

Silicon Diode

BY559-1500U

1500V/10A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

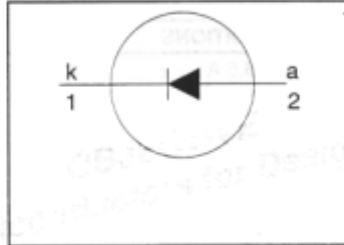
Damper diode fast, high-voltage

BY559-1500U

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

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

$$V_F \leq 1.4 \text{ V}$$

$$V_{tr} \leq 10 \text{ V}$$

$$t_{rr} \leq 120 \text{ ns}$$

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

$$I_{FSM} \leq 150 \text{ A}$$

GENERAL DESCRIPTION

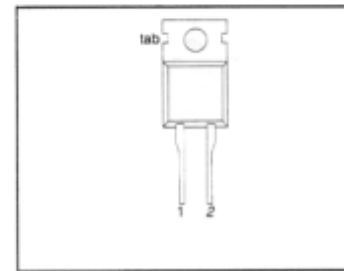
A double diffused rectifier diode in a plastic envelope, featuring fast forward and reverse recovery and low forward voltage. The device is intended for use as a damper diode in horizontal deflection circuits of large screen monitors and workstations.

The BY559 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_{RRM}	Peak repetitive reverse voltage		-	1500	V
V_{RWM}	Crest working reverse voltage		-	1300	V
$I_{F(\text{PEAK})}$	Peak working forward current	$f = 130 \text{ kHz}$;	-	10	A
I_{FRM}	Peak repetitive forward current	$t = 100 \mu\text{s}$	-	150	A
I_{FSM}	Peak non-repetitive forward current	$t = 10 \text{ ms}$ sinusoidal; $T_j = 150^\circ\text{C}$ prior to surge; with reapplied $V_{RWM(\text{max})}$	-	160	A
T_{stg}	Storage temperature		-40	150	$^\circ\text{C}$
T_j	Operating junction temperature		-	150	$^\circ\text{C}$

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th(j-mb)}$	Thermal resistance junction to mounting base		-	-	1.0	K/W
$R_{th(j-a)}$	Thermal resistance junction to ambient	in free air	-	60	-	K/W

Damper diode
fast, high-voltage

BY559-1500U

STATIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 6.5\text{ A}$	-	1.5	1.8	V
I_R	Reverse current	$I_F = 6.5\text{ A}; T_J = 125\text{ }^{\circ}\text{C}$	-	1.2	1.4	V
		$V_R = V_{RWMmax}$	-	-	0.5	mA
		$V_R = V_{RWMmax}; T_J = 125\text{ }^{\circ}\text{C}$	-	-	2.0	mA

DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{fr}	Forward recovery voltage	$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}$	-	6	10	V
t_{fr}	Forward recovery time	$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}; V_F = 5\text{ V}$	-	130	180	ns
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}; -di_F/dt = 50\text{ A}/\mu\text{s}; V_R \geq 30\text{ V}$	-	90	120	ns
Q_s	Reverse recovery charge	$I_F = 2\text{ A}; -di_F/dt = 20\text{ A}/\mu\text{s}; V_R \geq 30\text{ V}$	-	0.2	0.25	μC