

Silicon Diode

BY8210

10kV/5mA

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Ultra fast high-voltage soft-recovery controlled avalanche rectifiers

BY8200 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

- For colour television and monitors up to 90 kHz (indication)
- High-voltage applications for:
 - multipliers
 - diode-split-transformers (FBT's).

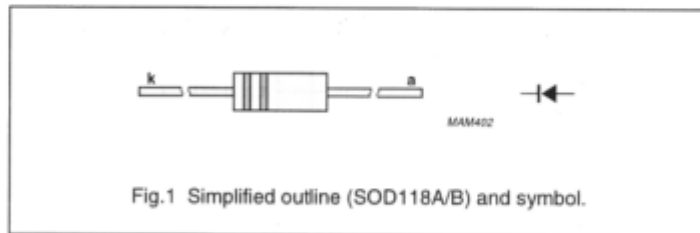
DESCRIPTION

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.



MARKING

Cathode band colour codes

TYPE NUMBER	PACKAGE CODE	INNER BAND	OUTER BAND
BY8206	SOD118A	green	green
BY8208	SOD118A	red	green
BY8210	SOD118B	violet	green
BY8212	SOD118B	orange	green

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{RRM1}	repetitive peak reverse voltage				
	BY8206		–	6	kV
	BY8208		–	8	kV
	BY8210		–	10	kV
V _{RRM2}	repetitive peak reverse voltage	max. 5 seconds			
	BY8206		–	8.4	kV
	BY8208		–	11.2	kV
	BY8210		–	14.0	kV
	BY8212		–	16.8	kV

Ultra fast high-voltage soft-recovery
controlled avalanche rectifiers

BY8200 series

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; see Figs 2 to 5	-	10	mA
	BY8206				
	BY8208				
	BY8210 BY8212				
I_{FRM}	repetitive peak forward current	note 1	-	500	mA
T_{stg}	storage temperature		-65	+175	°C
T_j	junction temperature		-	+160	°C
	BY8206				
	BY8208				
	BY8210 BY8212				

