

# Rectifier diode fast, high-voltage

BY459-1500

## GENERAL DESCRIPTION

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

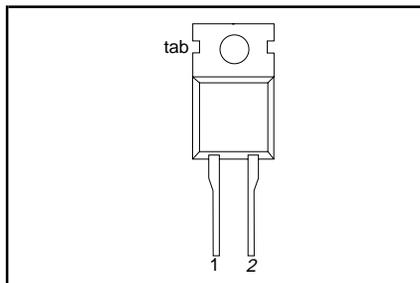
## QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
$V_{RRM}$	Repetitive peak reverse voltage	1500	V
$V_F$	Forward voltage	1.2	V
$I_{FWM}$	Working peak forward current	10	A
$I_{FRM}$	Repetitive peak forward current	100	A
$t_{fr}$	Forward recovery time	250	ns
$V_{fr}$	Forward recovery voltage	14	V

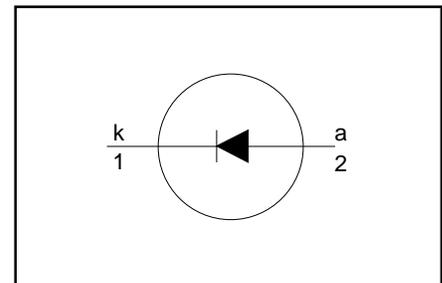
## PINNING - TO220AC

PIN	DESCRIPTION
1	cathode (k)
2	anode (a)
tab	cathode (k)

## PIN CONFIGURATION



## SYMBOL



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RSM}$	Non repetitive peak reverse voltage during flash-over of picture tube		-	1500	V
$V_{RRM}$	Repetitive peak reverse voltage	$t = 6 \mu s; f = 82 \text{ kHz}$	-	1500	V
$V_{RWM}$	Crest working reverse voltage		-	1300	V
$I_{FWM}$	Working peak forward current <sup>1</sup>	$f = 82 \text{ kHz}; T_{mb} \leq 143 \text{ }^\circ\text{C}$	-	10	A
$I_{FRM}$	Repetitive peak forward current	$t = 100 \mu s$	-	100	A
$I_{FSM}$	Non repetitive peak forward current	$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; $T_j = 150 \text{ }^\circ\text{C}$ 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	$^\circ\text{C}$

## THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base		-	-	1.5	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	in free air	-	60	-	K/W

<sup>1</sup> Including worst case forward recovery losses, see fig:5.

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## 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
		$I_F = 6.5\text{ A}; T_j = 125\text{ °C}$	-	0.85	1.2	V
$I_R$	Reverse current	$V_R = V_{RWMmax}$	-	-	0.25	mA
		$V_R = V_{RWMmax}; T_j = 125\text{ °C}$	-	-	1.0	mA

