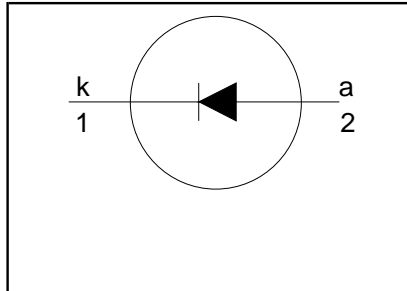## Damper diode
fast, high-voltage

BY329-1500, BY329-1500S

FEATURES

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

SYMBOL

k 1   a 2

QUICK REFERENCE DATA

$V_R = 1500$ V

$V_F \leq 1.35$ V / 1.5 V

$I_{F(peak)} = 6$ A (f = 16 kHz)

$I_{F(peak)} = 6$ A (f = 70 kHz)

$I_{FSM} \leq 75$ A

$t_{rr} \leq 230$ ns / 160 ns

GENERAL DESCRIPTION

Glass-passivated double diffused rectifier diode featuring low forward voltage drop, fast reverse recovery and soft recovery characteristic. The device is intended for use in TV receivers and PC monitors.

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

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	cathode

SOD59 (TO220AC)

tab

1 2
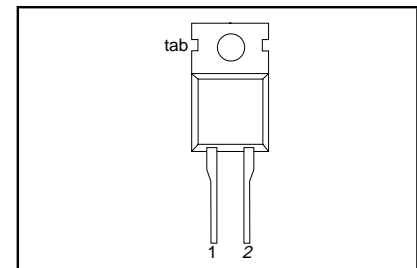
LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
V_{RSM}	Peak non-repetitive peak reverse voltage		-	1500		V
V_{RRM}	Peak repetitive reverse voltage		-	1500		V
V_{RWM}	Crest working reverse voltage		-	1300		V
		BY329		**-1500**	**-1500S**	
$I_{F(peak)}$	Peak working forward current	f = 16 kHz f = 70 kHz	- -	6 -	- 6	A A
I_{FRM}	Peak repetitive forward current	t = 25 μs; δ = 0.5; $T_{mb} \leq 123$ °C	-	14		A
$I_{F(RMS)}$	RMS forward current		-	11		A
I_{FSM}	Peak non-repetitive forward current	t = 10 ms sinusoidal; $T_j = 150$ °C prior to surge; with reapplied $V_{RWM(max)}$	-	75		A
T_{stg}	Storage temperature		-40	150		°C
T_j	Operating junction temperature		-	150		°C

THERMAL RESISTANCES

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

STATIC CHARACTERISTICS

T_j = 25 ˚C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP.		MAX.		UNIT
		BY329	1500	1500S	1500	1500S	
V_F	Forward voltage	I_F = 6.5 A	1.1	1.3	1.45	1.6	V
		I_F = 6.5 A; T_j = 125 ˚C	1.05	1.2	1.35	1.5	V
I_R	Reverse current	V_R = 1300 V	-	250	-	250	μA
		V_R = 1300 V; T_j = 125 ˚C	-	1	-	1	mA

DYNAMIC CHARACTERISTICS

T_j = 25 ˚C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP.		MAX.		UNIT
		BY329	1500	1500S	1500	1500S	
t_{rr}	Reverse recovery time	I_F = 1 A; $V_R \geq$ 30 V; dI_F/dt = 50A/μs	0.18	0.13	0.23	0.16	μs
Q_s	Reverse recovery charge	I_F = 2 A; -dI_F/dt = 20 A/μs	1.6	0.7	2.0	0.95	μC
V_{fr}	Peak forward recovery voltage	I_F = 6.5A; dI_F/dt = 50A/μs	17	23	30	40	V
t_{fr}	Forward recovery time	I_F = 6.5A; dI_F/dt = 50A/μs	210	220	300	320	ns
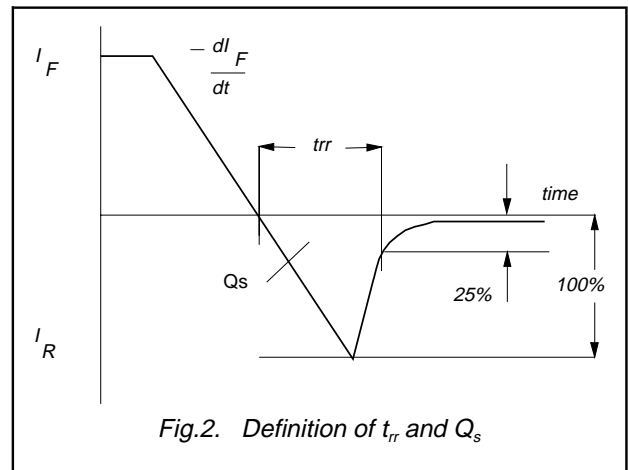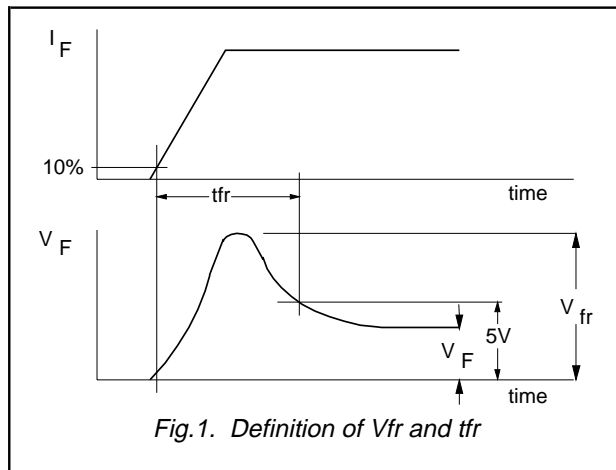
Fig.1. Definition of Vfr and tfr