Note

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

ELECTRICAL CHARACTERISTICS

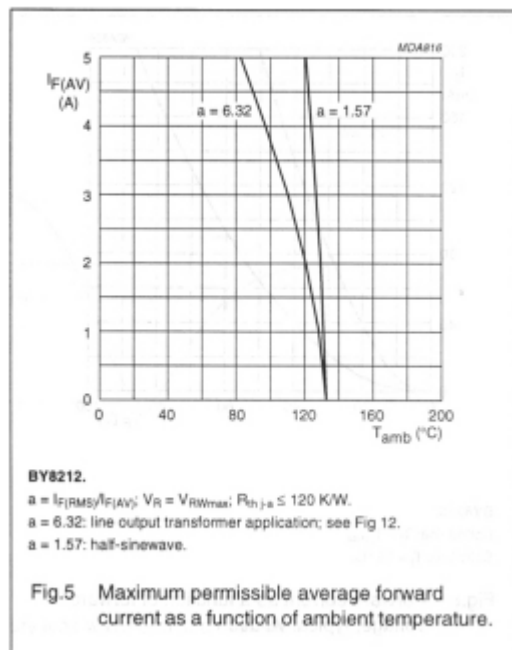
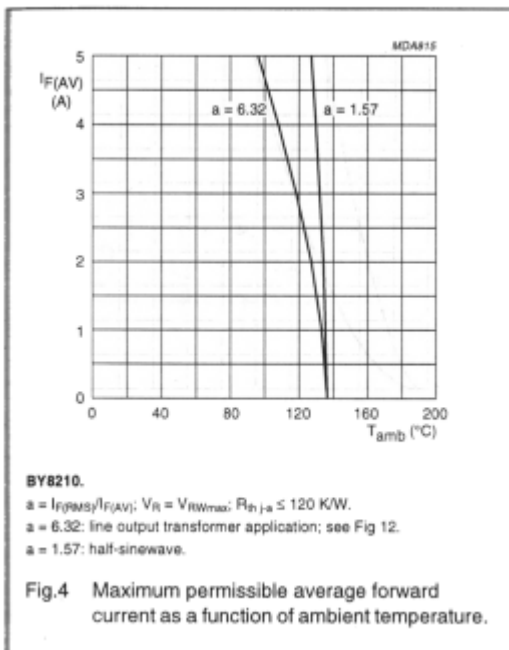
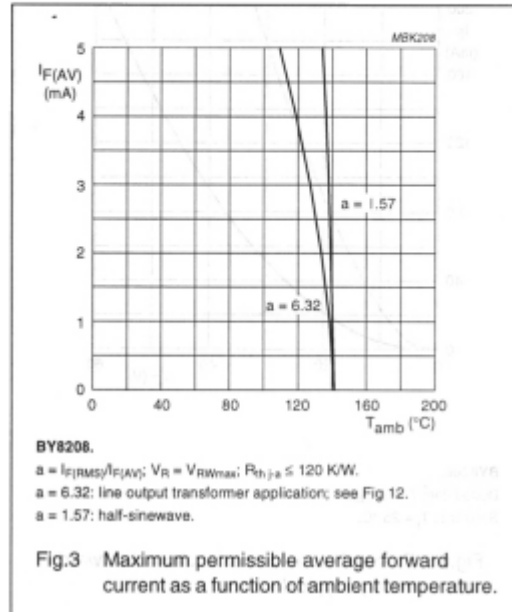
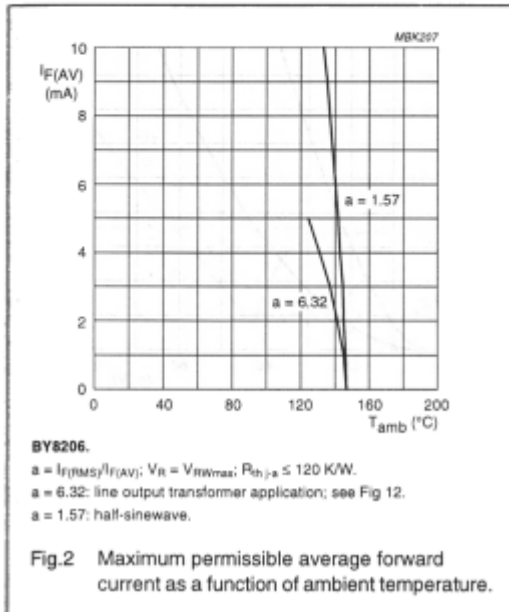
$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 10\text{ mA}$; see Figs 6 to 9	-	-	19	V
	BY8206					
	BY8208					
	BY8210 BY8212					
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 $dI_F/dt = -200\text{ mA}/\mu\text{s}$; see Fig 10	-	0.2	-	nC
t_{rr}	reverse recovery time	when switched from $I_F = 2\text{ mA}$ to $I_R = 4\text{ mA}$; measured at $I_R = 1\text{ mA}$; see Fig 11	-	-	< 45	ns
C_d	diode capacitance	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$	-	0.50	-	pF
	BY8206					
	BY8208					
	BY8210 BY8212					

