

Silicon Diode

BY479X-1700

1700V/10A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

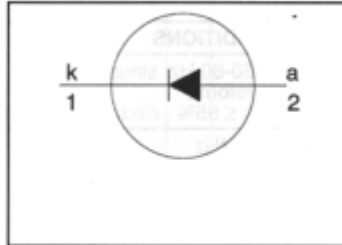
Damper diode fast, high-voltage

BY479X-1700

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

$$V_R = 1700 \text{ V}$$

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

$$V_{rr} \leq 19 \text{ V}$$

$$I_{FWM} = 10 \text{ A}$$

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

$$t_{rr} \leq 300 \text{ ns}$$

GENERAL DESCRIPTION

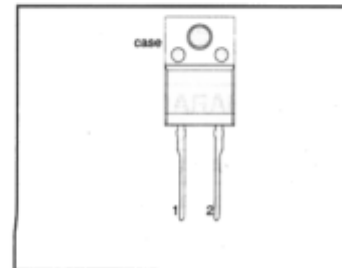
Glass-passivated double diffused rectifier diode featuring fast forward recovery and low forward recovery voltage. The device is intended for use in multi-sync monitor deflection circuits up to 64kHz. The device is designed to withstand transient reverse voltages up to 1700V.

The BY479X series is supplied in the conventional leaded SOD113 package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	isolated

SOD113



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 during flash-over of picture tube		-	1700	V
V_{RRM}	Peak repetitive reverse voltage	$t = 3.5 \mu\text{s}; f = 64\text{kHz}$	-	1700	V
V_{RWM}	Crest working reverse voltage		-	1300	V
I_{FWM}	Peak working forward current ¹	$f = 64\text{kHz}; T_{ns} \leq 126^\circ\text{C}$	-	10	A
I_{FRM}	Peak repetitive forward current	$t = 100 \mu\text{s}$	-	100	A
I_{FSM}	Peak non-repetitive forward current	$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; $T_j = 150^\circ\text{C}$ prior to surge; with reapplied $V_{RWM(max)}$	-	100	A
T_{stg}	Storage temperature		-40	150	$^\circ\text{C}$
T_j	Operating junction temperature		-	150	$^\circ\text{C}$

¹ Including worst case forward recovery losses, see fig:5.

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ISOLATION LIMITING VALUE & CHARACTERISTIC

$T_{ns} = 25\text{ °C}$ 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
$R_{th\ j-hs}$	Thermal resistance junction to heatsink	with heatsink compound	-	-	4.8	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	without heatsink compound in free air	-	55	5.9	K/W

STATIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 6.5\text{ A}$	-	0.95	1.3	V
I_R	Reverse current	$I_F = 6.5\text{ A}; T_j = 125\text{ °C}$	-	0.85	1.2	V
		$V_R = V_{RWMmax}$	-	-	0.25	mA
		$V_R = V_{RWMmax}; T_j = 125\text{ °C}$	-	-	1.0	mA

