

# Schottky Dual Diode

## **PBYR2540CTB**

40V / 30A

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

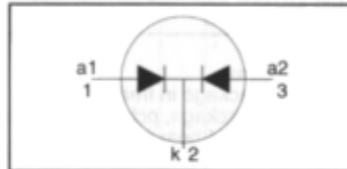
## Rectifier diodes Schottky barrier

## PBYR2545CT, PBYR2545CTB series

### FEATURES

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

### SYMBOL



### QUICK REFERENCE DATA

$V_R = 40 \text{ V} / 45 \text{ V}$
$I_{O(AV)} = 30 \text{ A}$
$V_F \leq 0.62 \text{ V}$

### GENERAL DESCRIPTION

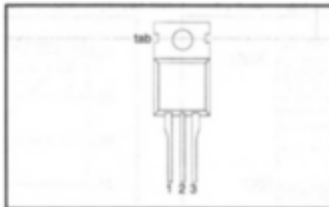
Dual, common cathode schottky rectifier diodes in a conventional leaded plastic package and a surface mounting plastic package. Intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYR2545CT series is supplied in the SOT78 conventional leaded package.  
The PBYR2545CTB series is supplied in the SOT404 surface mounting package.

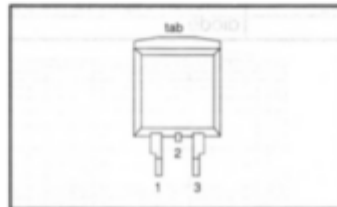
### PINNING

PIN	DESCRIPTION
1	anode 1 (a)
2	cathode (k) <sup>1</sup>
3	anode 2 (a)
tab	cathode (k)

### SOT78 (TO220AB)



### SOT404



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
				40CT 40CTB	45CT 45CTB	
$V_{RRM}$	Peak repetitive reverse voltage		-	40	45	V
$V_{RWM}$	Working peak reverse voltage		-	40	45	V
$V_R$	Continuous reverse voltage	$T_{mb} \leq 113 \text{ }^\circ\text{C}$	-	40	45	V
$I_{O(AV)}$	Average rectified forward current (both diodes conducting) <sup>2</sup>	square wave; $\delta = 0.5$ ; $T_{mb} \leq 126 \text{ }^\circ\text{C}$	-	30		A
$I_{FRM}$	Repetitive peak forward current per diode	square wave; $\delta = 0.5$ ; $T_{mb} \leq 126 \text{ }^\circ\text{C}$	-	30		A
$I_{FSM}$	Non-repetitive peak forward current per diode	$t = 10 \text{ ms}$	-	180		A
		$t = 8.3 \text{ ms}$	-	200		A
$I_{RRM}$	Peak repetitive reverse surge current per diode	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 package.

2. SOT78 package. For output currents greater than 20A the cathode connection should be made to the metal mounting tab.

Rectifier diodes  
Schottky barrier

PBYR2545CT, PBYR2545CTB series

### THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{thj-mb}$	Thermal resistance junction to mounting base	per diode	-	-	1.5	K/W
$R_{thj-a}$	Thermal resistance junction to ambient	both diodes	-	-	1	K/W
		SOT78 package in free air	-	60	-	K/W
		SOT404 package, 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 per diode	$I_f = 20\text{ A}; T_j = 125\text{ }^{\circ}\text{C}$	-	0.58	0.62	V
		$I_f = 30\text{ A}; T_j = 125\text{ }^{\circ}\text{C}$	-	0.72	0.76	V
		$I_f = 30\text{ A}$	-	0.72	0.82	V
$I_R$	Reverse current per diode	$V_R = V_{RWM}$	-	0.3	2	mA
		$V_R = V_{RWM}; T_j = 100\text{ }^{\circ}\text{C}$	-	30	40	mA
$C_d$	Junction capacitance per diode	$V_R = 5\text{ V}; f = 1\text{ MHz}; T_j = 25\text{ }^{\circ}\text{C to } 125\text{ }^{\circ}\text{C}$	-	530	-	pF

Rectifier diodes  
Schottky barrier

PBYR2545CT, PBYR2545CTB series

