

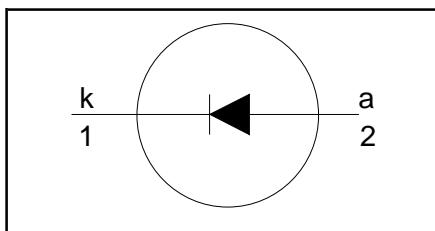
Rectifier diodes fast, soft-recovery

BY329 series

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

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

GENERAL DESCRIPTION

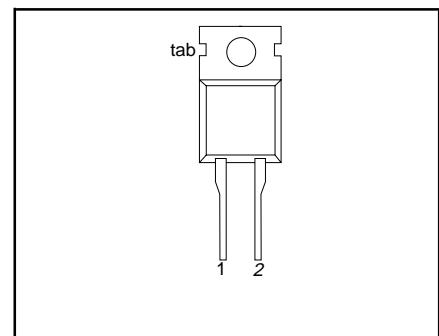
Glass-passivated double diffused rectifier diodes featuring low forward voltage drop, fast reverse recovery and soft recovery characteristic. The devices are intended for use in TV receivers, monitors and switched mode power supplies.

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
V_{RSM}	Peak non-repetitive reverse voltage	BY329	-	-800 800	-1000 1000	-1200 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; $\delta = 0.5$; $T_{mb} \leq 122^\circ\text{C}$ sinusoidal; $a = 1.57$; $T_{mb} \leq 125^\circ\text{C}$	-	8			A
$I_{F(RMS)}$	RMS forward current		-	7			A
I_{FRM}	Repetitive peak forward current		-	11	16		A
I_{FSM}	Non-repetitive peak forward current.	$t = 25 \mu\text{s}; \delta = 0.5$; $T_{mb} \leq 122^\circ\text{C}$ $t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; $T_j = 150^\circ\text{C}$ prior to surge; with reapplied $V_{RWM(max)}$ $t = 10 \text{ ms}$	-	75	82		A
I^2t	I^2t for fusing		-	28			A^2s
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
$R_{th\ j\cdot mb}$	Thermal resistance junction to mounting base		-	-	2.0	K/W
$R_{th\ j\cdot a}$	Thermal resistance junction to ambient	in free air.	-	60	-	K/W

STATIC CHARACTERISTICS

$T_j = 25^\circ\text{C}$ 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	$V_R = V_{RWM}; T_j = 125^\circ\text{C}$	-	0.1	1.0	mA

DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t_{rr}	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
dl_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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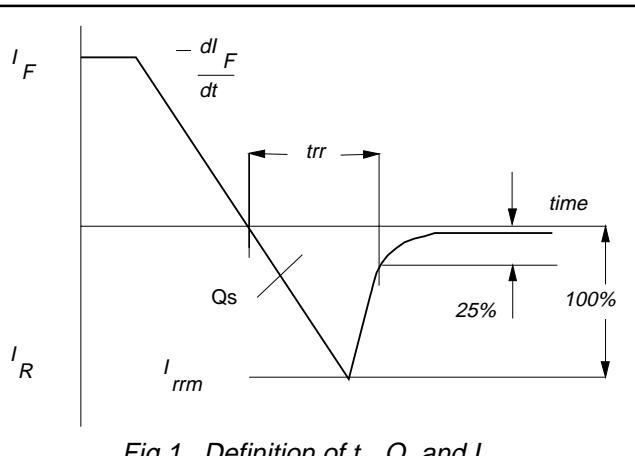


Fig.1. Definition of t_{rr} , Q_s and I_{rrm}

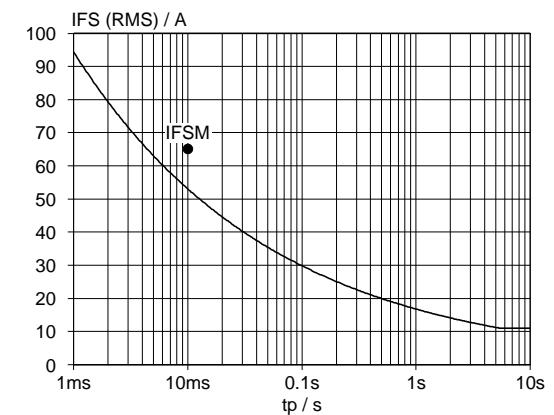


Fig.4. Maximum non-repetitive rms forward current.
 $I_F = f(t_p)$; sinusoidal current waveform; $T_j = 150^\circ\text{C}$ prior to surge with reapplied V_{RWM} .

