

# Rectifier diode fast, high-voltage

**BY359F-1500**

## GENERAL DESCRIPTION

Glass-passivated double diffused rectifier diode in a full pack plastic envelope 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.

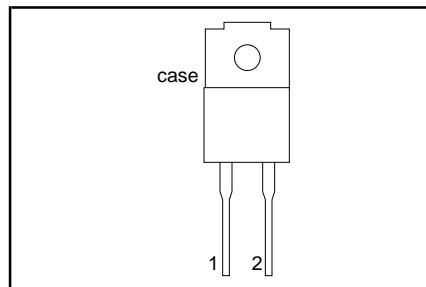
## QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
$V_{RRM}$	Repetitive peak reverse voltage	1500	V
$V_F$	Forward voltage	1.5	V
$I_{F(AV)}$	Average forward current	10	A
$I_{FSM}$	Non-repetitive peak forward current	60	A
$t_{rr}$	Reverse recovery time	0.6	$\mu$ s

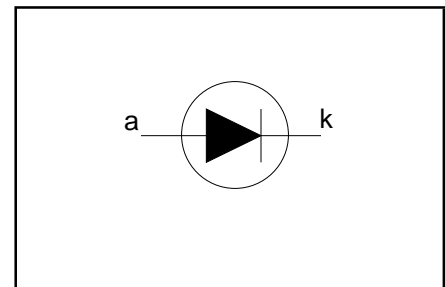
## PINNING - SOD100

PIN	DESCRIPTION
1	cathode
2	anode
case	isolated

## 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		-	1500	V
$V_{RRM}$	Repetitive peak reverse voltage		-	1500	V
$V_{RWM}$	Crest working reverse voltage		-	1300	V
$I_{F(AV)}$	Average forward current <sup>1</sup>	sinusoidal; $a = 1.57$ ; $T_{hs} \leq 54^\circ\text{C}$	-	10	A
$I_{F(RMS)}$	RMS forward current		-	15.7	A
$I_{FRM}$	Repetitive peak forward current	sinusoidal; $a = 1.57$	-	60	A
$I_{FSM}$	Non-repetitive peak forward current	$t = 10\text{ ms}$	-	60	A
		$t = 8.3\text{ ms}$	-	66	A
		half sine wave; $T_j = 150^\circ\text{C}$ prior to surge; with reapplied $V_{RWM(max)}$			
$I^2t$	$I^2t$ for fusing	$t = 10\text{ ms}$	-	18	$\text{A}^2\text{s}$
$T_{stg}$	Storage temperature		-40	150	$^\circ\text{C}$
$T_j$	Operating junction temperature		-	150	$^\circ\text{C}$

## ISOLATION

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{isol}$	Repetitive peak voltage from both terminals to external heatsink	R.H. $\leq 65\%$ ; clean and dustfree	-	-	1500	V
$C_{isol}$	Capacitance from cathode to external heatsink	$f = 1\text{ MHz}$	-	12	-	pF

<sup>1</sup> Neglecting switching and reverse current losses.

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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	-	-	4.8	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	without heatsink compound in free air.	-	55	5.9	K/W
			-		-	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
$I_R$	Reverse current	$I_F = 10\text{ A}; T_j = 150\text{ }^\circ\text{C}$ $V_R = 1300\text{ V}$ $V_R = 1300\text{ V}; T_j = 100\text{ }^\circ\text{C}$	-	1.00	1.5	V
			-	10	100	$\mu\text{A}$
			-	50	300	$\mu\text{A}$