Fig.2. Definition of t_{rr} and Q_s

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Fig.3. Basic horizontal deflection circuit.

Fig.6. BY329-1500S Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

Fig.4. Maximum allowable pulse width t_p versus line frequency; Basic horizontal deflection circuit.

Fig.7. Transient thermal impedance $Z_{th} = f(t_p)$

Fig.5. BY329-1500 Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j
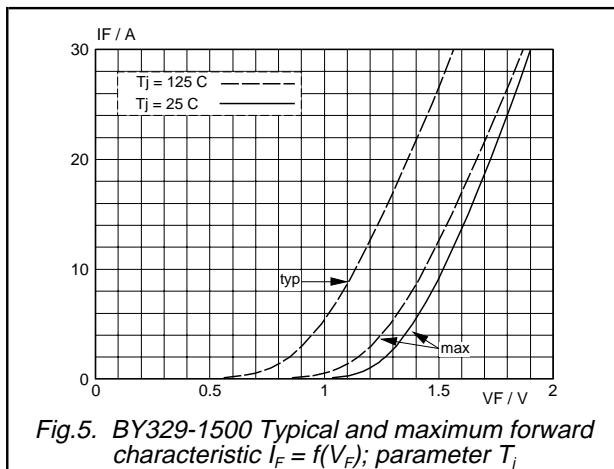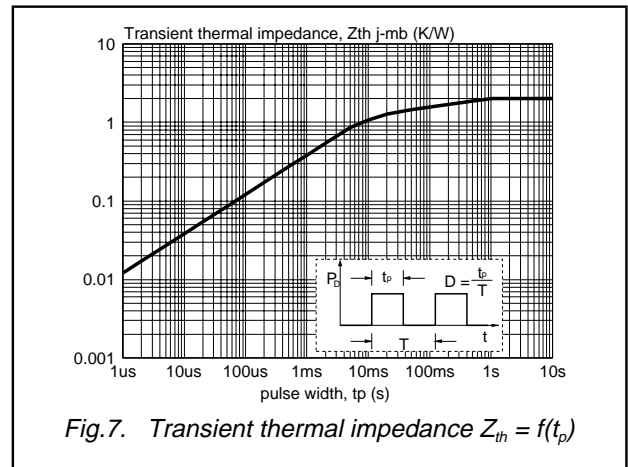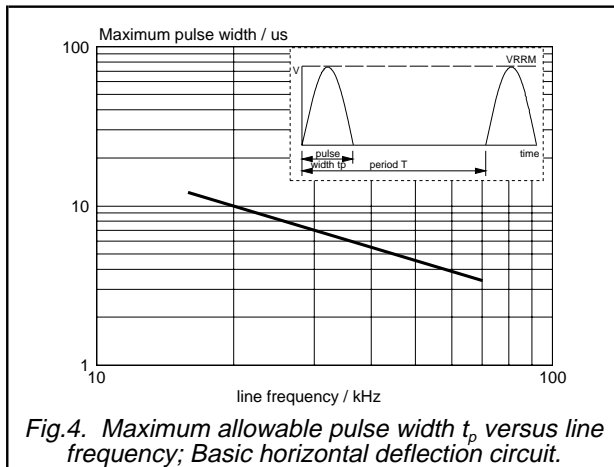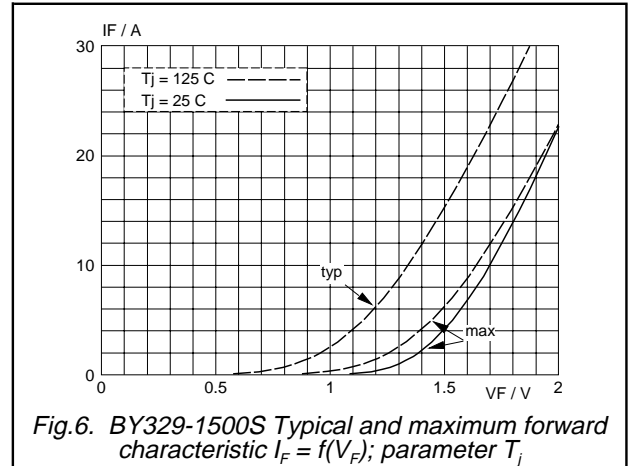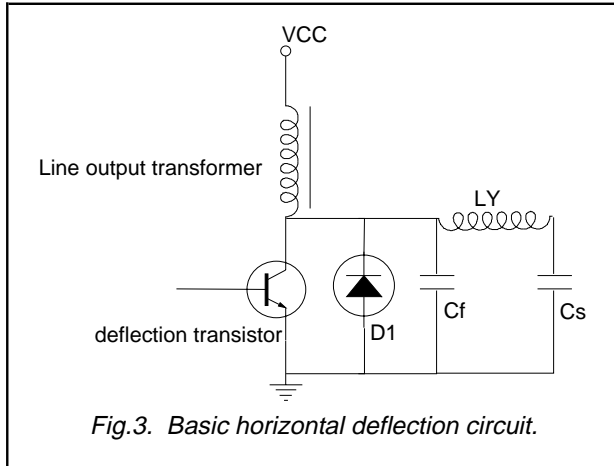
Damper diode
fast, high-voltage