Ultra fast high-voltage soft-recovery
controlled avalanche rectifiers

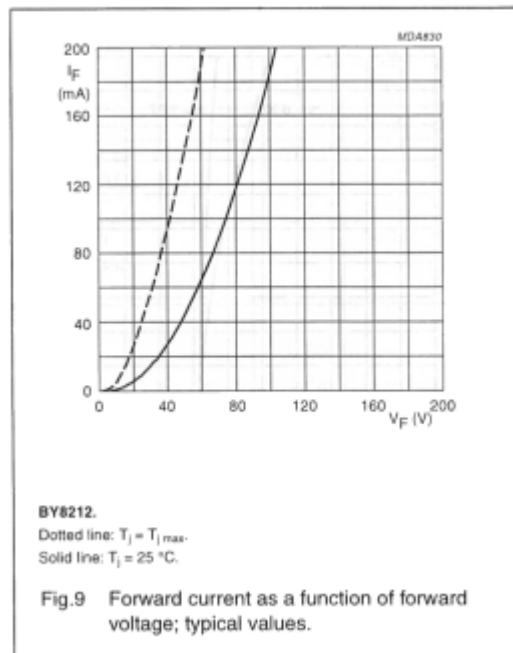
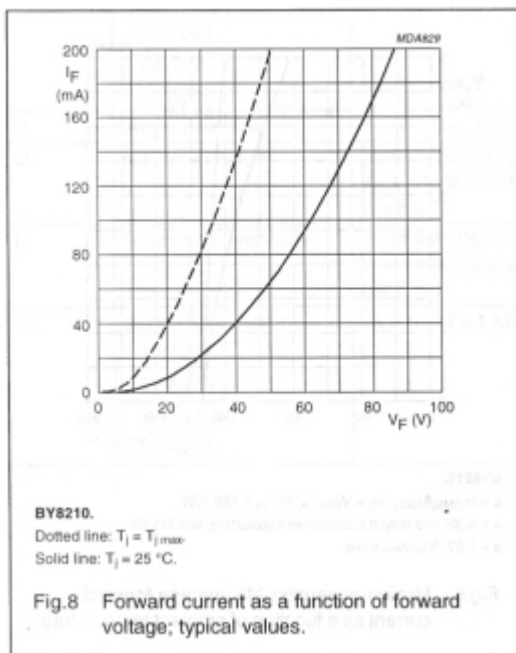
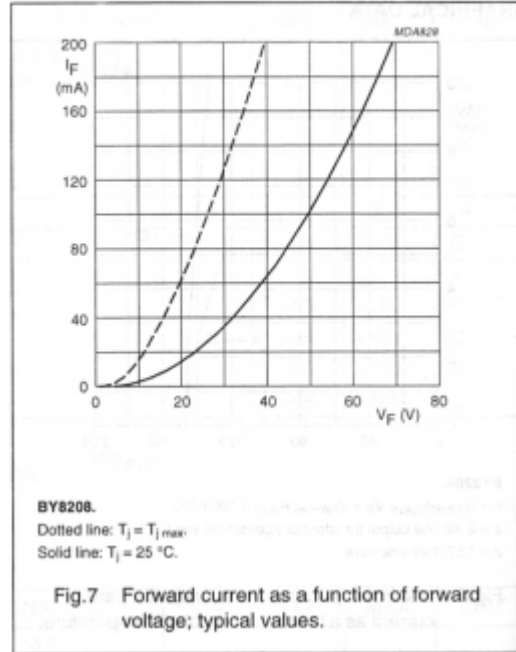
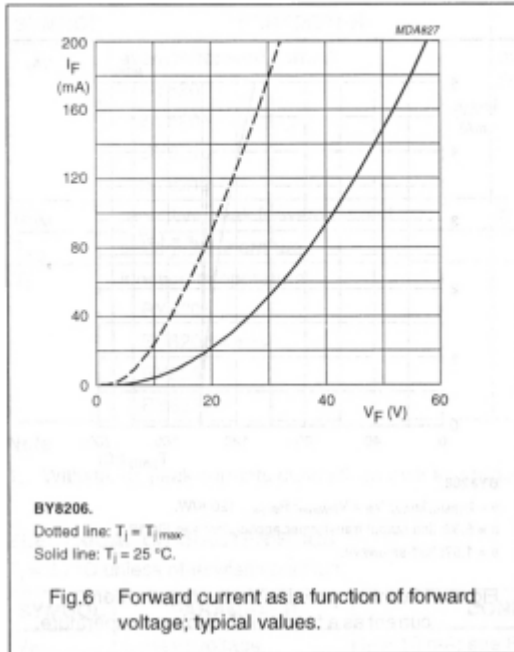
BY8200 series

GRAPHICAL DATA



Ultra fast high-voltage soft-recovery
controlled avalanche rectifiers

BY8200 series



Ultra fast high-voltage soft-recovery controlled avalanche rectifiers

BY8200 series

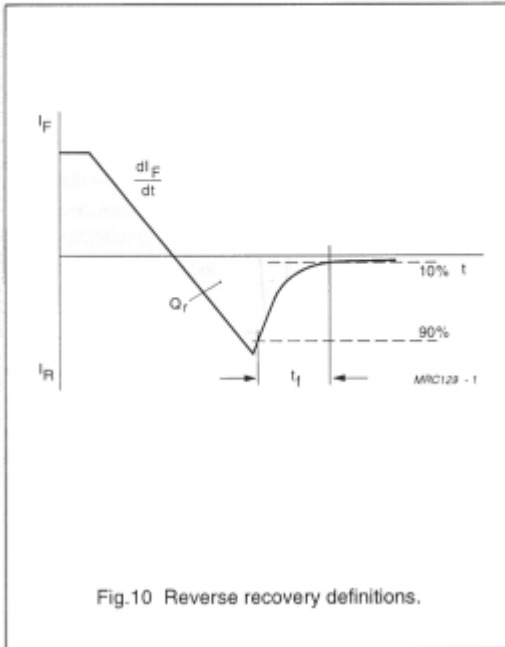


Fig.10 Reverse recovery definitions.

