## **Damper diode** fast, high-voltage

# BY459X-1500, BY459X-1500S

## **FEATURES**

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

**GENERAL DESCRIPTION** 

Glass-passivated double diffused rectifier diode featuring fast forward

recovery and low forward recovery

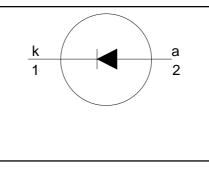
voltage. The device is intended for use in HDTV receivers and

monitor

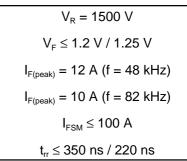
The BY459X series is supplied in the conventional leaded SOD113

horizontal



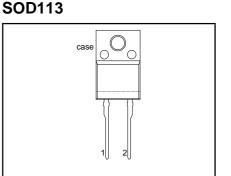


# QUICK REFERENCE DATA



## PINNING

PIN DESCRIPTION cathode 1 2 anode tab isolated



## LIMITING VALUES

multi-sync

package.

deflection circuits.

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	M	AX.	UNIT
V <sub>RSM</sub>	Peak non repetitive reverse voltage		-	1500		V
$V_{RRM}$	Peak repetitive reverse voltage		-	1500		V
V <sub>RWM</sub>	Crest working reverse voltage		-	1300		V
I <sub>F(peak)</sub>	Peak working forward current	f = 48 kHz; f = 82 kHz;	-	<b>-1500</b> 12 -	- <b>1500S</b> - 10	A A
I <sub>FRM</sub>	Peak repetitive forward current	t = 100 μs	-	100		A
I <sub>F(RMS)</sub>	RMS forward current		-	30		A
I <sub>FSM</sub>	Peak non-repetitive forward current	t = 10 ms t = 8.3 ms sinusoidal; T <sub>i</sub> = 150 °C prior to surge; with reapplied V <sub>RWM(max)</sub>	-	100 110		A A
T <sub>stg</sub> T <sub>j</sub>	Storage temperature Operating junction temperature	Surge, with reapplied v <sub>RWM(max)</sub>	-40 -	150 150		с С

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## **ISOLATION LIMITING VALUE & CHARACTERISTIC**

 $T_{hs}$  = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V <sub>isol</sub>	R.M.S. isolation voltage from both terminals to external heatsink	f = 50-60 Hz; sinusoidal waveform; R.H. ≤ 65% ; clean and dustfree	-		2500	V
C <sub>isol</sub>	Capacitance from both terminals to external heatsink	f = 1 MHz	-	10	-	pF

#### THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
R <sub>th j-hs</sub> R <sub>th j-a</sub>	heatsink	with heatsink compound without heatsink compound in free air.		- - 55	4.8 5.9 -	K/W K/W K/W

## STATIC CHARACTERISTICS

 $T_i = 25$  °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP.		MAX.		UNIT
		BY459X-	1500	1500S	1500	1500S	
V <sub>F</sub>	Forward voltage	I <sub>F</sub> = 6.5 A I <sub>F</sub> = 6.5 A; T <sub>i</sub> = 125 °C	0.95 0.85	1.05 0.95	1.30 1.20	1.35 1.25	V V
I <sub>R</sub>	Reverse current	V <sub>R</sub> = 1300 V V <sub>R</sub> = 1300 V; T <sub>j</sub> = 125 °C	-	-	250 1	250 1	μA mA