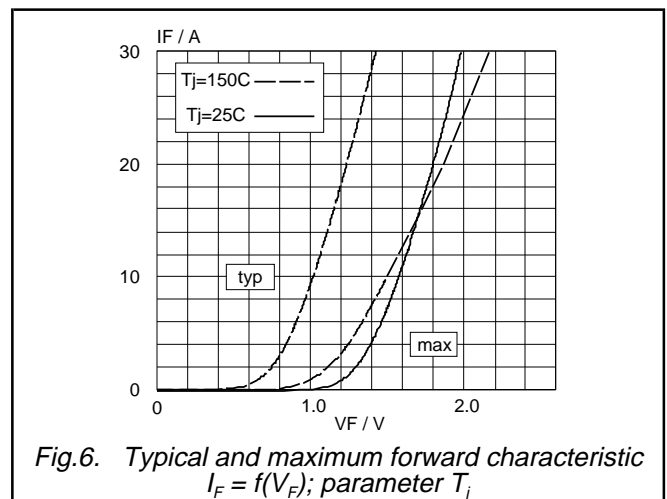
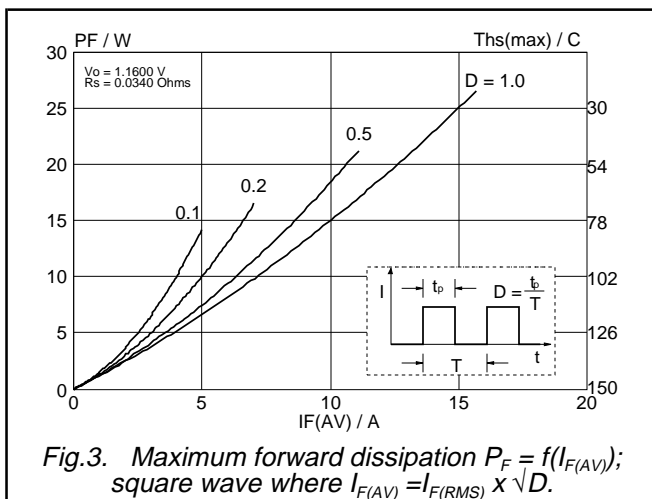
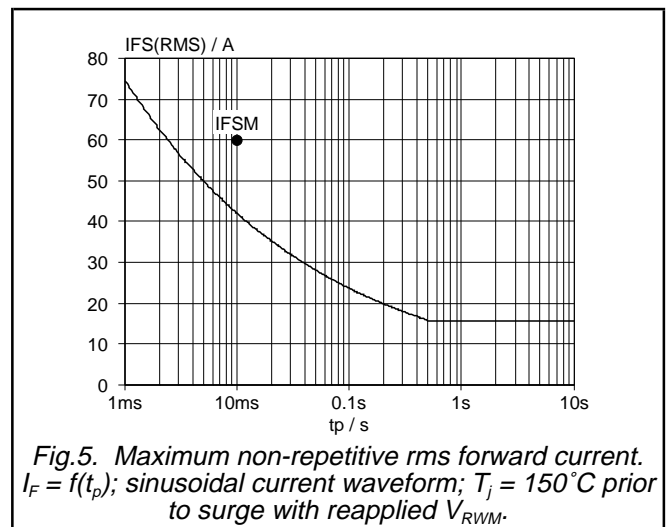
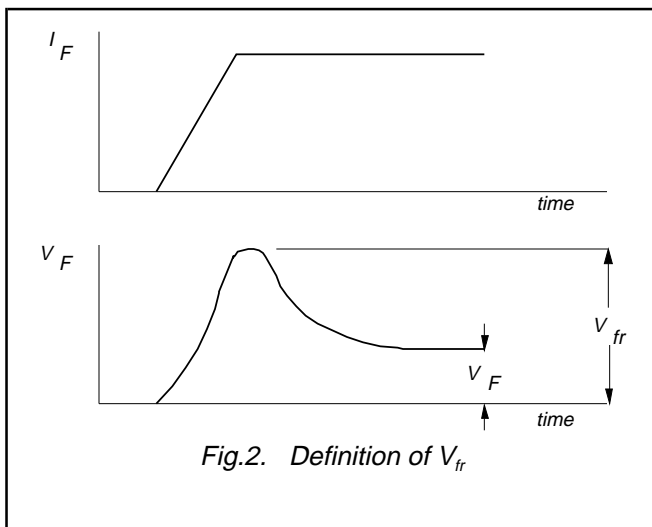
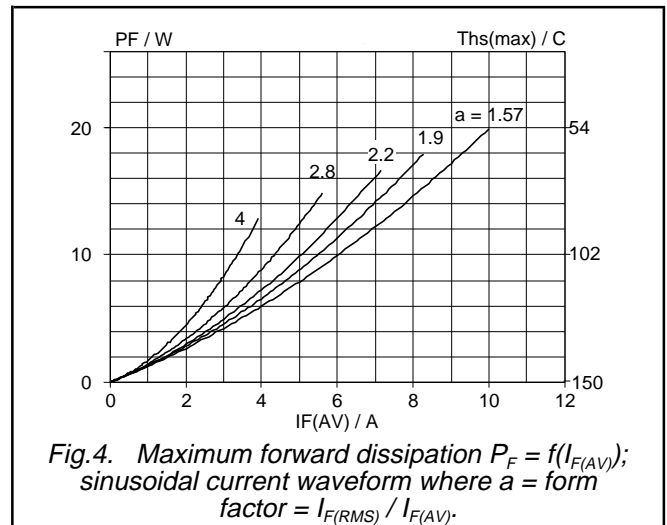
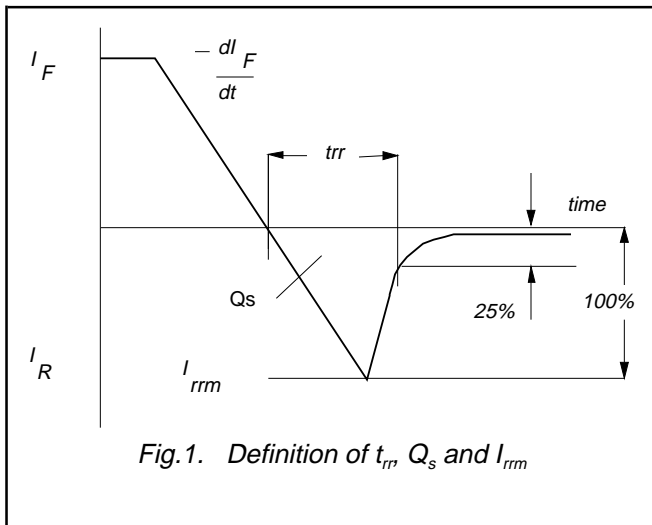
## DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$t_{rr}$	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	$\mu\text{s}$
$Q_s$	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	$\mu\text{C}$
$V_{fr}$	Peak forward recovery voltage	$I_F = 10\text{ A}; di_F/dt = 30\text{ A}/\mu\text{s}$	-	11.0	-	V

