

Rectifier diodes fast, soft-recovery

BY229 series

GENERAL DESCRIPTION

Glass-passivated double diffused rectifier diodes in a 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.

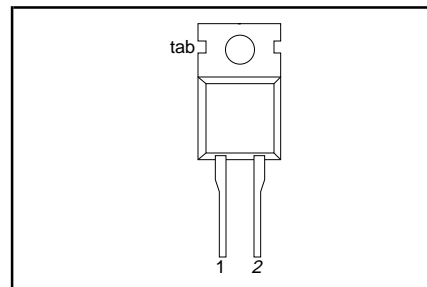
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	MAX.	UNIT
V_{RRM}	Repetitive peak reverse voltage	-200	-400	-600	-800	V
		200	400	600	800	
$I_{F(AV)}$	Average forward current	8	8	8	8	A
I_{FSM}	Non-repetitive peak forward current	60	60	60	60	A
t_{rr}	Reverse recovery time	135	135	135	135	ns

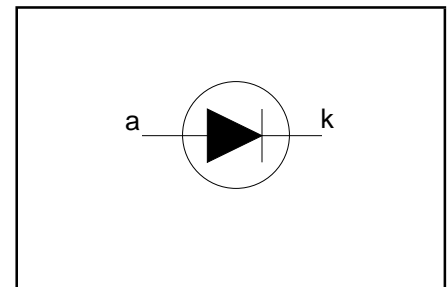
PINNING - TO220AC

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
				-200	-400	-600	-800	
V_{RSM}	Non-repetitive peak reverse voltage		-	200	400	600	800	V
V_{RRM}	Repetitive peak reverse voltage		-	200	400	600	800	V
V_{RWM}	Crest working reverse voltage		-	150	300	500	600	V
V_R	Continuous reverse voltage		-	150	300	500	600	V
$I_{F(AV)}$	Average forward current ¹	square wave; $\delta = 0.5$; $T_{mb} \leq 122\text{ }^\circ\text{C}$	-	8				A
		sinusoidal; $a = 1.57$; $T_{mb} \leq 125\text{ }^\circ\text{C}$	-	7				A
$I_{F(RMS)}$	RMS forward current		-	11				A
I_{FRM}	Repetitive peak forward current	$t = 25\text{ }\mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 122\text{ }^\circ\text{C}$	-	16				A
I_{FSM}	Non-repetitive peak forward current.	$t = 10\text{ ms}$	-	60				A
		$t = 8.3\text{ ms}$ sinusoidal; $T_j = 150\text{ }^\circ\text{C}$ prior to surge; with reapplied $V_{RWM(max)}$ $t = 10\text{ ms}$	-	66				A
I^2t	I^2t for fusing		-	18				A ² s
T_{stg}	Storage temperature		-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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THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	in free air.	-	-	2.0	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient		-	60	-	K/W