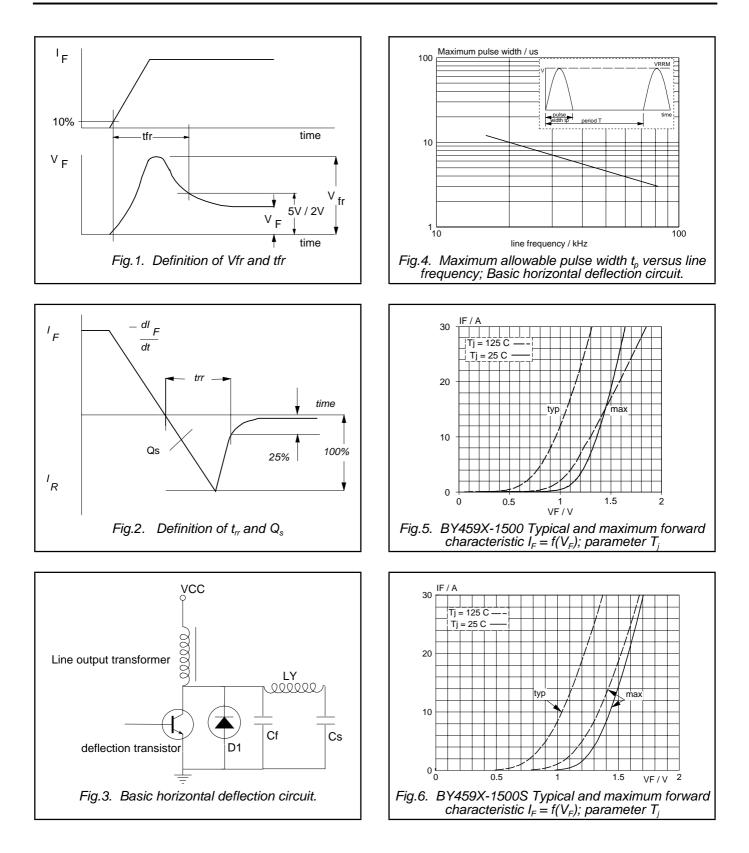
# DYNAMIC CHARACTERISTICS

 $T_i = 25$  °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	TYP.		MAX.		UNIT
		BY459X-	1500	1500S	1500	1500S	
Q̂s   V <sub>fr</sub>		$\begin{array}{l} I_{F}=1 \text{ A}, \text{ V}_{R} \geq 30 \text{ V}; \\ I_{F}=2 \text{ A}, \text{ -dI}_{F}/\text{dt}=20 \text{ A}/\mu\text{s} \\ I_{F}=6.5\text{A}, \text{ dI}_{F}/\text{dt}=50\text{ A}/\mu\text{s} \\ I_{F}=6.5\text{A}, \text{ dI}_{F}/\text{dt}=50\text{ A}/\mu\text{s} \end{array}$	0.25 2.0 8.0 170	0.17 0.70 11.0 200	0.35 3.0 14.0 250	0.22 0.95 19.0 300	μs μC V ns

# Damper diode fast, high-voltage

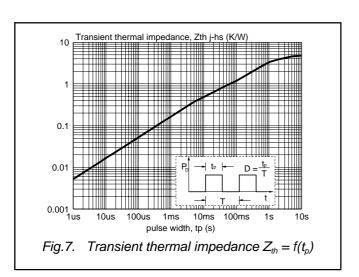
# BY459X-1500, BY459X-1500S



Product specification

BY459X-1500, BY459X-1500S

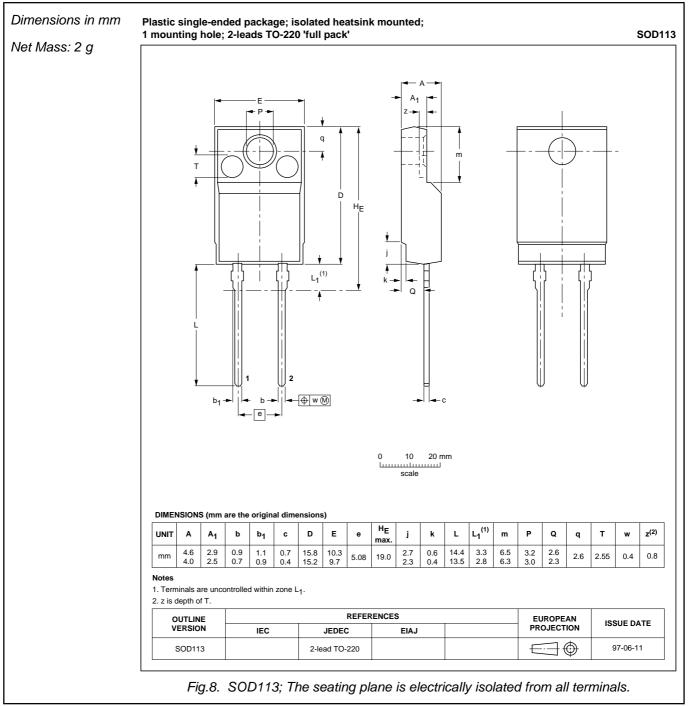
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## **MECHANICAL DATA**



Notes

Refer to mounting instructions for F-pack envelopes.
 Epoxy meets UL94 V0 at 1/8".

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#### DEFINITIONS

DATA SHEET STATUS						
DATA SHEET STATUS <sup>1</sup>	PRODUCT STATUS <sup>2</sup>	DEFINITIONS				
Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice				
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product				
Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A				

#### 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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