

Silicon Diode

BY329X-1000

1000V/8A

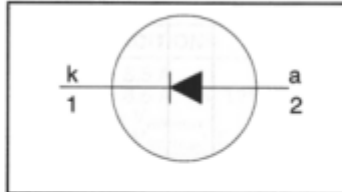
DATASHEET

OEM – Philips

Source: Philips Databook 1999

**Rectifier diodes
fast, soft-recovery**
BY329F, BY329X series
FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Isolated mounting tab

SYMBOL

QUICK REFERENCE DATA

$$V_R = 800 \text{ V} / 1000 \text{ V} / 1200 \text{ V}$$

$$I_{F(AV)} = 8 \text{ A}$$

$$I_{FSM} \leq 65 \text{ A}$$

$$t_{rr} \leq 145 \text{ ns}$$

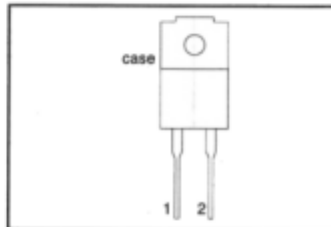
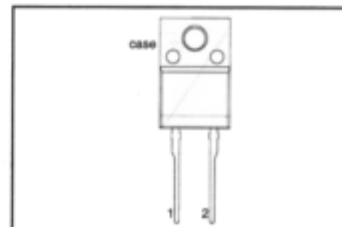
GENERAL DESCRIPTION

Glass-passivated double diffused rectifier diodes featuring low forward voltage drop, fast reverse recovery and soft recovery characteristic. The devices are intended for use in TV receivers, monitors and switched mode power supplies.

The BY329F series is supplied in the conventional leaded SOD100 package.
The BY329X series is supplied in the conventional leaded SOD113 package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	isolated

SOD100

SOD113

LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT	
				-800	-1000	-1200		
V_{RSM}	Peak non-repetitive reverse voltage	BY329F / BY329X	-	800	1000	1200	V	
V_{RRM}	Peak repetitive reverse voltage		-	800	1000	1200	V	
V_{RWM}	Crest working reverse voltage		-	600	800	1000	V	
$I_{F(AV)}$	Average forward current ¹		square wave; $\delta = 0.5$; $T_{ns} \leq 83 \text{ }^\circ\text{C}$	-	8			A
			sinusoidal; $a = 1.57$; $T_{ns} \leq 90 \text{ }^\circ\text{C}$	-	7			A
$I_{F(RMS)}$	RMS forward current			-	11			A
I_{FRM}	Peak repetitive forward current		$t = 25 \text{ } \mu\text{s}$; $\delta = 0.5$; $T_{ns} \leq 83 \text{ }^\circ\text{C}$	-	16			A
I_{FSM}	Peak non-repetitive forward current.		$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$	-	65			A
			sinusoidal; $T_j = 150 \text{ }^\circ\text{C}$ prior to surge; with reapplied	-	71			A
			$V_{RWM(max)}$	-	28			A^2s
I^2t	I^2t for fusing	$t = 10 \text{ ms}$	-	150			$^\circ\text{C}$	
T_{MG}	Storage temperature		-40	150			$^\circ\text{C}$	
T_j	Operating junction temperature		-	150			$^\circ\text{C}$	

1. Neglecting switching and reverse current losses.

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ISOLATION LIMITING VALUE & CHARACTERISTIC

$T_{ns} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	Peak isolation voltage from both terminals to external heatsink	SOD100 package; R.H. \leq 65%; clean and dustfree	-	-	1500	V
V_{isol}	R.M.S. isolation voltage from both terminals to external heatsink	SOD113 package; $f = 50\text{-}60\text{ Hz}$; sinusoidal waveform; R.H. \leq 65%; clean and dustfree	-	-	2500	V
C_{isol}	Capacitance from pin 1 to external heatsink	$f = 1\text{ MHz}$	-	10	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th(j-h)}$	Thermal resistance junction to heatsink	with heatsink compound	-	-	4.8	K/W
$R_{th(j-a)}$	Thermal resistance junction to ambient	without heatsink compound in free air.	-	55	5.9	K/W

STATIC CHARACTERISTICS

$T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 20\text{ A}$	-	1.5	1.85	V
I_R	Reverse current	$V_R = V_{RWM}$; $T_j = 125\text{ }^{\circ}\text{C}$	-	0.1	1.0	mA