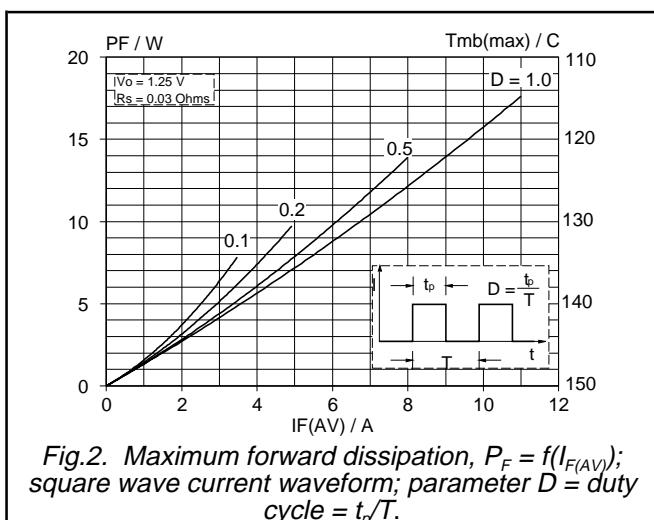


Fig.2. Maximum forward dissipation, $P_F = f(I_{F(AV)})$;
 square wave current waveform; parameter D = duty
 cycle = t_p/T .

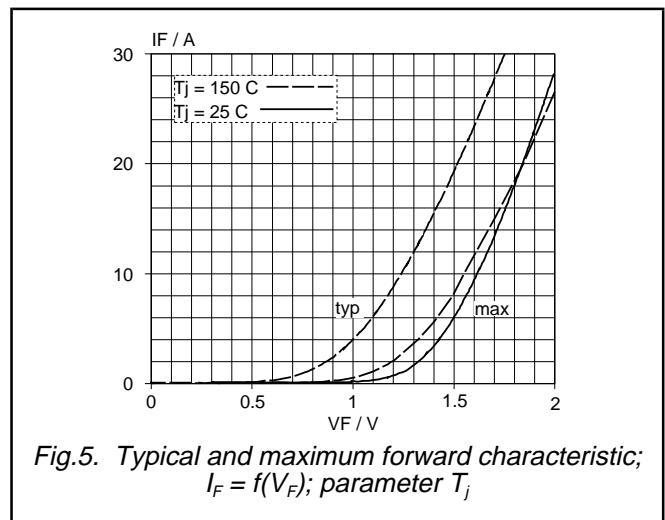


Fig.5. Typical and maximum forward characteristic;
 $I_F = f(V_F)$; parameter T_j

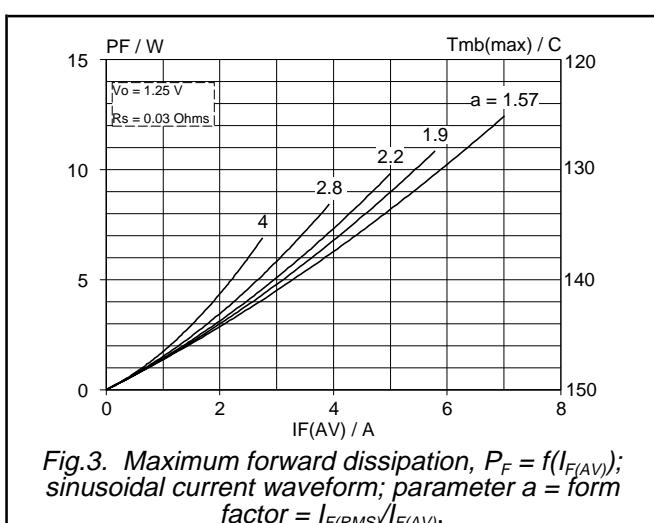


Fig.3. Maximum forward dissipation, $P_F = f(I_{F(AV)})$;
 sinusoidal current waveform; parameter a = form
 factor = $I_{F(RMS)}/I_{F(AV)}$.

