

# Schottky Diode

## **PBYR1045B**

45V / 10A

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

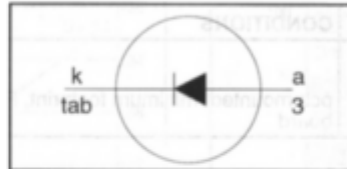
## Rectifier diodes Schottky barrier

## PBYR1045B series

### FEATURES

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

### SYMBOL



### QUICK REFERENCE DATA

$V_R = 40 \text{ V} / 45 \text{ V}$
$I_{F(AV)} = 10 \text{ A}$
$V_F \leq 0.57 \text{ V}$

### GENERAL DESCRIPTION

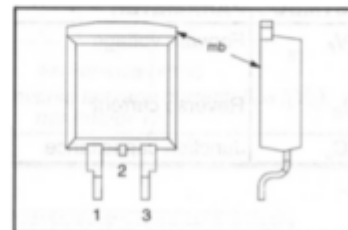
Schottky rectifier diodes in a plastic envelope. Intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYR1045B series is supplied in the surface mounting SOT404 package.

### PINNING

PIN	DESCRIPTION
1	no connection
2	cathode <sup>1</sup>
3	anode
tab	cathode

### SOT404



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
				40B	45B	
$V_{RRM}$	Peak repetitive reverse voltage	$T_{mb} \leq 113 \text{ }^\circ\text{C}$	-	40	45	V
$V_{RWM}$	Working peak reverse voltage		-	40	45	V
$V_R$	Continuous reverse voltage		-	40	45	V
$I_{F(AV)}$	Average rectified forward current	square wave; $\delta = 0.5$ ; $T_{mb} \leq 136 \text{ }^\circ\text{C}$	-	10		A
$I_{FRM}$	Repetitive peak forward current	square wave; $\delta = 0.5$ ; $T_{mb} \leq 136 \text{ }^\circ\text{C}$	-	20		A
$I_{FSM}$	Non-repetitive peak forward current	$t = 10 \text{ ms}$	-	135		A
		$t = 8.3 \text{ ms}$	-	150		A
$I_{RRM}$	Peak repetitive reverse surge current	sinusoidal; $T_j = 125 \text{ }^\circ\text{C}$ prior to surge; with reapplied $V_{RRM(max)}$ pulse width and repetition rate limited by $T_{jmax}$	-	1		A
$T_j$	Operating junction temperature		-	150		$^\circ\text{C}$
$T_{stg}$	Storage temperature		-65	175		$^\circ\text{C}$

<sup>1</sup> It is not possible to make connection to pin 2 of the SOT404 package.

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### THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th(j-mb)}$	Thermal resistance junction to mounting base		-	-	2	K/W
$R_{th(j-a)}$	Thermal resistance junction to ambient	pcb mounted, minimum footprint, FR4 board	-	50	-	K/W

### ELECTRICAL CHARACTERISTICS

T = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_F$	Forward voltage	$I_F = 10\text{ A}; T_J = 125^\circ\text{C}$	-	0.5	0.57	V
		$I_F = 20\text{ A}; T_J = 125^\circ\text{C}$	-	0.69	0.72	V
		$I_F = 20\text{ A}$	-	0.65	0.84	V
$I_R$	Reverse current	$V_R = V_{RWM}$	-	0.2	1.3	mA
		$V_R = V_{RWM}; T_J = 100^\circ\text{C}$	-	22	35	mA
$C_d$	Junction capacitance	$V_R = 5\text{ V}; f = 1\text{ MHz}; T_J = 25^\circ\text{C to } 125^\circ\text{C}$	-	350	-	pF

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