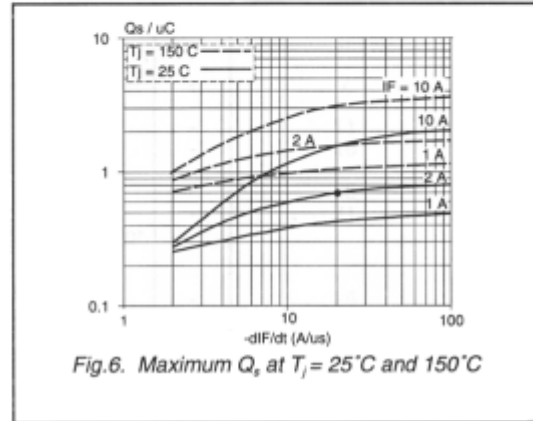
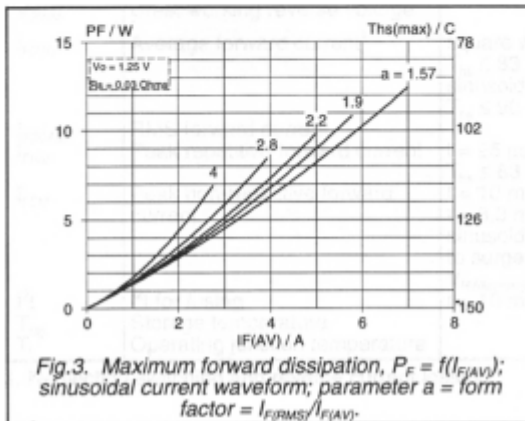
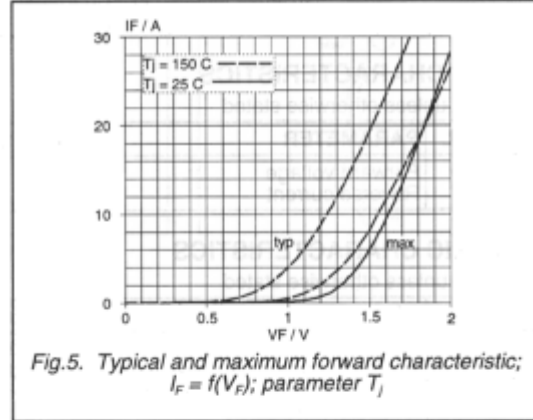
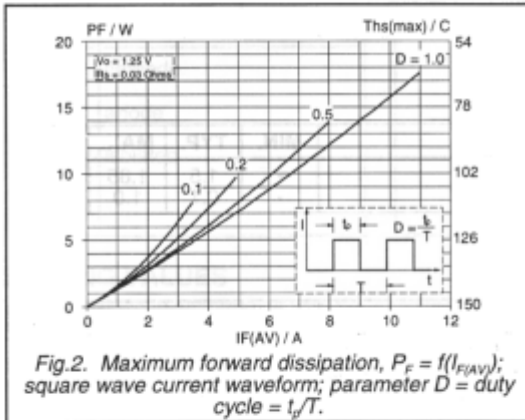
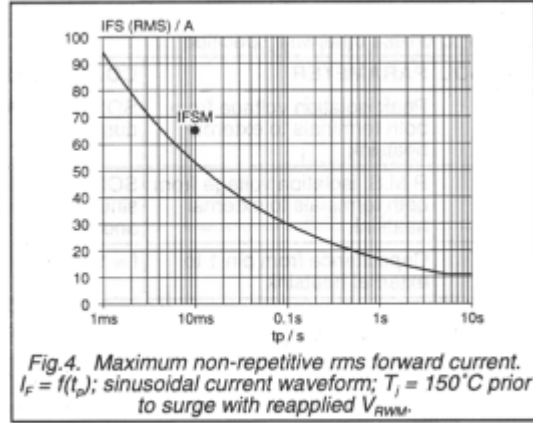
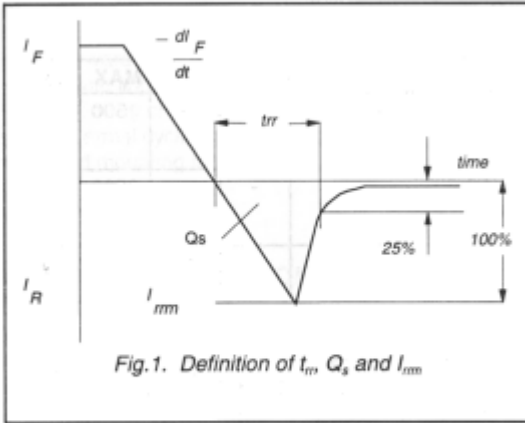
DYNAMIC CHARACTERISTICS

$T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t_r	Reverse recovery time	$I_F = 1\text{ A}$; $V_R \geq 30\text{ V}$; $-di_F/dt = 50\text{ A}/\mu\text{s}$	-	125	145	ns
Q_s	Reverse recovery charge	$I_F = 2\text{ A}$; $V_R \geq 30\text{ V}$; $-di_F/dt = 20\text{ A}/\mu\text{s}$	-	0.5	0.7	μC
di_F/dt	Maximum slope of the reverse recovery current	$I_F = 2\text{ A}$; $-di_F/dt = 20\text{ A}/\mu\text{s}$	-	50	60	$\text{A}/\mu\text{s}$

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