

Silicon Diode

BY359DX-1500

1500V/10A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

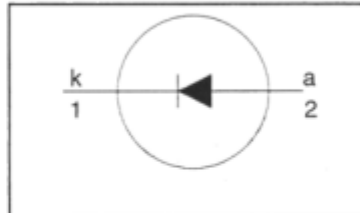
Rectifier diode fast, high-voltage

BY359DX-1500

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

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

$$V_F \leq 1.5 \text{ V}$$

$$I_{F(AV)} = 10 \text{ A}$$

$$I_{FSM} \leq 60 \text{ A}$$

$$t_{rr} \leq 600 \text{ ns}$$

GENERAL DESCRIPTION

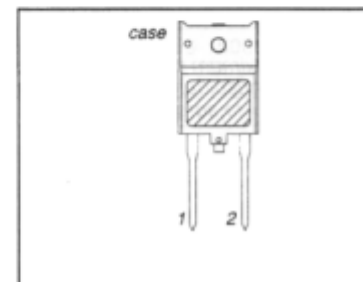
Glass-passivated double diffused rectifier diode featuring low forward voltage drop, fast reverse recovery and soft recovery characteristic. The device is intended for use in TV receivers, series resonant switched mode power supplies and other high voltage circuits.

The BY359DX 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
$I_{F(AV)}$	Average forward current	sinusoidal; $a = 1.57$; $T_{hs} = tbf$	-	10	A
$I_{F(RMS)}$	RMS forward current		-	20	A
I_{FRM}	Peak repetitive forward current	sinusoidal; $a = 1.57$	-	60	A
I_{FSM}	Peak non-repetitive forward current	$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ half sine wave; $T_j = 150^\circ\text{C}$ prior to surge; with reapplied $V_{RWM(max)}$	-	60	A
I^2t	I^2t for fusing	$t = 10 \text{ ms}$	-	18	A ² s
T_{stg}	Storage temperature		-40	150	$^\circ\text{C}$
T_j	Operating junction temperature		-	150	$^\circ\text{C}$

ISOLATION LIMITING VALUE & CHARACTERISTIC

$T_{hs} = 25^\circ\text{C}$ 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

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THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-hs}$	Thermal resistance junction to heatsink	with heatsink compound	-	-	tb ¹	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	without heatsink compound in free air.	-	tb ¹	-	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	$I_F = 20\text{ A}$	-	1.3	1.8	V
		$I_F = 10\text{ A}; T_j = 150\text{ }^{\circ}\text{C}$	-	1.00	1.5	V
I_R	Reverse current	$V_R = 1300\text{ V}$	-	10	100	μA
		$V_R = 1300\text{ V}; T_j = 100\text{ }^{\circ}\text{C}$	-	50	300	μA

DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t_r	Reverse recovery time	$I_F = 2\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 20\text{ A}/\mu\text{s}$	-	0.47	0.6	μs
Q_r	Reverse recovery charge	$I_F = 2\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 20\text{ A}/\mu\text{s}$	-	1.6	2.0	μC
V_s	Peak forward recovery voltage	$I_F = 10\text{ A}; di_F/dt = 30\text{ A}/\mu\text{s}$	-	11.0	-	V