

**Rectifier diodes
fast, soft-recovery**

BY329X series

GENERAL DESCRIPTION

Glass-passivated double diffused rectifier diodes in a full pack plastic envelope featuring low forward voltage drop, fast reverse recovery and soft recovery characteristic. The devices are intended for use in TV receivers, monitors and switched mode power supplies.

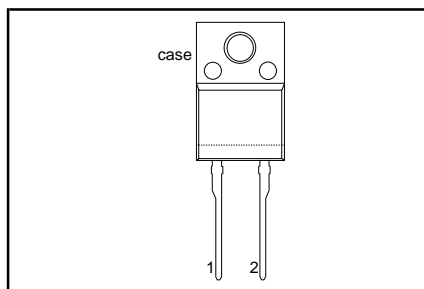
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{RRM}	Repetitive peak reverse voltage	-800	-1000	-1200	V
		800	1000	1200	
		BY329X			
$I_{F(AV)}$	Average forward current	8	8	8	A
I_{FSM}	Non-repetitive peak forward current	65	65	65	A
t_{rr}	Reverse recovery time	145	145	145	ns

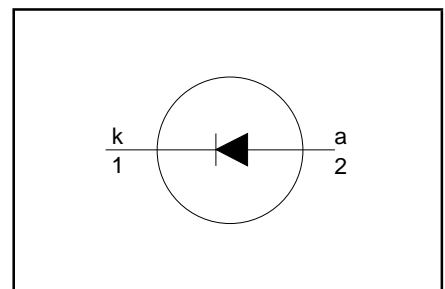
PINNING - SOD113

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
				-800	-1000	-1200	
V_{RSM}	Non-repetitive peak reverse voltage		-	800	1000	1200	V
V_{RRM}	Repetitive peak reverse voltage		-	800	1000	1200	V
V_{RWM}	Crest working reverse voltage		-	600	800	1000	V
$I_{F(AV)}$	Average forward current ¹	square wave; $\delta = 0.5$;	-	8			A
		$T_{hs} \leq 83^\circ\text{C}$	-	7			A
$I_{F(RMS)}$	RMS forward current	sinusoidal; $a = 1.57$;	-	11			A
		$T_{hs} \leq 90^\circ\text{C}$	-	16			A
I_{FRM}	Repetitive peak forward current	$t = 25 \mu\text{s}$; $\delta = 0.5$;	-	11			A
		$T_{hs} \leq 83^\circ\text{C}$	-	16			A
I_{FSM}	Non-repetitive peak forward current.	$t = 10 \text{ ms}$	-	65			A
		$t = 8.3 \text{ ms}$	-	71			A
		sinusoidal; $T_j = 150^\circ\text{C}$ prior to surge; with reapplied					
I^2t	I^2t for fusing	$V_{RWM(max)}$	-	28			A ² s
T_{stg}	Storage temperature	$t = 10 \text{ ms}$	-40	150			$^\circ\text{C}$
T_j	Operating junction temperature		-	150			$^\circ\text{C}$

¹ Neglecting switching and reverse current losses.

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ISOLATION LIMITING VALUE & CHARACTERISTIC
 $T_{hs} = 25\text{ °C}$ 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
$R_{th\ j\text{-}hs}$	Thermal resistance junction to heatsink	with heatsink compound	-	-	4.8	K/W
$R_{th\ j\text{-}a}$	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

