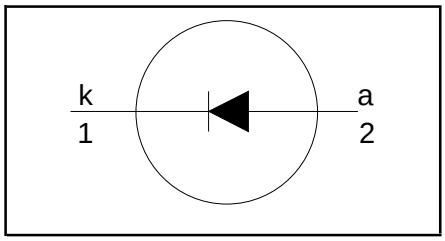
Rectifier diodes general purpose

BY249 series

FEATURES

- Low forward volt drop
- High thermal cycling performance
- Low thermal resistance

SYMBOL



QUICK REFERENCE DATA

V_R = 300 V / 600 V / 800 V

$V_F \leq 1.05$ V

$I_{F(AV)} = 7$ A

$I_{FSM} \leq 60$ A

GENERAL DESCRIPTION

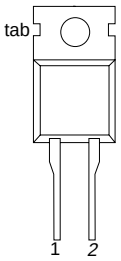
Glass-passivated double diffused rectifier diodes. The devices are intended for low frequency power rectifier applications.

The BY249 series is supplied in the conventional leaded SOD59 (TO220AC) package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	cathode

SOD59 (TO220AC)



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
		BY249		**-300**	**-600**	**-800**	
V_{RSM}	Peak non-repetitive reverse voltage		-	300	600	800	V
V_{RRM}	Peak repetitive reverse voltage		-	300	600	800	V
V_{RWM}	Crest working reverse voltage		-	200	500	700	V
V_R	Continuous reverse voltage		-	200	500	700	V
$I_{F(AV)}$	Average forward current[1]	sinusoidal; a = 1.57; $T_{mb} \leq 131$ ˚C	-	7			A
$I_{F(RMS)}$	RMS forward current		-	11			A
I_{FRM}	Peak repetitive forward current	sinusoidal; a = 1.57;	-	60			A
I_{FSM}	Peak non-repetitive forward current.	t = 10 ms	-	60			A
		t = 8.3 ms	-	66			A
		sinusoidal; T_j = 150 ˚C prior to surge; with reapplied $V_{RWM(max)}$					
I^2t	I^2t for fusing	t = 10 ms	-	18			A^2s
T_{stg}	Storage temperature		-40	150			˚C
T_j	Operating junction temperature		-	150			˚C

1 Neglecting switching and reverse current losses.

THERMAL RESISTANCES

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

STATIC CHARACTERISTICS

T_j = 25 ˚C unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	I_F = 20 A	-	1.2	1.6	V
		I_F = 5 A; T_j = 100 ˚C	-	0.9	1.05	V
I_R	Reverse current	$V_R = V_{RWM}$; T_j = 125 ˚C	-	0.1	0.4	mA

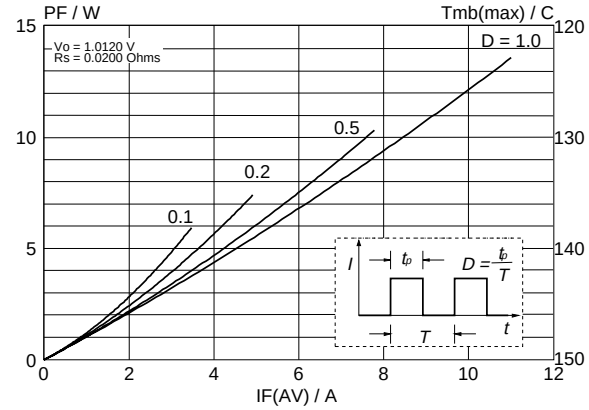


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square wave where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

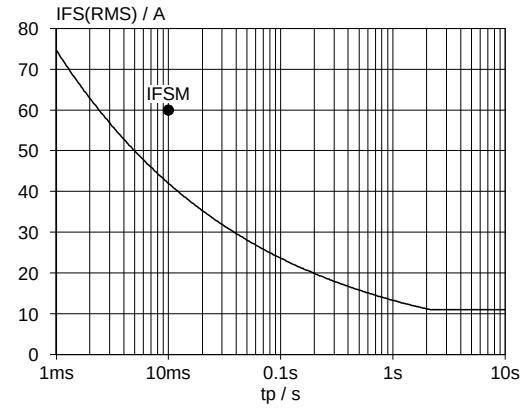


Fig.3. Maximum non-repetitive rms forward current. $I_F = f(t_p)$; sinusoidal current waveform; T_j = 150˚C prior to surge with reapplied V_{RWM}.

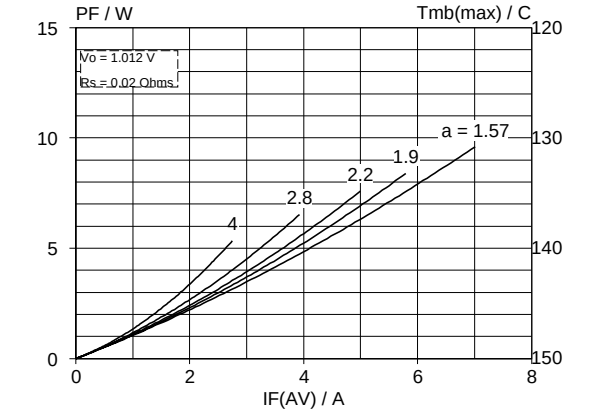


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$; sinusoidal current waveform where a = form factor = $I_{F(RMS)} / I_{F(AV)}$.