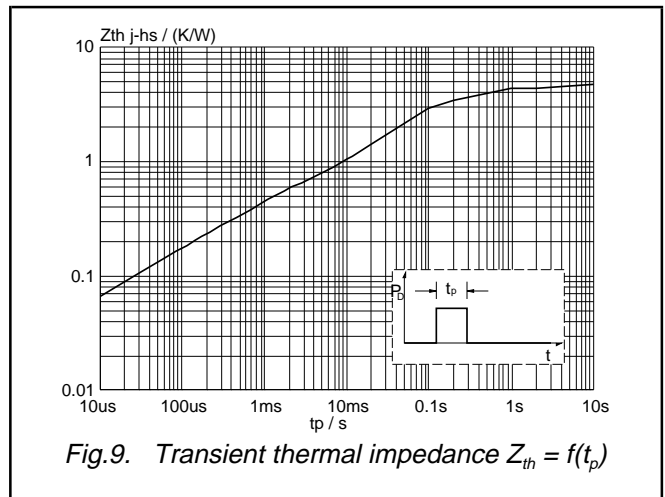
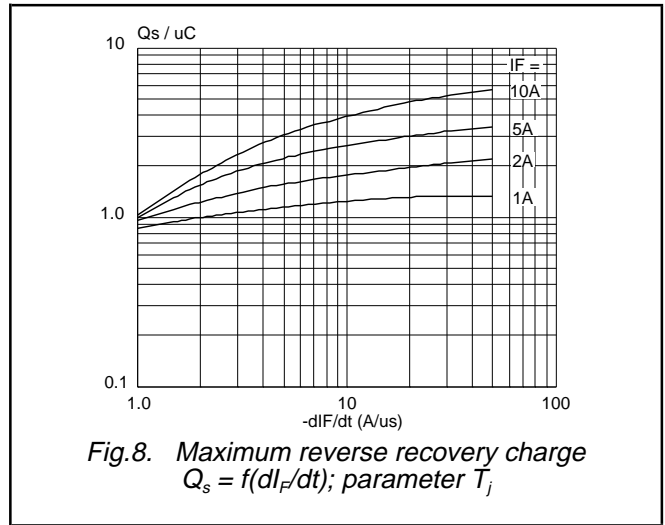
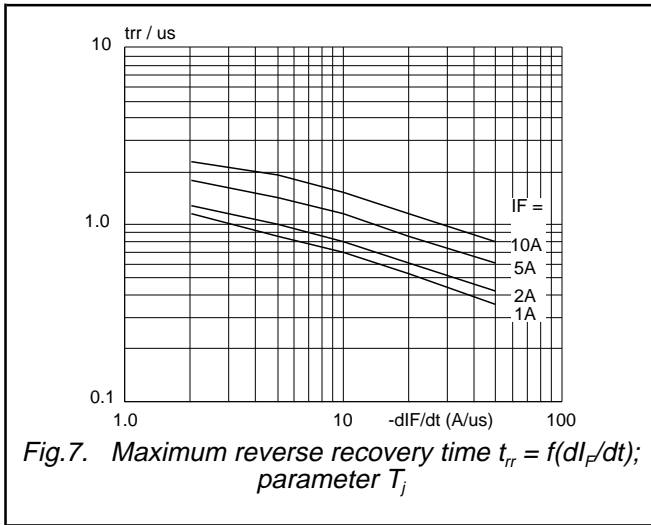
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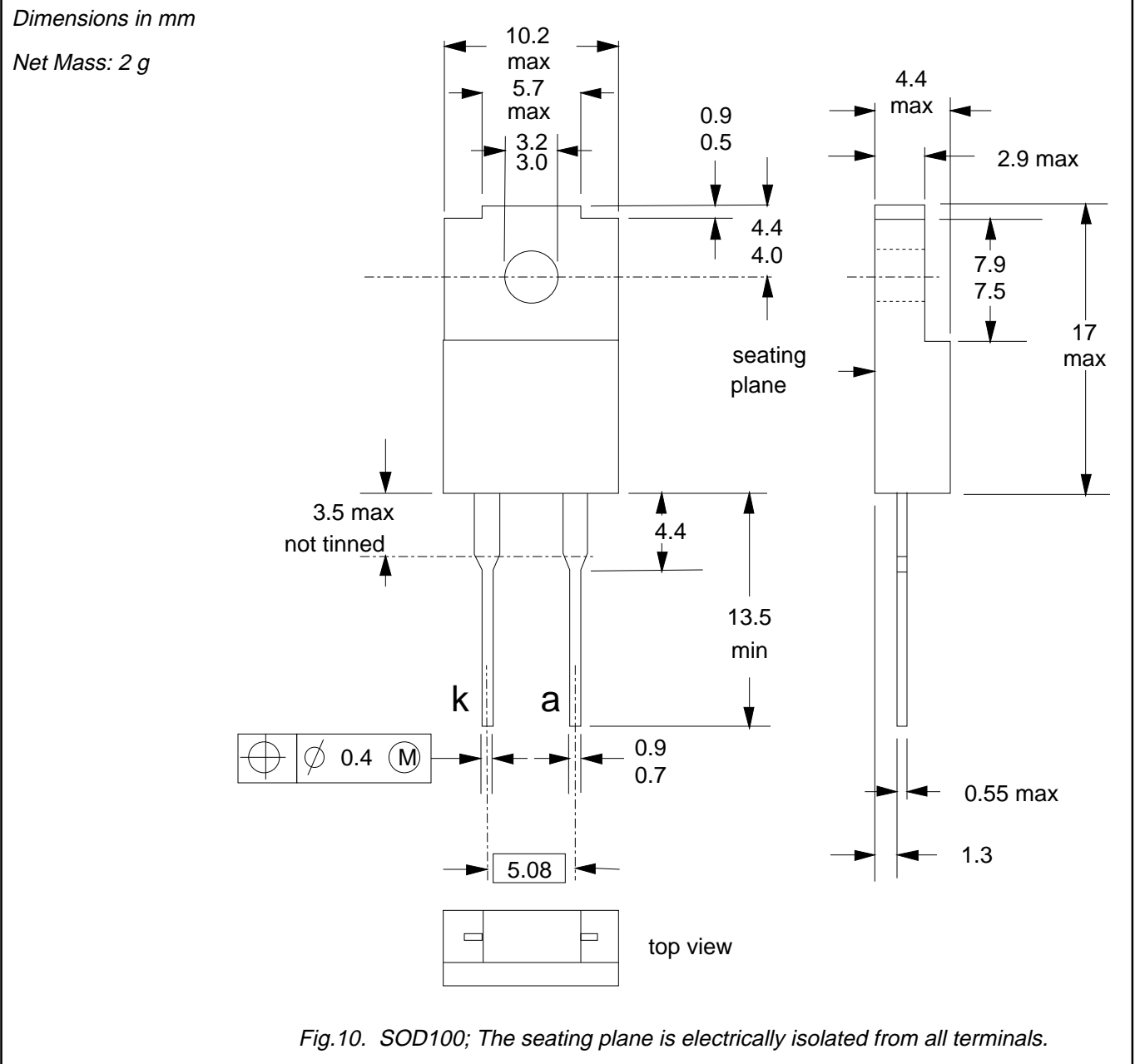
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**MECHANICAL DATA**



**Notes**

- 1. Accessories supplied on request: refer to mounting instructions for F-pack 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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