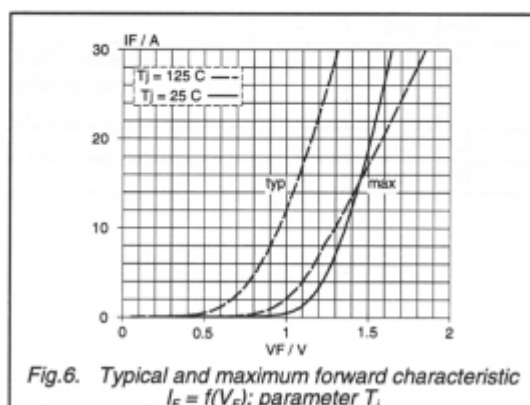
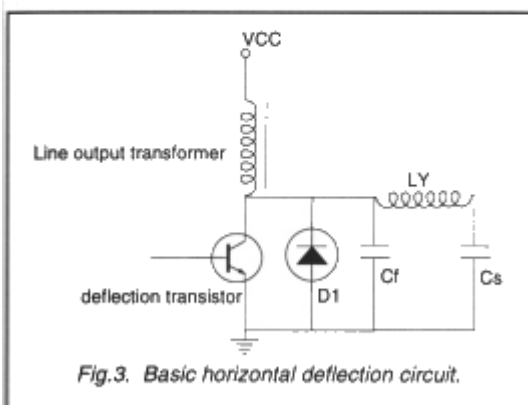
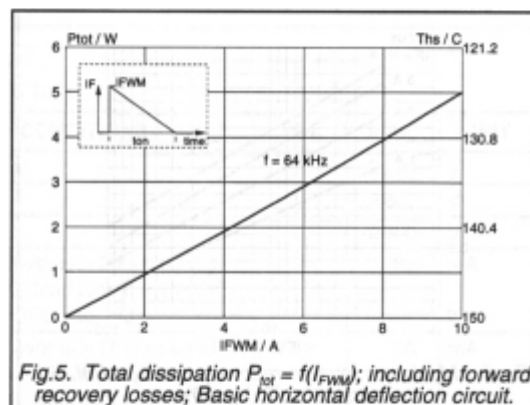
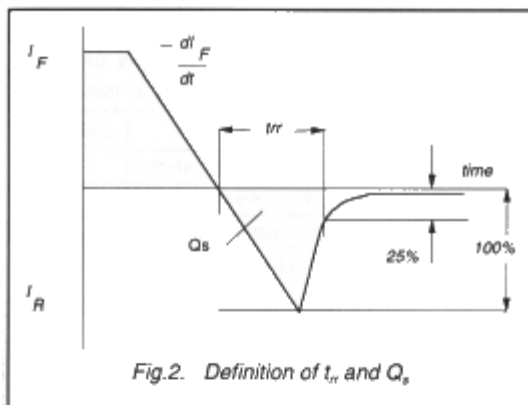
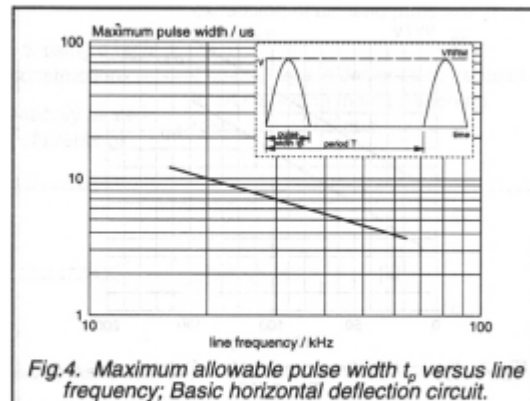
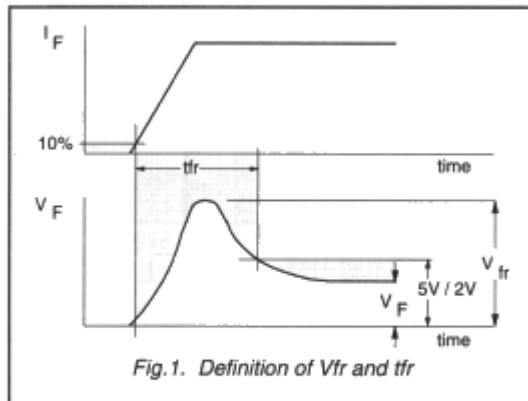
DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{tr}	Forward recovery voltage	$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}$	-	12	19	V
t_{tr}	Forward recovery time	$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}; V_F = 5\text{ V}$	-	200	300	ns
		$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}; V_F = 2\text{ V}$	-	400	-	ns
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}; -di_F/dt = 50\text{ A}/\mu\text{s}; V_R \geq 30\text{ V}$	-	250	350	ns
Q_s	Reverse recovery charge	$I_F = 2\text{ A}; -di_F/dt = 20\text{ A}/\mu\text{s}; V_R \geq 30\text{ V}$	-	2.0	3.0	μC

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