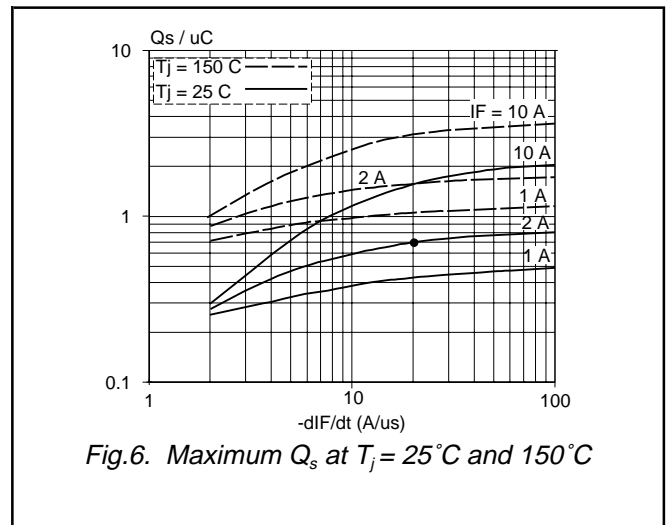
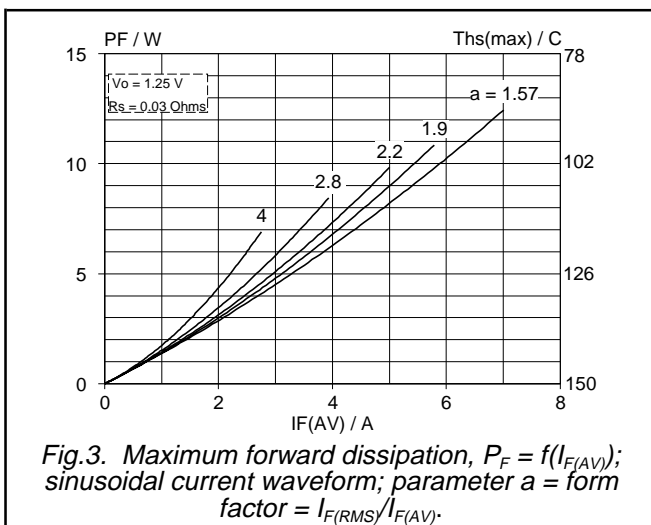
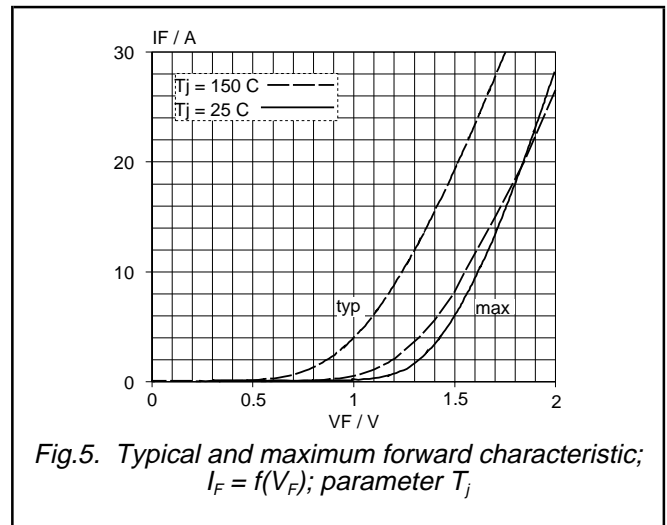
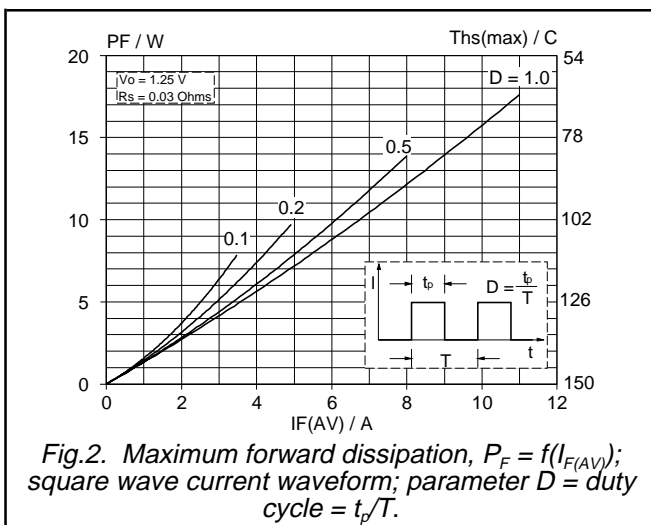
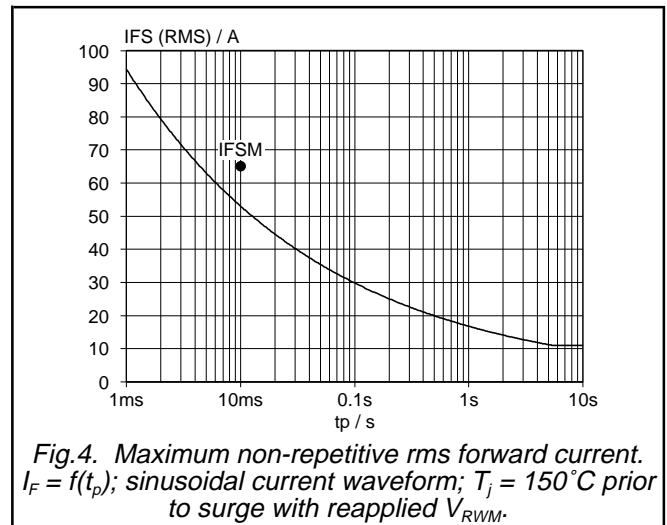
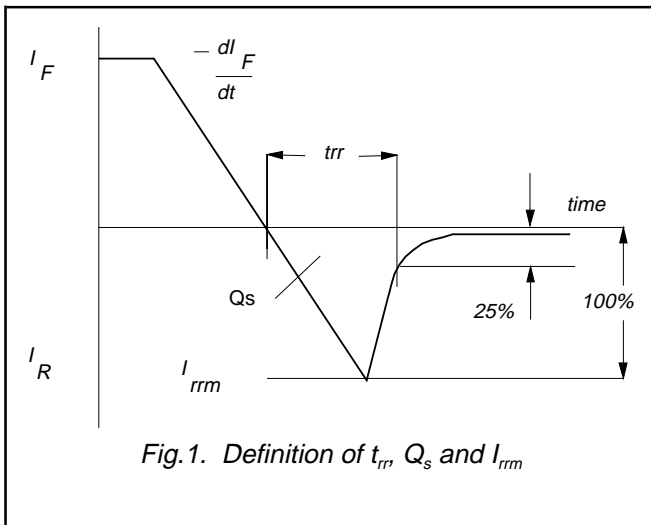
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 20\text{ A}$	-	1.5	1.85	V
I_R	Reverse current	$V_R = V_{RWM}$; $T_j = 125\text{ °C}$	-	0.1	1.0	mA