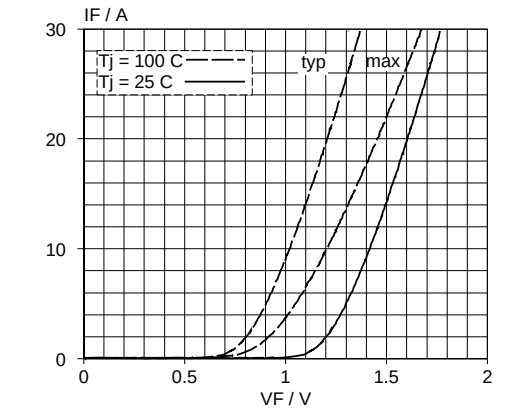


Fig.4. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

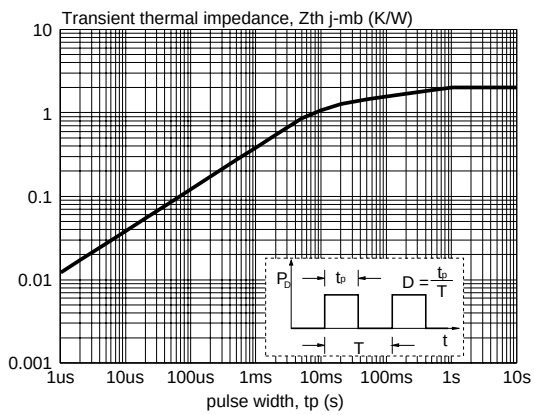


Fig.5. Transient thermal impedance $Z_{th} = f(t_p)$

MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

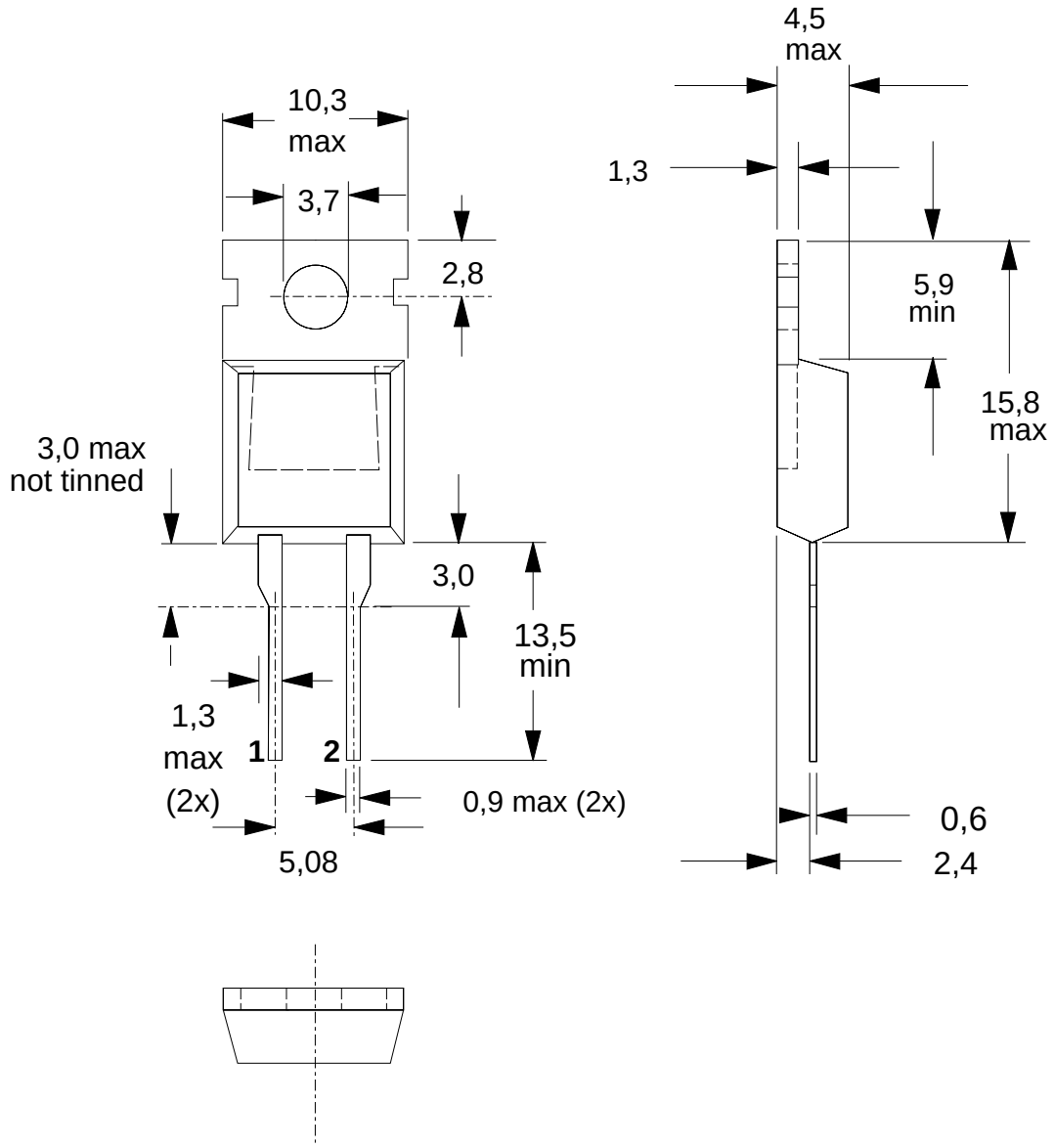


Fig.6. SOD59 (TO220AC). pin 1 connected to mounting base.

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

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.	

LIFE SUPPORT APPLICATIONS

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