

Schottky Diode

PBYR1045F

45V / 10A

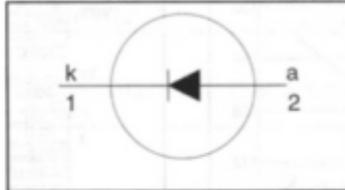
DATASHEET

OEM – Philips

Source: Philips Databook 1999

**Rectifier diodes
Schottky barrier**
PBYR1045F, PBYR1045X series
FEATURES

- Low forward volt drop
- Fast switching
- Reverse surge capability
- High thermal cycling performance
- Isolated mounting tab

SYMBOL

QUICK REFERENCE DATA

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

$$I_{F(AV)} = 10 \text{ A}$$

$$V_F \leq 0.59 \text{ V}$$

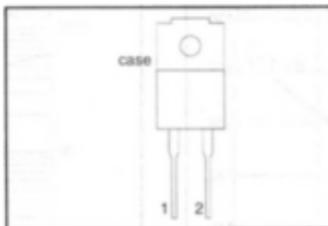
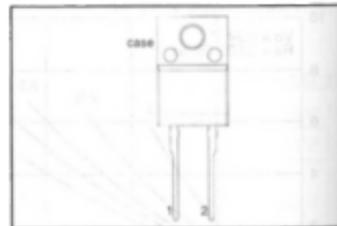
GENERAL DESCRIPTION

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

The PBYR1045F series is supplied in the SOD100 package.
The PBYR1045X series is supplied in the SOD113 package.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode
tab	isolated

SOD100

SOD113

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
				PBYR10 PBYR10	40F 40X	
V_{RRM}	Peak repetitive reverse voltage		-	40	45	V
V_{RWM}	Working peak reverse voltage		-	40	45	V
V_R	Continuous reverse voltage	$T_{ha} \leq 95 \text{ }^\circ\text{C}$	-	40	45	V
$I_{F(AV)}$	Average rectified forward current	square wave; $\delta = 0.5$; $T_{ha} \leq 112 \text{ }^\circ\text{C}$	-	10		A
I_{FRM}	Repetitive peak forward current	square wave; $\delta = 0.5$; $T_{ha} \leq 112 \text{ }^\circ\text{C}$	-	20		A
I_{FSM}	Non-repetitive peak forward current	$t = 10 \text{ ms}$	-	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		$^\circ\text{C}$

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ISOLATION LIMITING VALUE & CHARACTERISTIC

$T_{ns} = 25\text{ °C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	Peak isolation voltage from both terminals to external heatsink	SOD100 package; R.H. \leq 65%; clean and dustfree	-	-	1500	V
V_{isol}	R.M.S. isolation voltage from both terminals to external heatsink	SOD113 package; $f = 50\text{-}60\text{ Hz}$; sinusoidal waveform; R.H. \leq 65%; clean and dustfree	-	-	2500	V
C_{isol}	Capacitance from pin 1 to external heatsink	$f = 1\text{ MHz}$	-	10	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
R_{th-jhs}	Thermal resistance junction to heatsink	with heatsink compound	-	-	5.5	K/W
R_{th-ja}	Thermal resistance junction to ambient	in free air	-	55	-	K/W

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_f	Forward voltage	$I_f = 10\text{ A}$; $T_j = 125\text{ °C}$ $I_f = 20\text{ A}$; $T_j = 125\text{ °C}$	-	0.5 0.69	0.59 0.75	V V
I_R	Reverse current	$I_f = 20\text{ A}$ $V_R = V_{RWM}$ $V_R = V_{RWM}$; $T_j = 100\text{ °C}$	-	0.2 22	1.3 35	mA mA
C_d	Junction capacitance	$V_R = 5\text{ V}$; $f = 1\text{ MHz}$; $T_j = 25\text{ °C}$ to 125 °C	-	350	-	pF

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