

Silicon Diode

BY329-800

800V/8A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

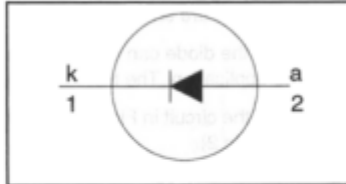
Rectifier diodes fast, soft-recovery

BY329 series

FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Low thermal resistance

SYMBOL



QUICK REFERENCE DATA

 $V_R = 800 \text{ V} / 1000 \text{ V} / 1200 \text{ V}$
 $I_{F(AV)} = 8 \text{ A}$
 $I_{FSM} \leq 75 \text{ A}$
 $t_r \leq 135 \text{ ns}$

GENERAL DESCRIPTION

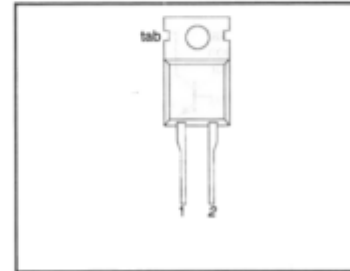
Glass-passivated double diffused rectifier diodes featuring low forward voltage drop, fast reverse recovery and soft recovery characteristic. The devices are intended for use in TV receivers, monitors and switched mode power supplies.

The BY329 series is supplied in the conventional leaded SOD59 (TO220AC) package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	cathode

SOD59 (TO220AC)



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	BY329	-	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; $\delta = 0.5$; $T_{mb} \leq 122 \text{ }^\circ\text{C}$ sinusoidal; $a = 1.57$; $T_{mb} \leq 125 \text{ }^\circ\text{C}$	-	8			A
$I_{F(RMS)}$	RMS forward current		-	11			A
I_{FRM}	Repetitive peak forward current	$t = 25 \text{ } \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 122 \text{ }^\circ\text{C}$	-	16			A
I_{FSM}	Non-repetitive peak forward current.	$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; $T_j = 150 \text{ }^\circ\text{C}$ prior to surge; with reapplied	-	75			A
I^2t	I^2t for fusing	$V_{RWM(max)}$ $t = 10 \text{ ms}$	-	28			A ² s
T_{stg}	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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THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th(j-mb)}$	Thermal resistance junction to mounting base	in free air.	-	-	2.0	K/W
$R_{th(j-a)}$	Thermal resistance junction to ambient		-	60	-	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

