Schottky Dual Diode

PBYR3080WT

80V / 30A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

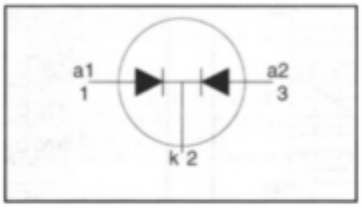
Datasheet Rev. 1.3 – 04/19 – data without warranty / liability

Rectifier diodes Schottky barrier — PBYR30100WT series

FEATURES

- Low forward volt drop
- Fast switching
- Reverse surge capability
- High thermal cycling performance
- Low thermal resistance

SYMBOL



QUICK REFERENCE DATA

V_R = 60 V/ 80 V/ 100 V

$I_{O(AV)}$ = 30 A

$V_F \leq 0.7$ V

GENERAL DESCRIPTION

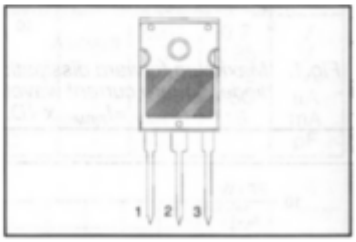
Schottky rectifier diodes in a plastic envelope. Intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYR30100WT series is supplied in the conventional leaded SOT429 (TO247) package.

PINNING

PIN	DESCRIPTION
1	anode 1
2	cathode
3	anode 2
mounting base	cathode

SOT429 (TO247)



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
		PBYR30		60WT	80WT	100WT	
V_{RRM}	Peak repetitive reverse voltage		-	60	80	100	V
V_{RWM}	Working peak reverse voltage		-	60	80	100	V
V_R	Continuous reverse voltage	$T_{mb} \leq 139$ °C	-	60	80	100	V
$I_{O(AV)}$	Average rectified output current (both diodes conducting)	square wave; $\delta = 0.5$; $T_{mb} \leq 124$ °C	-	30			A
I_{FRM}	Repetitive peak forward current per diode	square wave; $\delta = 0.5$; $T_{mb} \leq 124$ °C	-	30			A
I_{FSM}	Non-repetitive peak forward current per diode	t = 10 ms	-	180			A
		t = 8.3 ms sinusoidal; $T_j = 125$ °C prior to surge; with reapplied $V_{RRM(max)}$	-	200			A
I_{RRM}	Peak repetitive reverse surge current per diode	pulse width and repetition rate limited by $T_{j\,max}$	-	1			A
T_j	Operating junction temperature		-	150			°C
T_{stg}	Storage temperature		- 65	175			°C

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\,j\text{-}mb}$	Thermal resistance junction to mounting base	per diode	-	-	1.4	K/W
		both diodes	-	-	1	K/W
$R_{th\,j\text{-}a}$	Thermal resistance junction to ambient	in free air	-	45	-	K/W

ELECTRICAL CHARACTERISTICS

characteristics are per diode at T_j = 25 ˚C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	I_F = 15 A; T_j = 125˚C	-	0.61	0.7	V
		I_F = 30 A; T_j = 125˚C	-	0.74	0.85	V
		I_F = 15 A	-	0.77	0.85	V
I_R	Reverse current	$V_R = V_{RWM}$	-	5	150	µA
		$V_R = V_{RWM}$; T_j = 125˚C	-	5	15	mA
C_d	Junction capacitance	V_R = 5 V; f = 1 MHz, T_j = 25˚C to 125˚C	-	600	-	pF