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}$; $V_R \geq 30\text{ V}$; $-di_F/dt = 50\text{ A}/\mu\text{s}$	-	125	145	ns
Q_s	Reverse recovery charge	$I_F = 2\text{ A}$; $V_R \geq 30\text{ V}$; $-di_F/dt = 20\text{ A}/\mu\text{s}$	-	0.5	0.7	μC
di_R/dt	Maximum slope of the reverse recovery current	$I_F = 2\text{ A}$; $-di_F/dt = 20\text{ A}/\mu\text{s}$	-	50	60	$\text{A}/\mu\text{s}$

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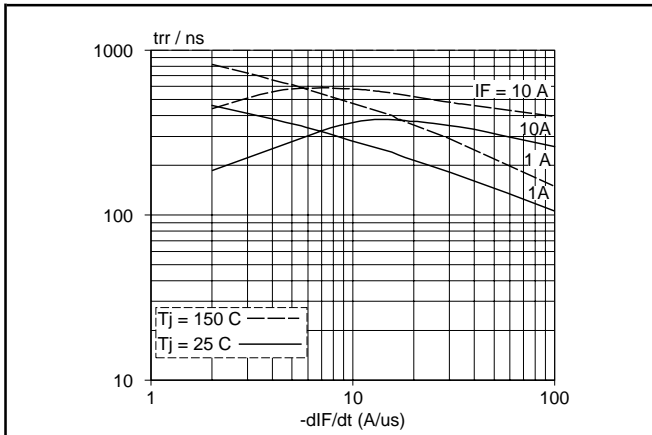