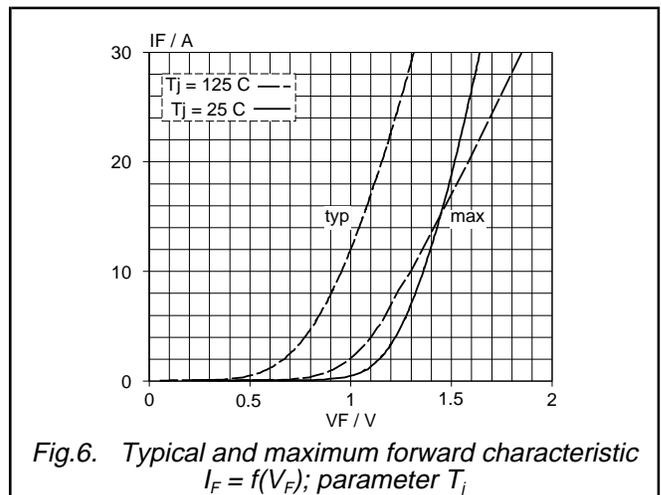
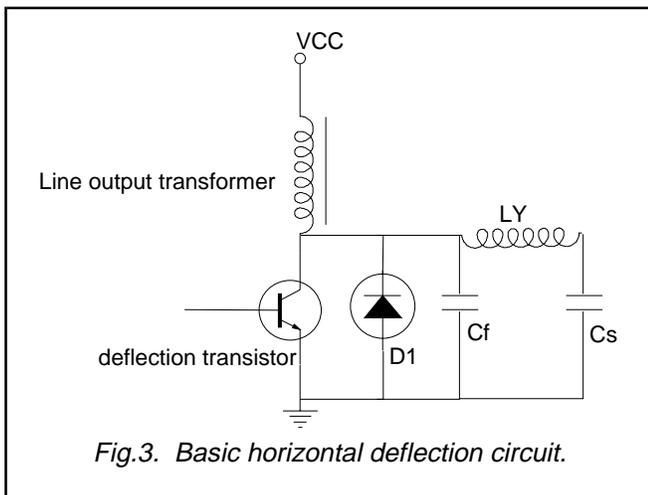
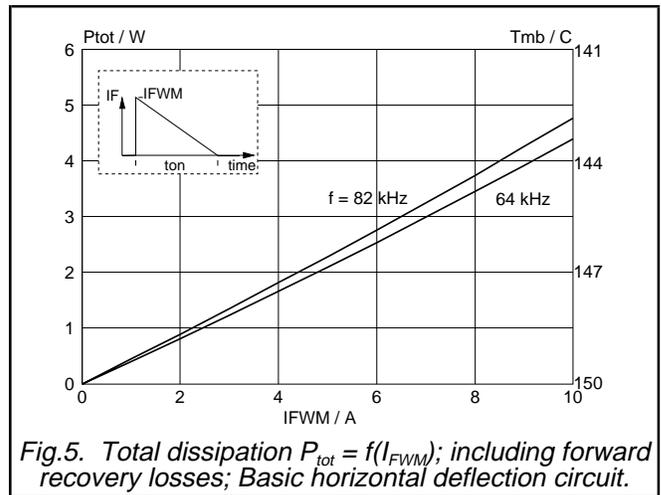
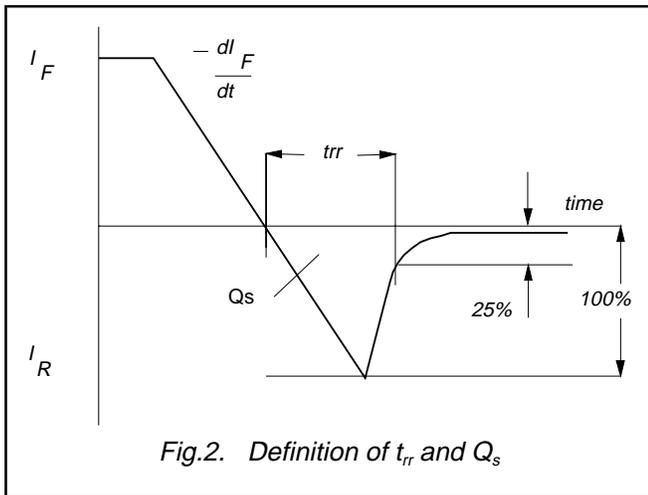
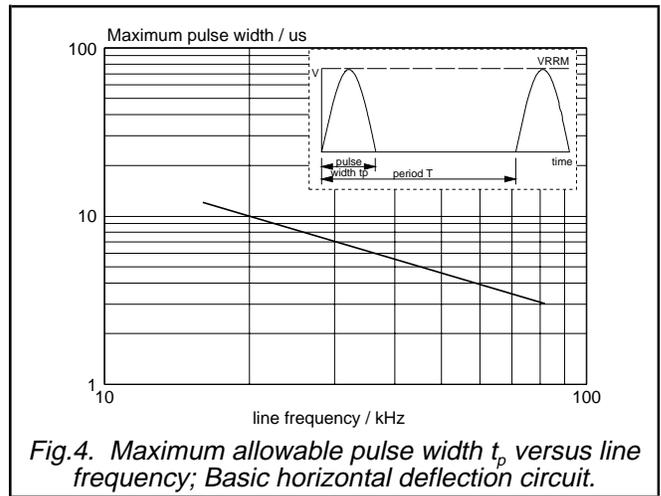
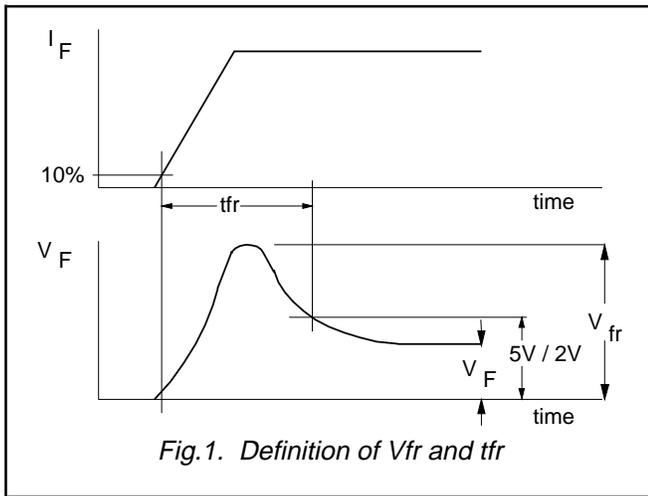
## DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{fr}$	Forward recovery voltage	$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}$	-	8	14	V
$t_{fr}$	Forward recovery time	$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}; V_F = 5\text{ V}$	-	170	250	ns
		$I_F = 6.5\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}; V_F = 2\text{ V}$	-	350	-	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	$\mu\text{C}$