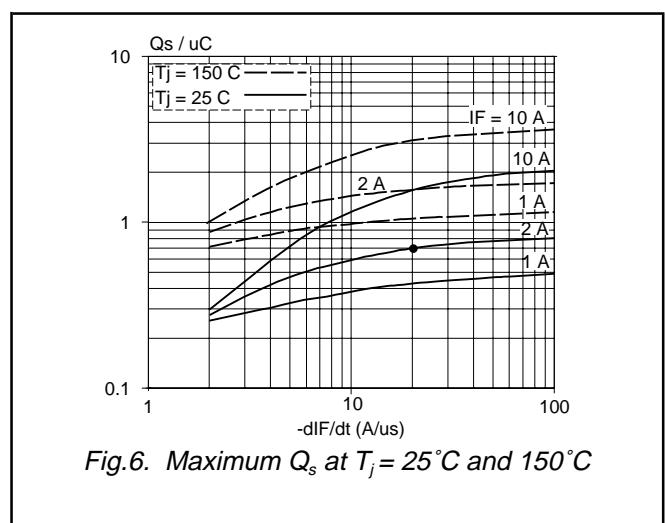


Fig.6. Maximum Q_s at $T_j = 25^\circ\text{C}$ and 150°C

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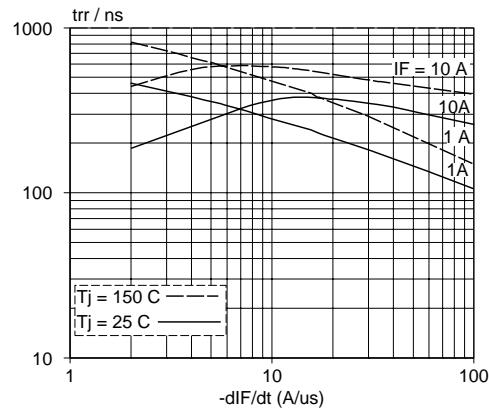


Fig.7. Maximum t_{rr} measured to 25% of I_{rrm} ; $T_j = 25^\circ\text{C}$ and 150°C

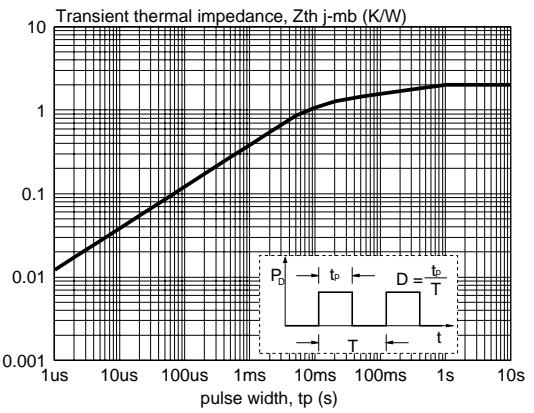


Fig.9. Transient thermal impedance $Z_{th} = f(t_p)$

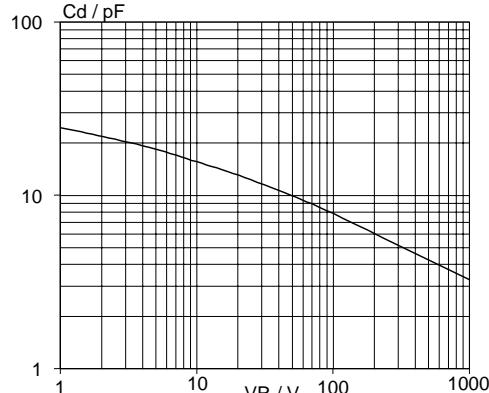


Fig.8. Typical junction capacitance C_d at $f = 1\text{ MHz}$; $T_j = 25^\circ\text{C}$

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MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