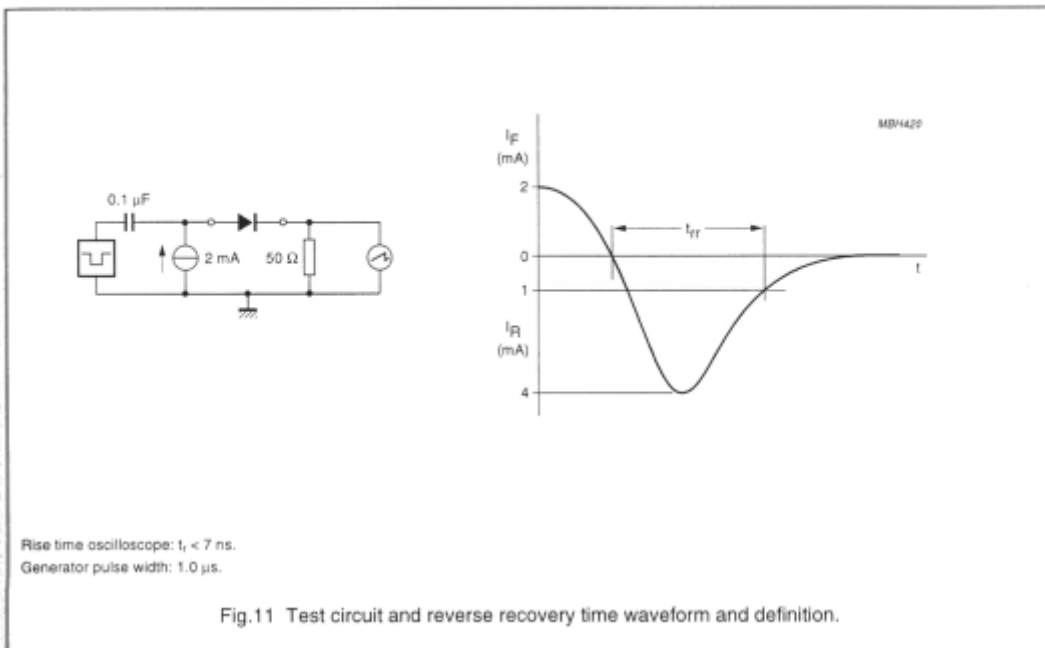


Fig.11 Test circuit and reverse recovery time waveform and definition.

**Ultra fast high-voltage soft-recovery
controlled avalanche rectifiers**

BY8200 series

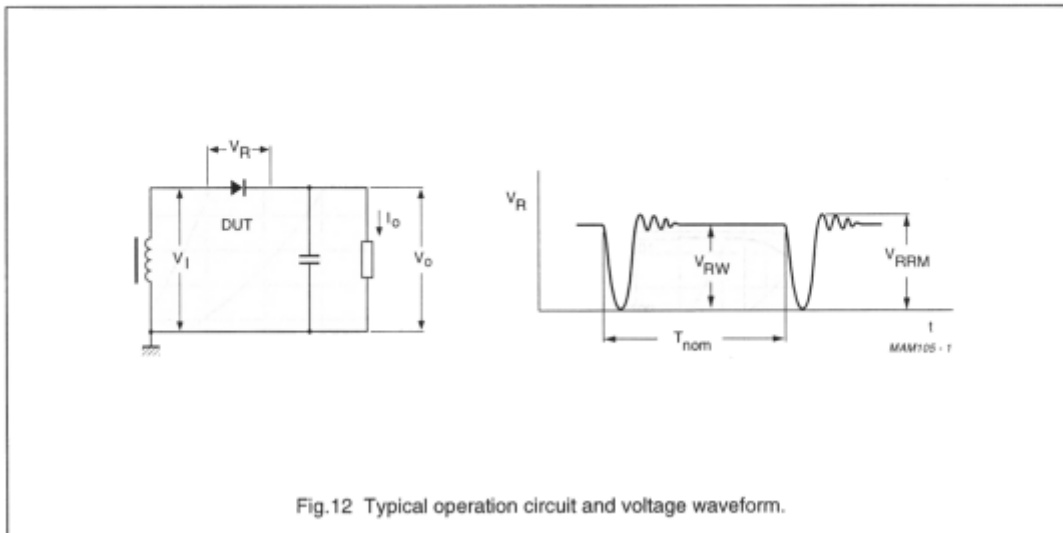
APPLICATION INFORMATION

Fig.12 Typical operation circuit and voltage waveform.