Silicon Diode

BY249-300

300V/7A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

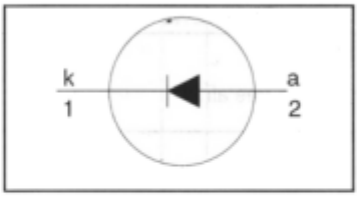
Datasheet Rev. 1.3 – 04/19 – data without warranty / liability

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

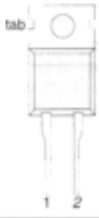
Glass-passivated double diffused rectifier diodes. The devices are intended for low frequency power rectifier applications.

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.

Rectifier diodes
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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

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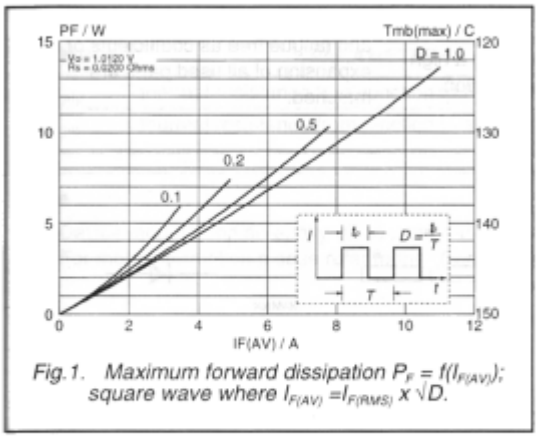

Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square wave where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

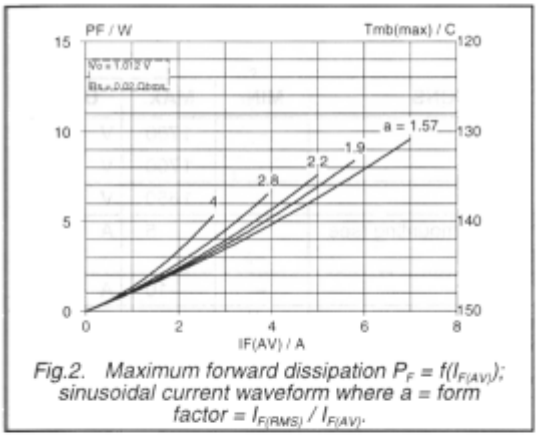

Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$; sinusoidal current waveform where a = form factor = $I_{F(RMS)} / I_{F(AV)}$.

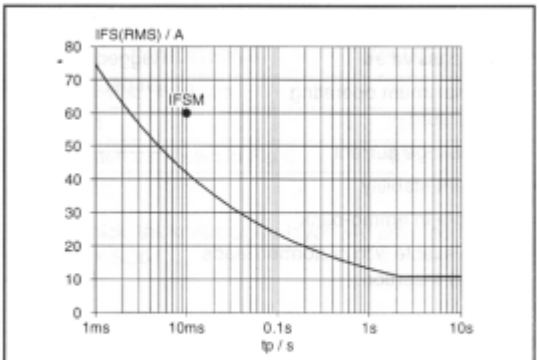

Fig.3. Maximum non-repetitive rms forward current. $I_F = f(t_p)$; sinusoidal current waveform; T_j = 150˚C prior to surge with reapplied V_{RWM}.

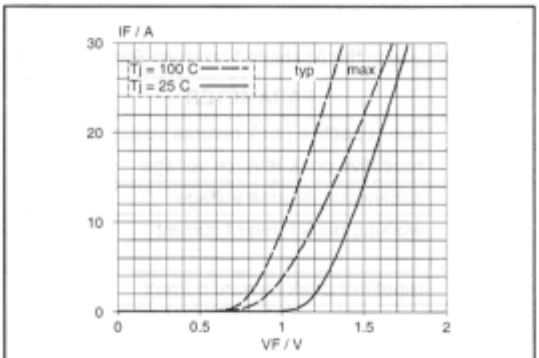

Fig.4. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

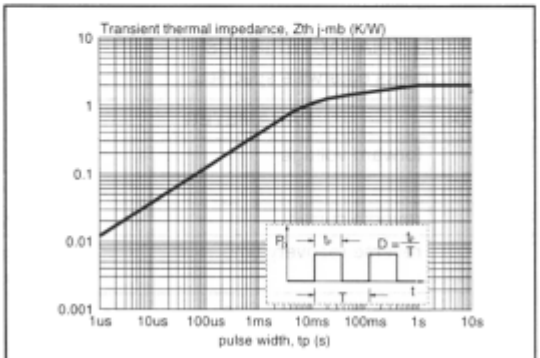

Fig.5. Transient thermal impedance $Z_{th} = f(t_p)$