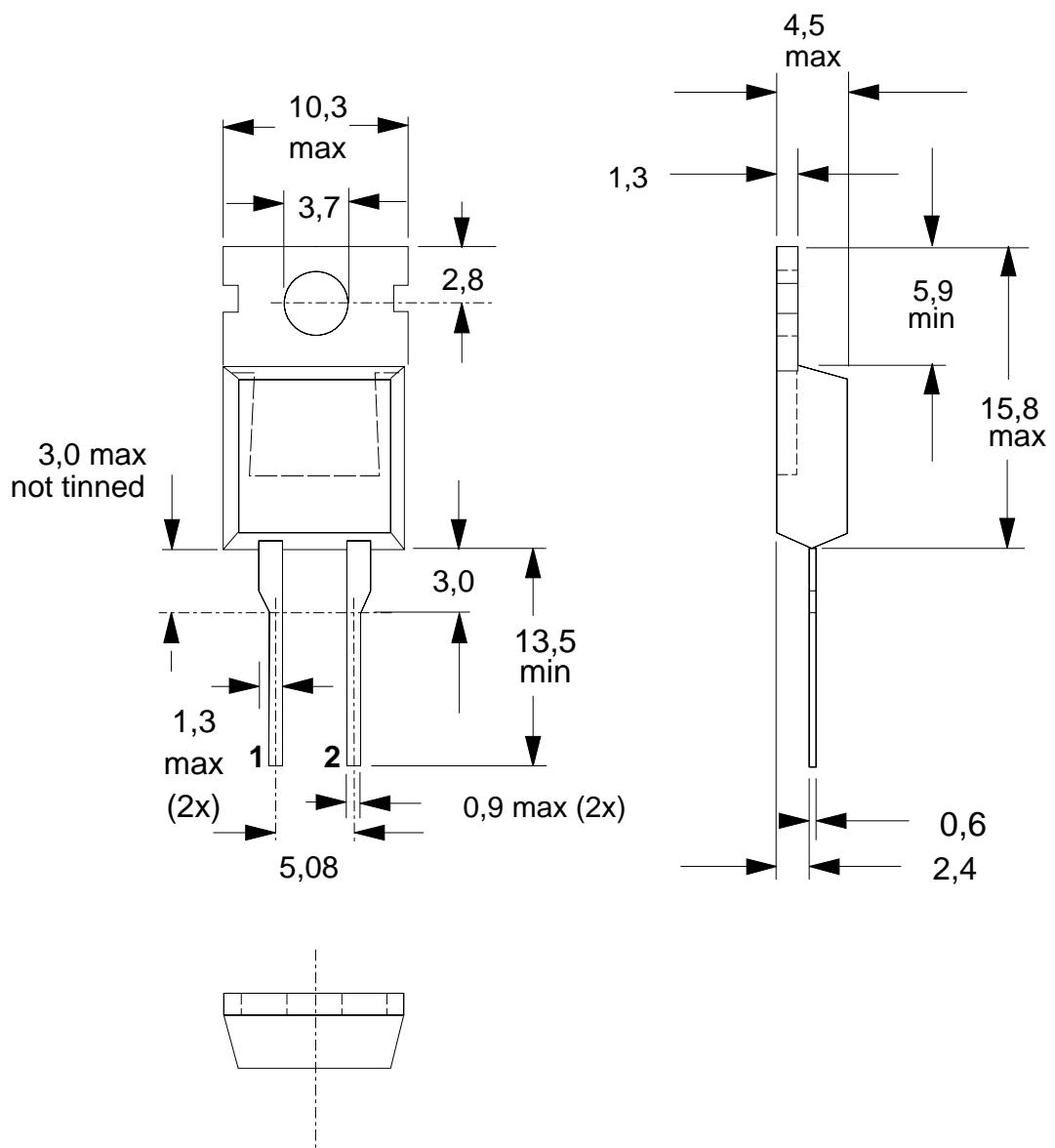


Fig.10. SOD59 (TO220AC). pin 1 connected to mounting base.

Notes

1. Refer to mounting instructions for TO220 envelopes.
2. Epoxy meets UL94 V0 at 1/8".

**Rectifier diodes
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Data sheet status	
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.
Limiting values	
Limiting values are given 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 this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	
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