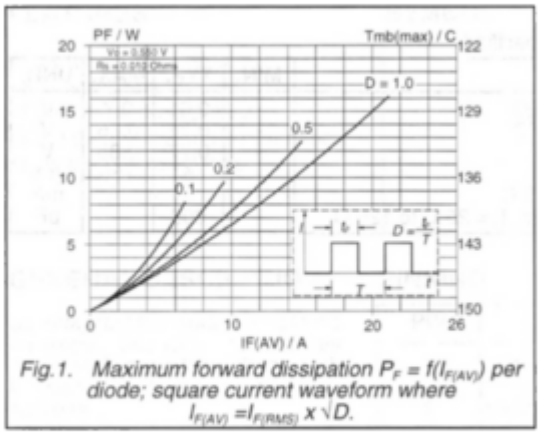


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

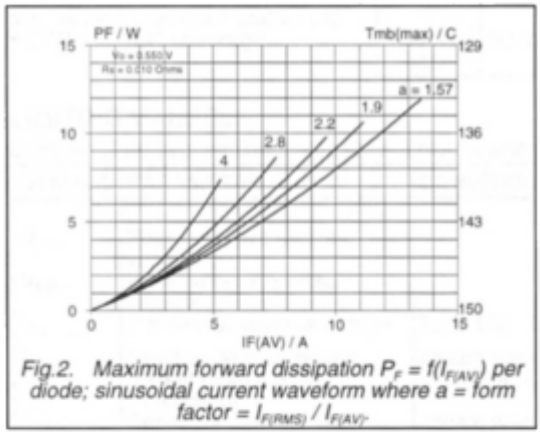


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; sinusoidal current waveform where a = form factor = $I_{F(RMS)} / I_{F(AV)}$.

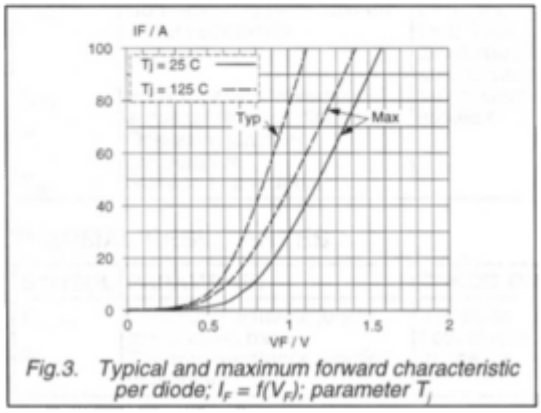


Fig.3. Typical and maximum forward characteristic per diode; $I_F = f(V_F)$; parameter T_j

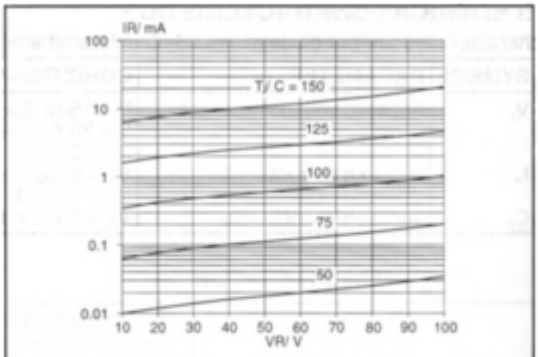


Fig.4. Typical reverse leakage current per diode; $I_R = f(V_R)$; parameter T_j

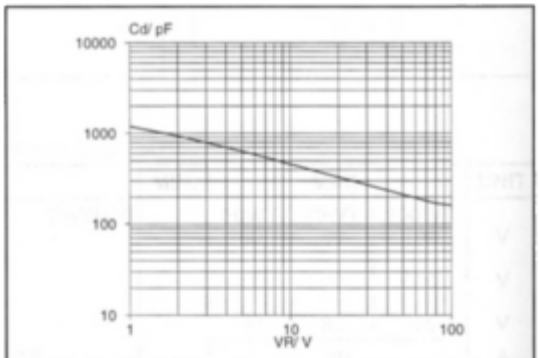


Fig.5. Typical junction capacitance per diode; $C_d = f(V_R)$; f = 1 MHz; T_j = 25˚C to 125 ˚C.

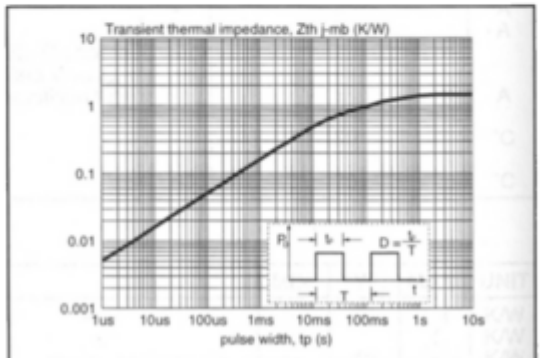


Fig.6. Transient thermal impedance per diode; $Z_{th\ j\text{-}mb} = f(t_p)$.