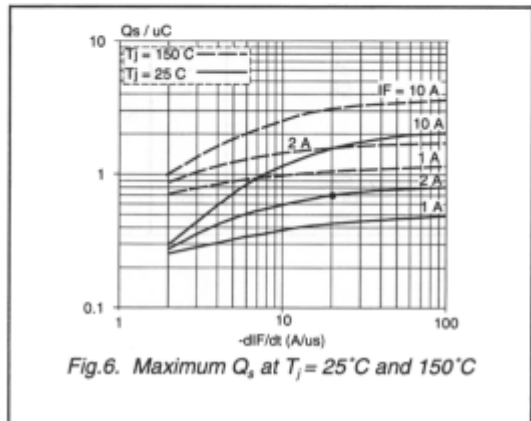
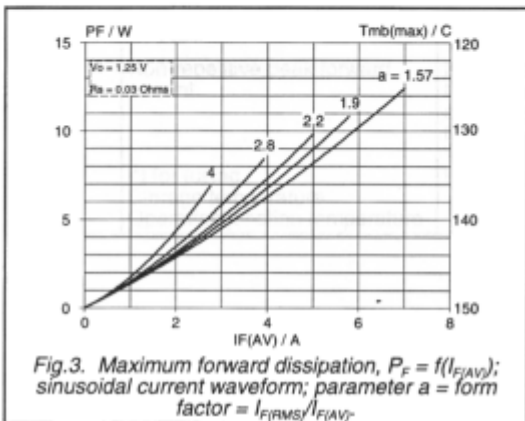
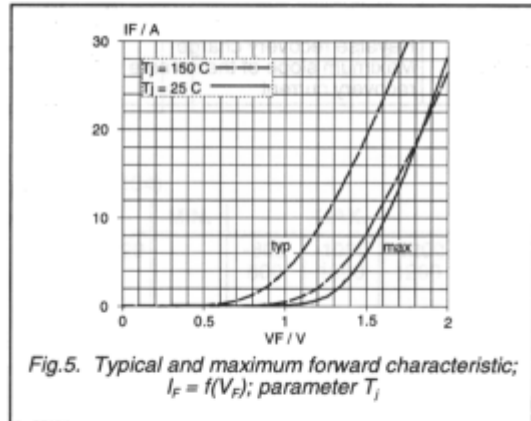
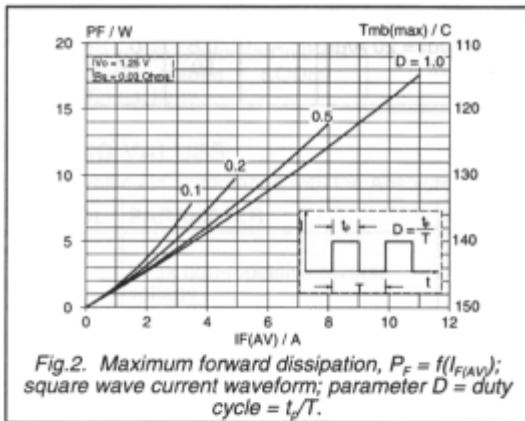
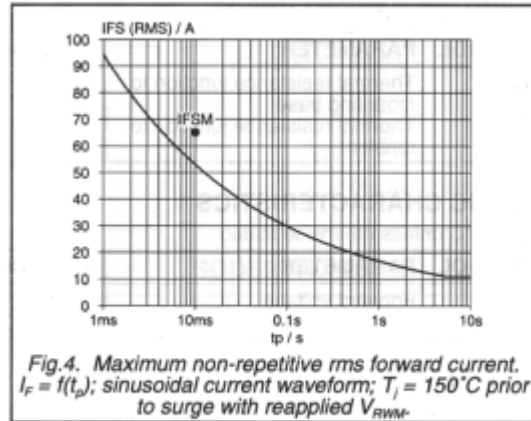
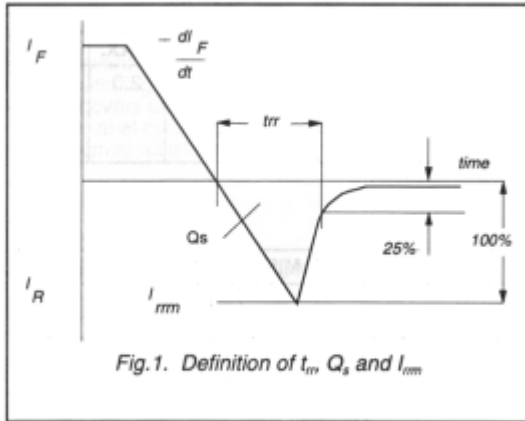
DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t_r	Reverse recovery time	$I_F = 1\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 50\text{ A}/\mu\text{s}$	-	100	135	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_R/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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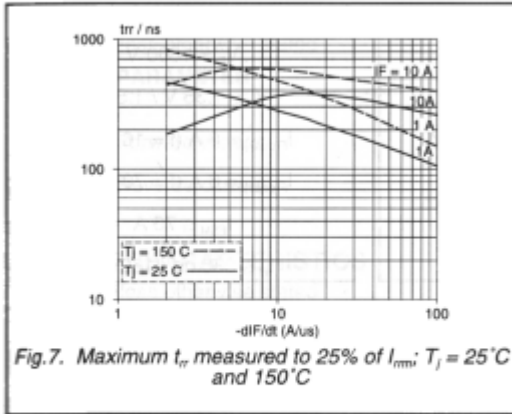


Fig.7. Maximum t_{rr} measured to 25% of I_{rm} ; $T_J = 25^\circ\text{C}$ and 150°C

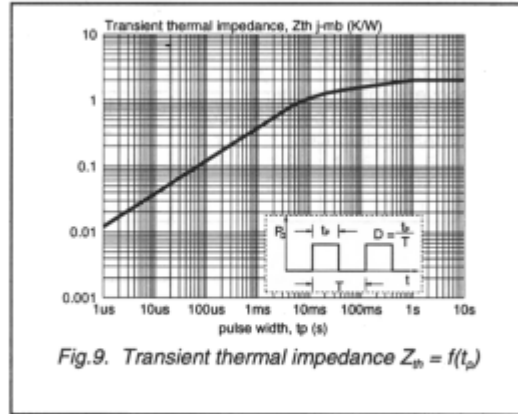


Fig.9. Transient thermal impedance $Z_{th} = f(t_p)$

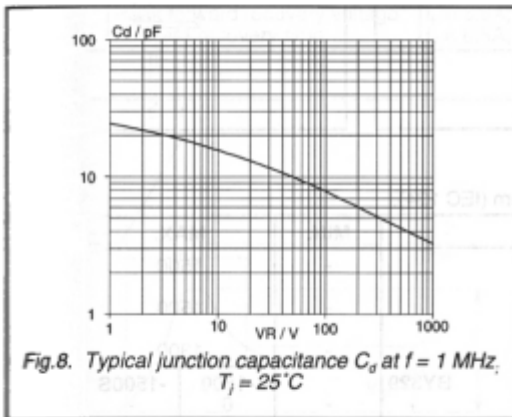


Fig.8. Typical junction capacitance C_d at $f = 1\text{ MHz}$, $T_J = 25^\circ\text{C}$