

Schottky Diode

PBYR740D

40V / 7.5A

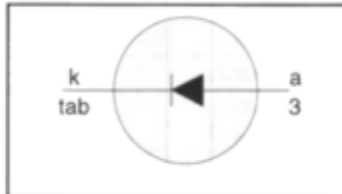
DATASHEET

OEM – Philips

Source: Philips Databook 1999

**Rectifier diodes
Schottky barrier**
PBYR745B, PBYR745D series
FEATURES

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

SYMBOL

QUICK REFERENCE DATA

$$V_R = 40 \text{ V} / 45 \text{ V}$$

$$I_{F(AV)} = 7.5 \text{ A}$$

$$V_F \leq 0.57 \text{ V}$$

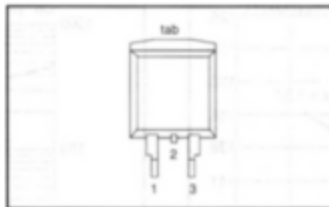
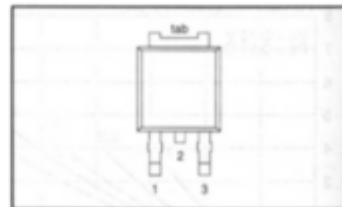
GENERAL DESCRIPTION

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

The PBYR745B series is supplied in the SOT404 surface mounting package.
The PBYR745D series is supplied in the SOT428 surface mounting package.

PINNING

PIN	DESCRIPTION
1	no connection
2	cathode ¹
3	anode
tab	cathode

SOT404

SOT428

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
				PBYR7 PBYR7	40B 40D 40	
V_{RRM}	Peak repetitive reverse voltage		-	40	45	V
V_{RWM}	Working peak reverse voltage		-	40	45	V
V_R	Continuous reverse voltage	$T_{mb} \leq 114 \text{ }^\circ\text{C}$	-	40	45	V
$I_{F(AV)}$	Average rectified forward current	square wave; $\delta = 0.5$; $T_{mb} \leq 136 \text{ }^\circ\text{C}$	-	7.5		A
I_{FRM}	Repetitive peak forward current	square wave; $\delta = 0.5$; $T_{mb} \leq 136 \text{ }^\circ\text{C}$	-	15		A
I_{FSM}	Non-repetitive peak forward current	$t = 10 \text{ ms}$	-	135		A
		$t = 8.3 \text{ ms}$	-	150		A
		$t = 10 \text{ ms}$	-	100		A
		$t = 8.3 \text{ ms}$	-	110		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		$^\circ\text{C}$

1. It is not possible to make connection to pin 2 of the SOT404 or SOT428 package.

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THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base		-	-	3	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	pcb mounted, minimum footprint, FR4 board	-	50	-	K/W

ELECTRICAL CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	$I_F = 7.5\text{ A}; T_j = 125\text{ }^\circ\text{C}$	-	0.45	0.57	V
		$I_F = 15\text{ A}; T_j = 125\text{ }^\circ\text{C}$	-	0.65	0.72	V
		$I_F = 15\text{ A}$	-	0.64	0.84	V
I_R	Reverse current	$V_R = V_{RWM}$	-	0.13	1	mA
		$V_R = V_{RWM}; T_j = 100\text{ }^\circ\text{C}$	-	17	22	mA
C_d	Junction capacitance	$V_R = 5\text{ V}; f = 1\text{ MHz}; T_j = 25\text{ }^\circ\text{C to } 125\text{ }^\circ\text{C}$	-	270	-	pF

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