BY329-1500, BY329-1500S

MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

10,3
max

3,7

2,8

3,0 max
not tinned

3,0

13,5
min

1,3
max
(2x)

1   **2**

0,9 max (2x)

5,08

4,5
max

1,3
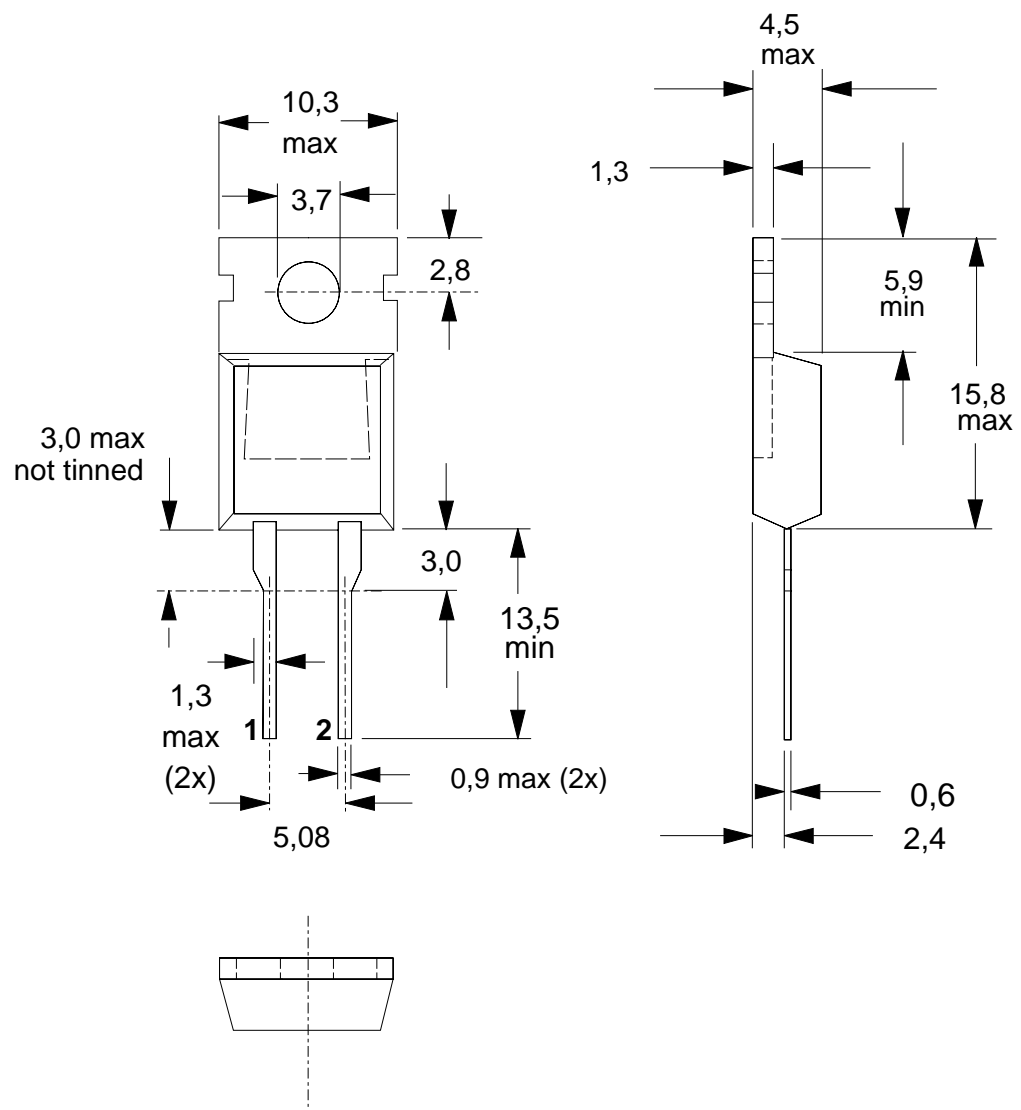
5,9
min

15,8
max

0,6

2,4

Fig.8. 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".

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DEFINITIONS

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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