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

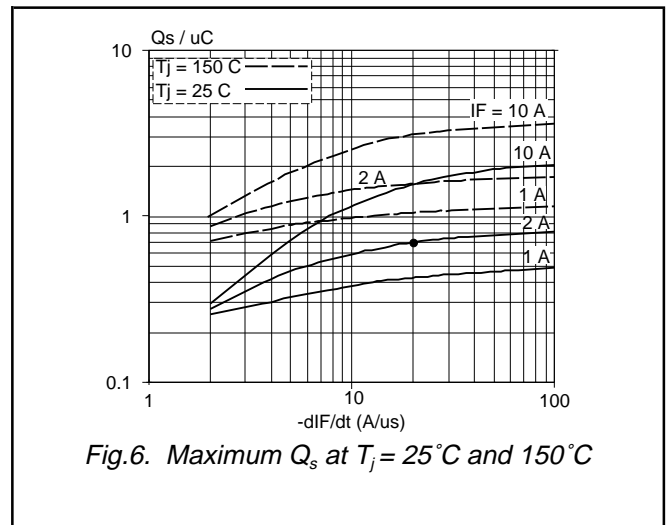
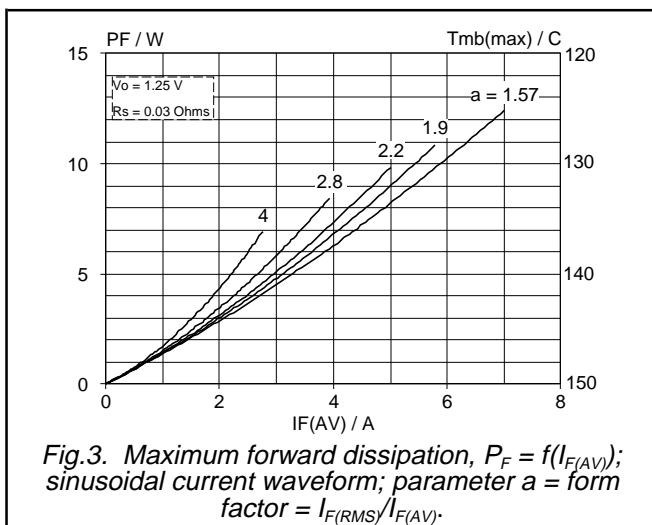
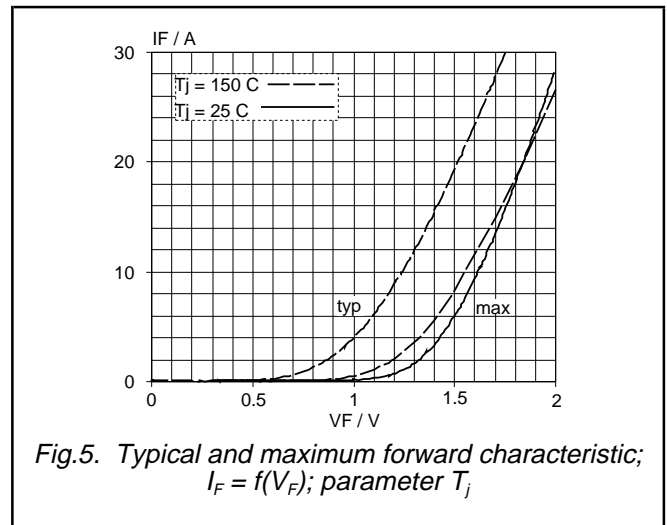
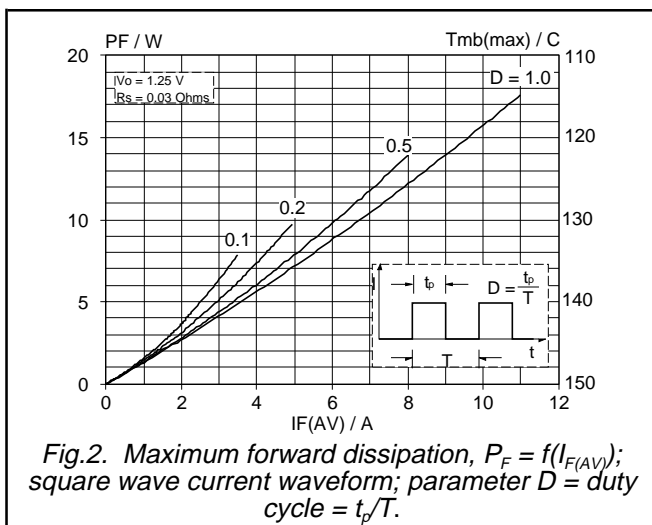
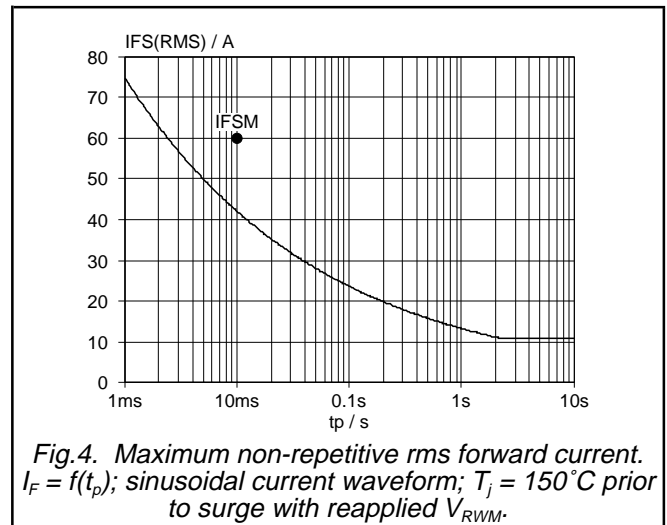
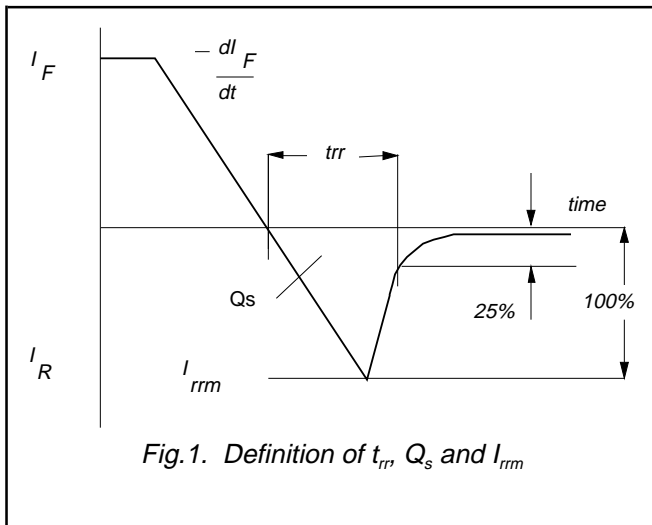
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 20\text{ A}$	-	1.5	1.85	V
I_R	Reverse current	$V_R = V_{RWM}; T_j = 125\text{ °C}$	-	0.1	0.4	mA