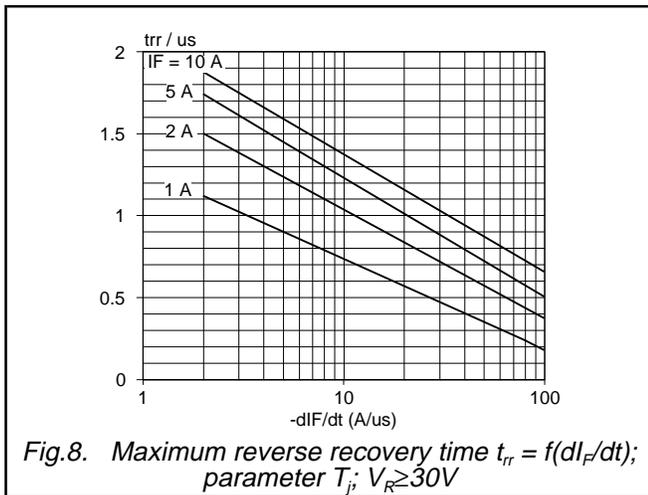
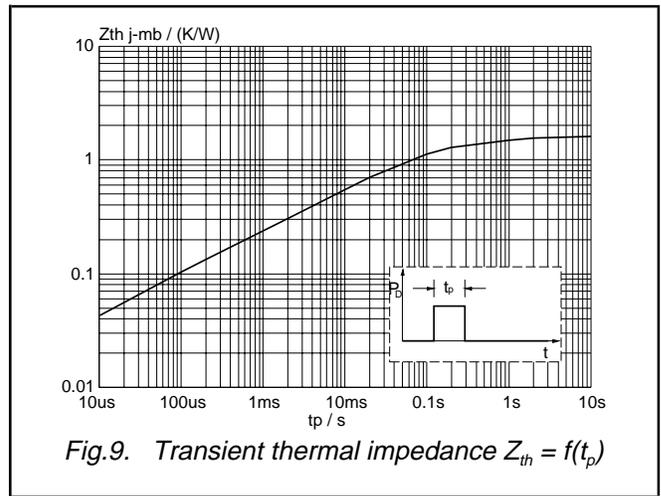
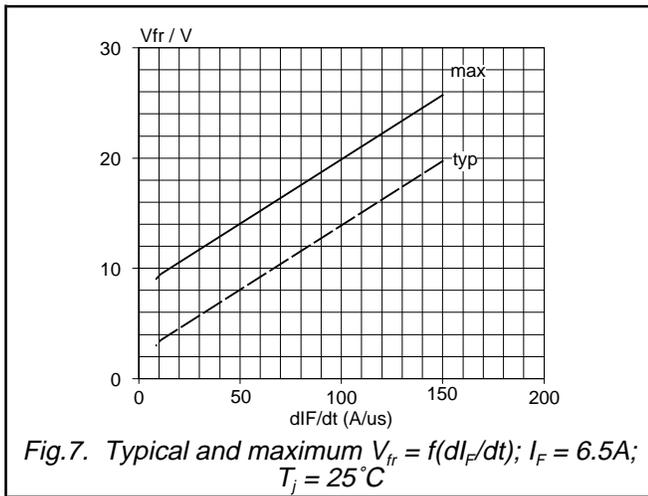
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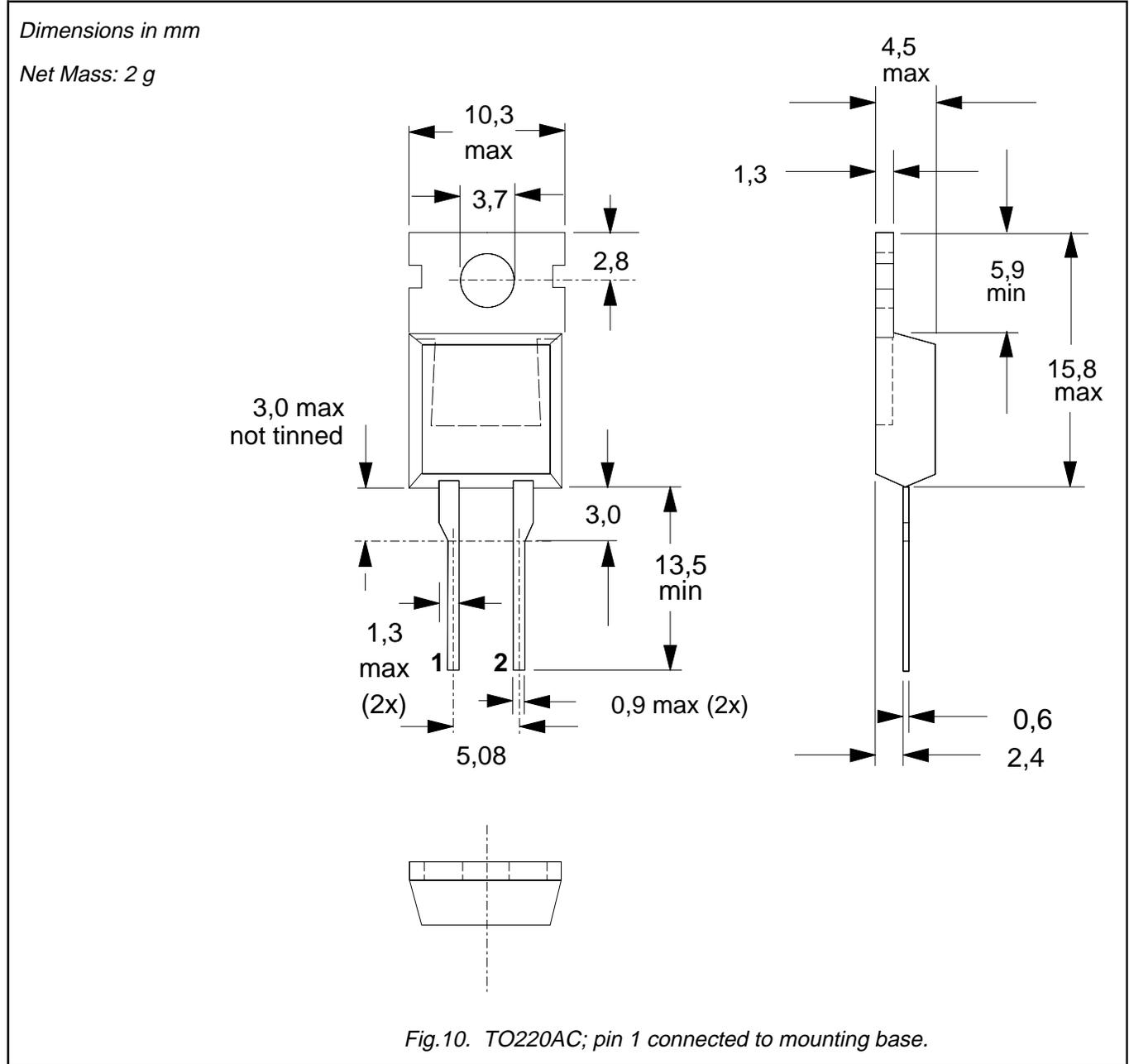
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**MECHANICAL DATA**



**Notes**

- 1. Refer to mounting instructions for TO220 envelopes.
- 2. Epoxy meets UL94 V0 at 1/8".

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**DEFINITIONS**

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	
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