Rectifier diodes fast, soft-recovery

BY229 series

FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Low thermal resistance

GENERAL DESCRIPTION

Glass-passivated double diffused rectifier diodes 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.

The BY229 series is supplied in the conventional leaded SOD59 (TO220AC) package.

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	BY229	-	-200 200	-400 400	-600 600	-800 800	v
V _{RRM} V _{RWM} V _R	Peak repetitive reverse voltage Crest working reverse voltage Continuous reverse voltage		- - -	200 150 150	400 300 300	600 500 500	800 600 600	V V V
I _{F(AV)}	Average forward current ¹	$ square wave; \\ \delta = 0.5; \\ T_{mb} \leq 122 \ ^{\circ}C \\ sinusoidal; \\ a = 1.57; \\ T_{mb} \leq 125 \ ^{\circ}C $	-			7	<u>.</u>	A
F(RMS) FRM	RMS forward current Repetitive peak forward current	t = 25 μs; δ = 0.5; T _{mb} ≤ 122 °C	-			1 6		A A
I _{FSM}	Non-repetitive peak forward current.	t = 10 ms t = 8.3 ms sinusoidal; $T_j = 150 \degree C \text{ prior to}$ surge; with reapplied V _{RWM(max)}	-			6 6		AA
$\begin{array}{l} I^2 t \\ T_{stg} \\ T_j \end{array}$	l ² t for fusing Storage temperature Operating junction temperature	t = 10 ms	- -40 -		1:	8 50 50		A ² s °C °C

SYMBOL

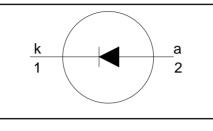
PINNING

PIN

1

2

tab



cathode

anode

cathode

DESCRIPTION

$I_{F(AV)} = 8 A$

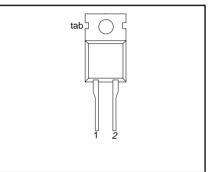
QUICK REFERENCE DATA

 $V_{P} = 200 \text{ V} / 400 \text{ V} / 600 \text{ V} / 800 \text{ V}$

 $I_{FSM} \le 60 \text{ A}$

t_{rr} ≤ 135 ns

SOD59 (TO220AC)



¹ Neglecting switching and reverse current losses.

Product specification

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THERMAL RESISTANCES

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

STATIC CHARACTERISTICS

 $T_i = 25$ °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _F	Forward voltage	I _F = 20 A	-	1.5	1.85	V
I _R	Reverse current	V _R = V _{RWM} ; T _j = 125 °C		0.1	0.4	mA

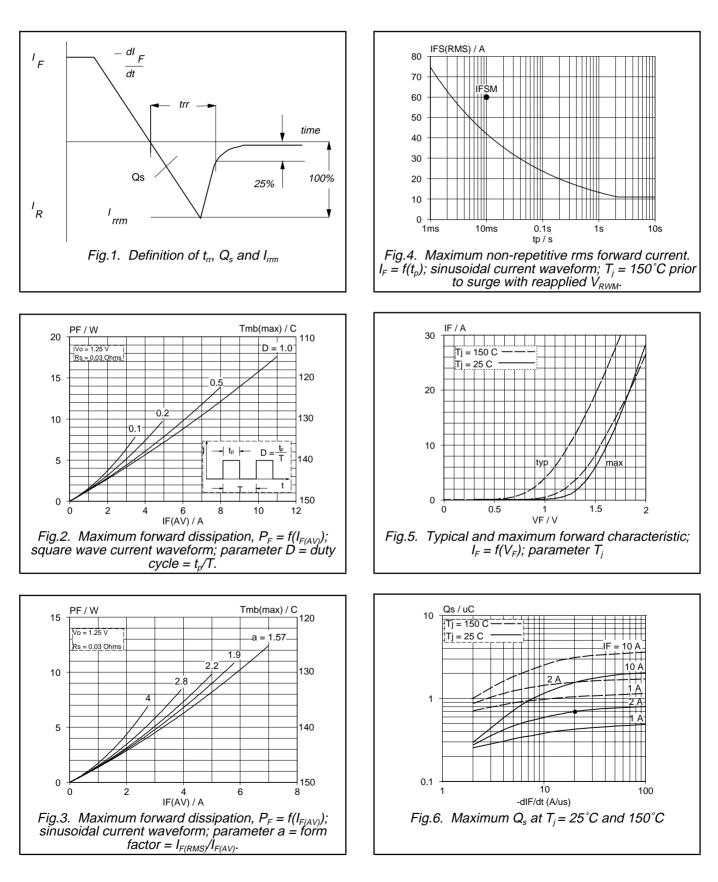
DYNAMIC CHARACTERISTICS

 $T_i = 25$ °C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
t _{rr} Q _s dI _R /dt		$ \begin{array}{l} I_{F}=1 \ A; \ V_{R} \geq 30 \ V; \ \text{-}dI_{F}/dt = 50 \ A/\mu s \\ I_{F}=2 \ A; \ V_{R} \geq 30 \ V; \ \text{-}dI_{F}/dt = 20 \ A/\mu s \\ I_{F}=2 \ A; \ \text{-}dI_{F}/dt = 20 \ A/\mu s \end{array} $		100 0.5 50	135 0.7 60	ns μC A/μs

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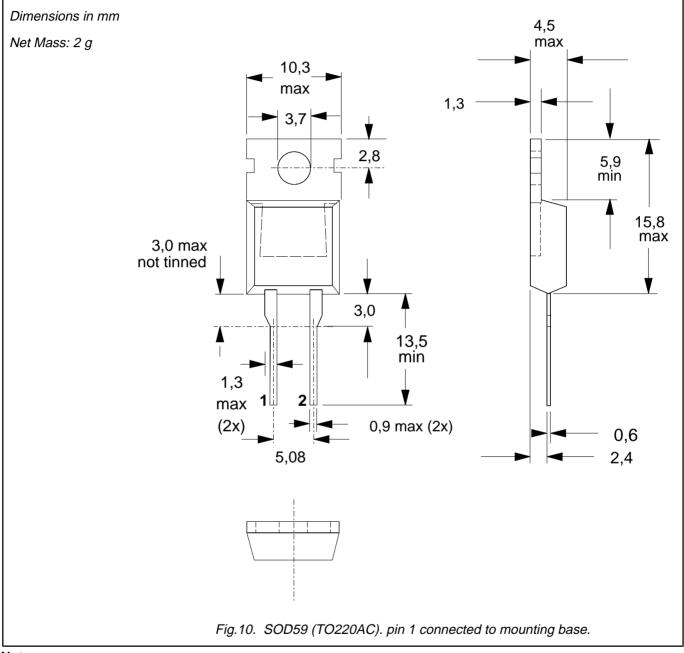
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10 Transient thermal impedance, Zth j-mb (K/W) trr / ns 1000 1 0.1 100 0.01 t⊳ D: Tj = 150 C Tj = 25 C 0.001 └─ 1us 10 10 -dIF/dt (A/us) 10us 10ms 100ms 1s 100 100us 1ms 10s pulse width, tp (s) Fig.7. Maximum t_{rr} measured to 25% of I_{rrm} ; $T_j = 25^{\circ}C$ and 150°C Fig.9. Transient thermal impedance $Z_{th} = f(t_p)$ <u>Cd / p</u>F 100 10 1 10 VR / V 100 1000 Fig.8. Typical junction capacitance C_d at f = 1 MHz; $T_j = 25^{\circ}C$

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MECHANICAL DATA



Notes

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

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DEFINITIONS

Data sheet status				
Objective specification	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 late				
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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