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t_{rr}	Reverse recovery time	$I_F = 1\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 50\text{ A}/\mu\text{s}$	-	100	135	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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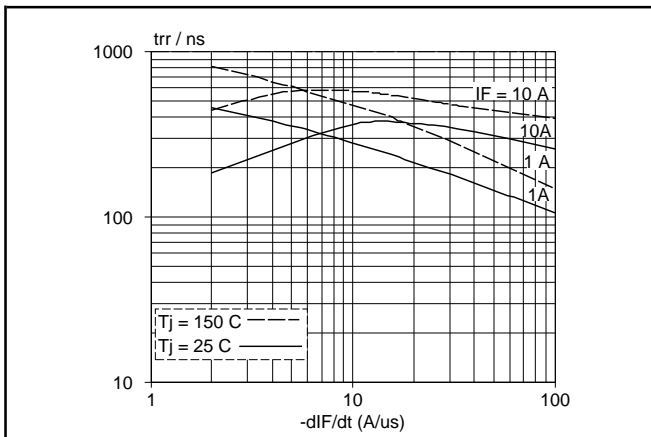


Fig.7. Maximum t_{rr} measured to 25% of I_{rrm} ; $T_j = 25\text{ C}$ and 150 C

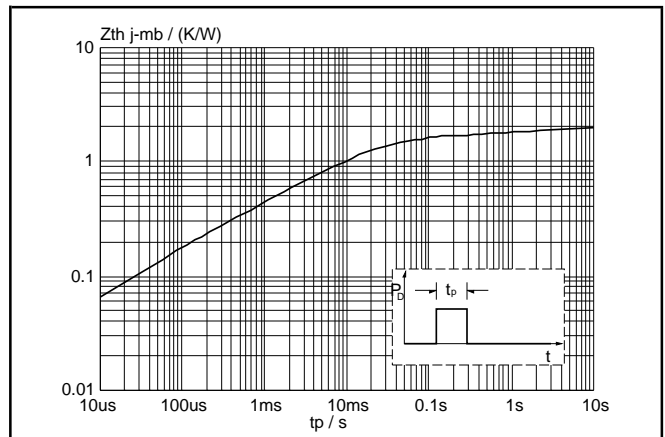


