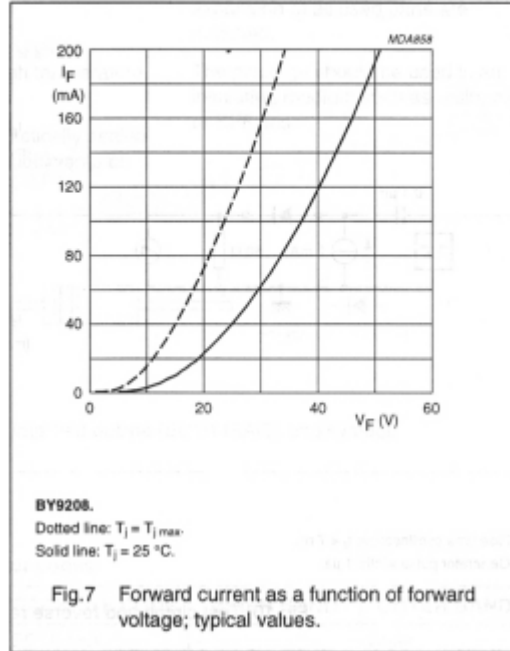
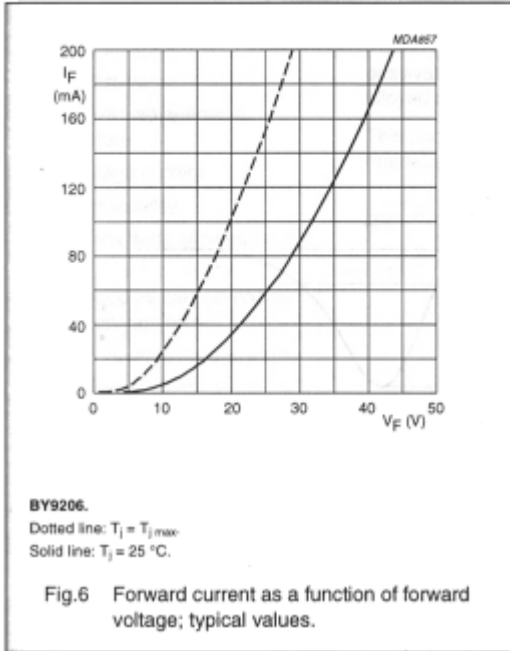
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GRAPHICAL DATA



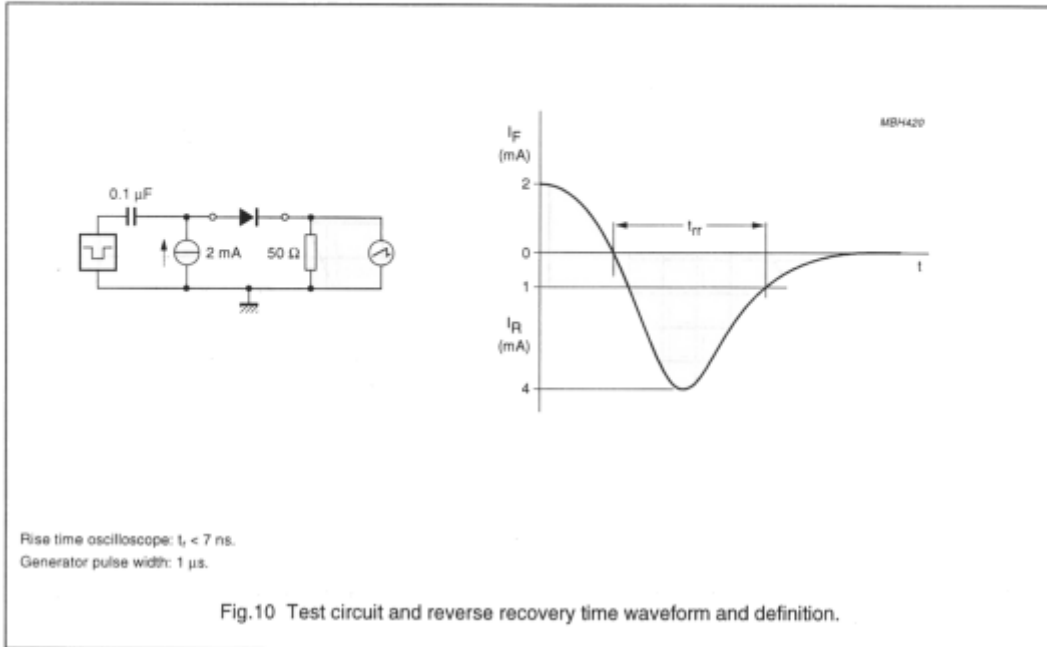
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APPLICATION INFORMATION