Fig.7. Maximum t_{rr} measured to 25% of I_{rrm} ; $T_j = 25\text{ C}$ and 150 C

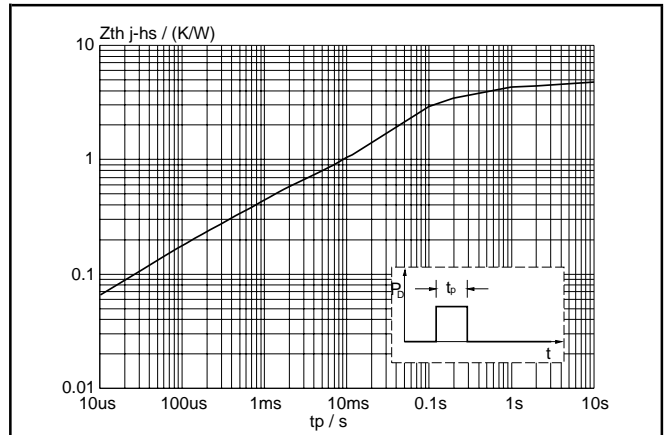


Fig.9. Transient thermal impedance $Z_{th} = f(t_p)$

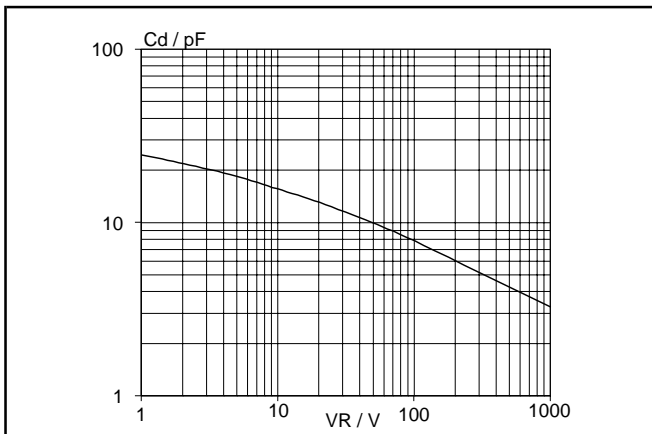


Fig.8. Typical junction capacitance C_d at $f = 1\text{ MHz}$; $T_j = 25\text{ C}$

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MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

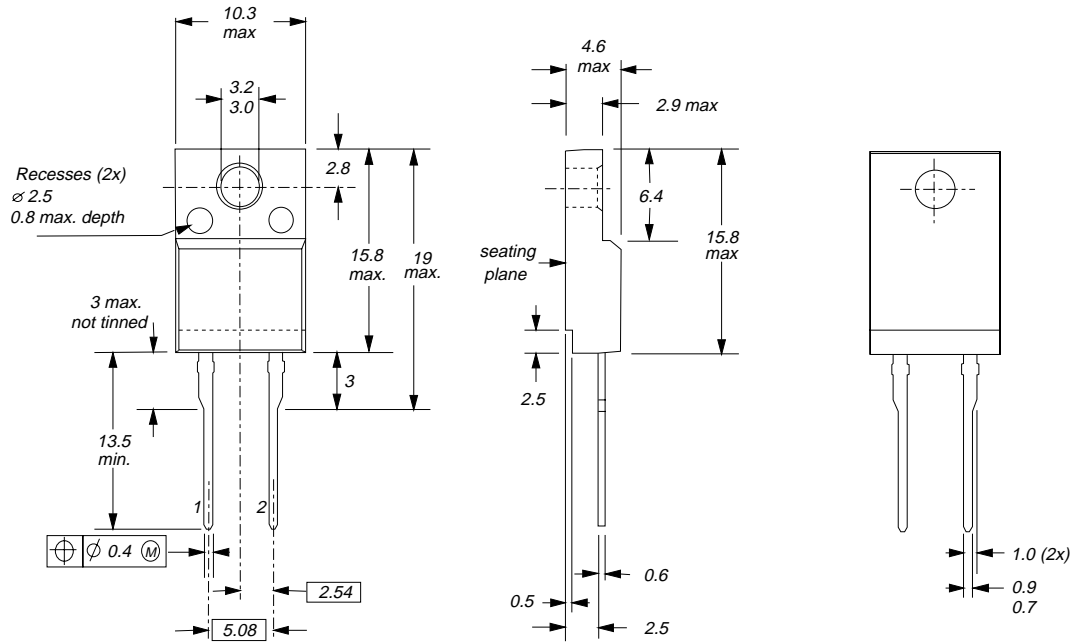


Fig.10. SOD113; The seating plane is electrically isolated from all terminals.

Notes

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

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DEFINITIONS

Data sheet status	
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.
Limiting values	
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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	
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