Fig.9. Transient thermal impedance $Z_{th} = f(t_p)$

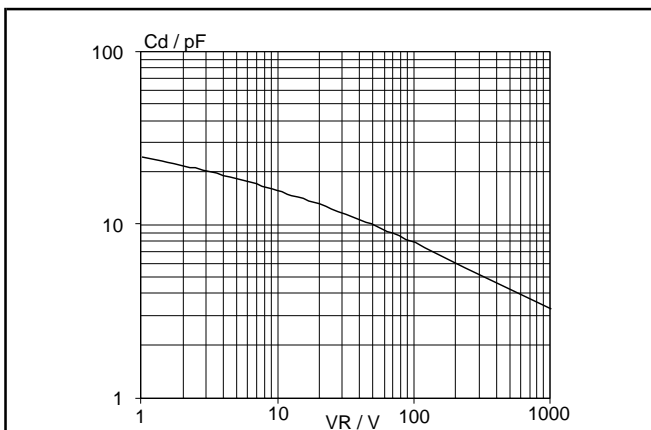
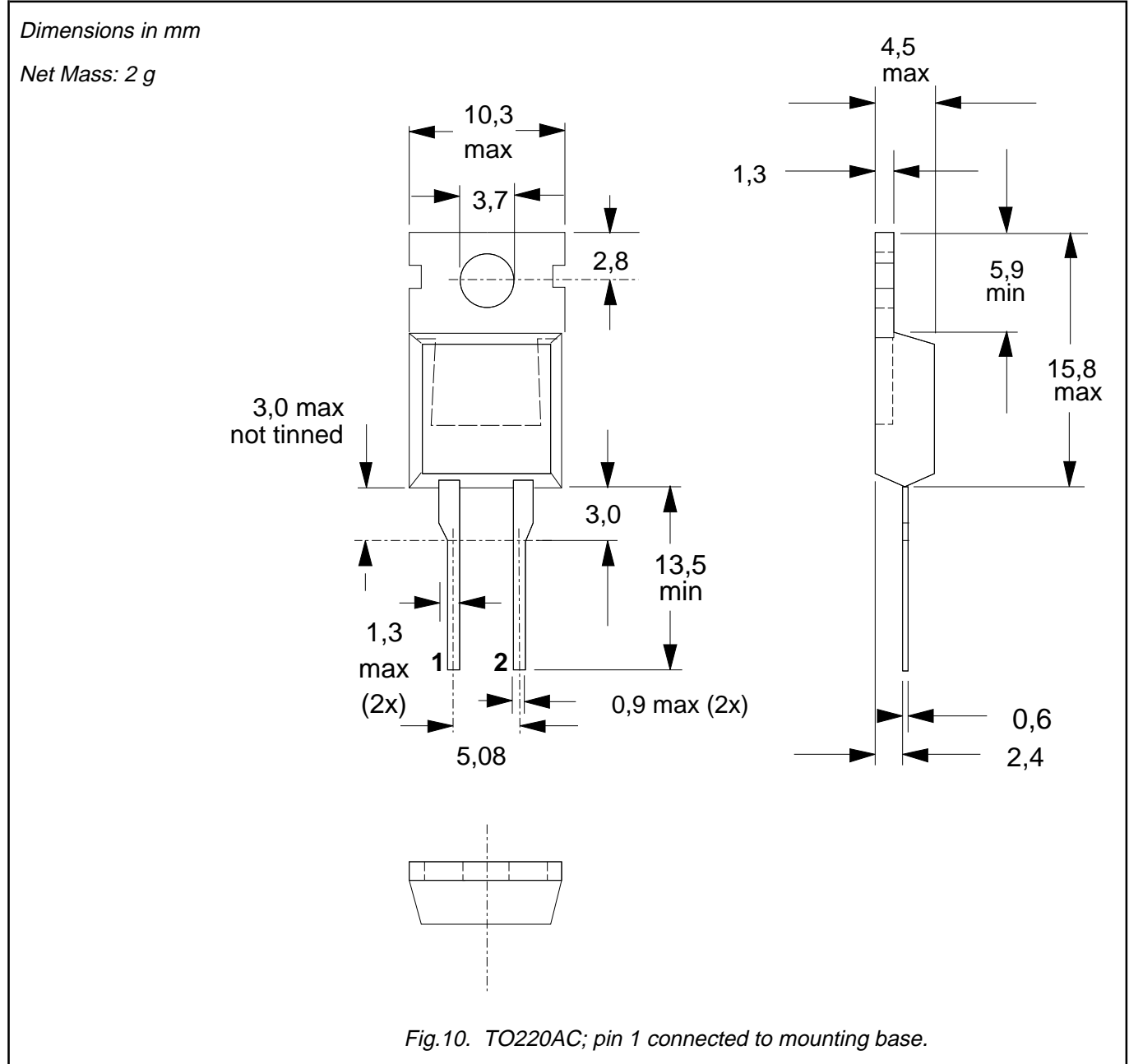


Fig.8. Typical junction capacitance C_d at $f = 1\text{ MHz}$; $T_j = 25\text{ C}$

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MECHANICAL DATA



Notes

1. Accessories supplied on request: refer to mounting instructions for TO220 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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