

Silicon Diode

BY459DX-1500S

1500V/10A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

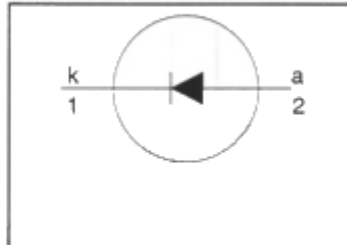
Damper diode fast, high-voltage

BY459DX-1500, BY459DX-1500S

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

$$V_R = 1500 \text{ V}$$

$$V_F \leq 1.2 \text{ V} / 1.25 \text{ V}$$

$$I_{F(\text{peak})} = 12 \text{ A (f = 48 kHz)}$$

$$I_{F(\text{peak})} = 10 \text{ A (f = 82 kHz)}$$

$$I_{FSM} \leq 100 \text{ A}$$

$$t_{rr} \leq 350 \text{ ns} / 220 \text{ ns}$$

GENERAL DESCRIPTION

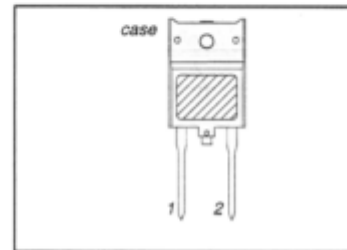
Glass-passivated double diffused rectifier diode featuring fast forward recovery and low forward recovery voltage. The device is intended for use in HDTV receivers and multi-sync monitor horizontal deflection circuits.

The BY459DX series is supplied in the conventional leaded SOD117 package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	isolated

SOD117



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		-	1500	V
V_{RRM}	Peak repetitive reverse voltage		-	1500	V
V_{RWM}	Crest working reverse voltage		-	1300	V
$I_{F(\text{peak})}$	Peak working forward current	f = 48 kHz;	-	-1500	A
		f = 82 kHz;	-	-1500S	A
I_{FRM}	Peak repetitive forward current	t = 100 μ s	-	100	A
$I_{F(\text{RMS})}$	RMS forward current		-	30	A
I_{FSM}	Peak non-repetitive forward current	t = 10 ms	-	100	A
		t = 8.3 ms sinusoidal; $T_j = 150 \text{ }^\circ\text{C}$ prior to surge; with reapplied $V_{RWM(\text{max})}$	-	110	A
T_{stg}	Storage temperature		-40	150	$^\circ\text{C}$
T_j	Operating junction temperature		-	150	$^\circ\text{C}$

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ISOLATION LIMITING VALUE & CHARACTERISTIC

$T_{75} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

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

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\text{-}jhs}$	Thermal resistance junction to heatsink	with heatsink compound	-	-	3.6	K/W
$R_{th\text{-}ja}$	Thermal resistance junction to ambient	without heatsink compound in free air.	-	35	4.5	K/W

STATIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	TYP.		MAX.		UNIT
			1500	1500S	1500	1500S	
V_F	Forward voltage	$I_F = 6.5\text{ A}$ $I_F = 6.5\text{ A}; T_j = 125\text{ }^{\circ}\text{C}$	0.95	1.05	1.30	1.35	V
I_R	Reverse current	$V_R = 1300\text{ V}$ $V_R = 1300\text{ V}; T_j = 125\text{ }^{\circ}\text{C}$	-	250	-	250	μA mA

DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	TYP.		MAX.		UNIT
			1500	1500S	1500	1500S	
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}, V_R \geq 30\text{ V}$;	0.25	0.17	0.35	0.22	μs
Q_s	Reverse recovery charge	$I_F = 2\text{ A}, -di_F/dt = 20\text{ A}/\mu\text{s}$	2.0	0.70	3.0	0.95	μC
V_{fr}	Peak forward recovery voltage	$I_F = 6.5\text{ A}, di_F/dt = 50\text{ A}/\mu\text{s}$	8.0	11.0	14.0	19.0	V
t_{fr}	Forward recovery time	$I_F = 6.5\text{ A}, di_F/dt = 50\text{ A}/\mu\text{s}$	170	200	250	300	ns

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