

Schottky Dual Diode

PBYR2045CTB

45V / 20A

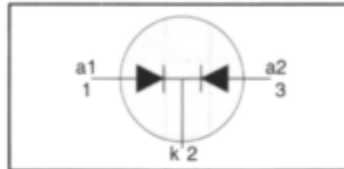
DATASHEET

OEM – Philips

Source: Philips Databook 1999

**Rectifier diodes
Schottky barrier**
PBYR2045CT, PBYR2045CTB series
FEATURES

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

SYMBOL

QUICK REFERENCE DATA

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

$$I_{O(AV)} = 20 \text{ A}$$

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

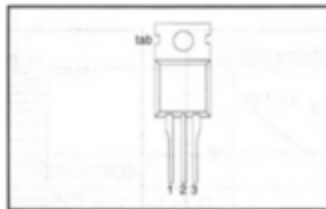
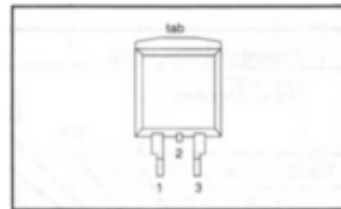
GENERAL DESCRIPTION

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 PBYR2045CT series is supplied in the SOT78 conventional leaded package.
The PBYR2045CTB series is supplied in the SOT404 surface mounting package.

PINNING

PIN	DESCRIPTION
1	anode 1 (a)
2	cathode (k) ¹
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	$T_{mb} \leq 106 \text{ }^\circ\text{C}$	-	40	45	V
$I_{O(AV)}$	Average rectified forward current (both diodes conducting)	square wave; $\delta = 0.5$; $T_{mb} \leq 128 \text{ }^\circ\text{C}$	-	20		A
I_{FRM}	Repetitive peak forward current per diode	square wave; $\delta = 0.5$; $T_{mb} \leq 128 \text{ }^\circ\text{C}$	-	20		A
I_{FSM}	Non-repetitive peak forward current per diode	$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$	-	135		A
I_{FRM}	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.

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THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th(j-mb)}$	Thermal resistance junction to mounting base	per diode	-	-	2	K/W
		both diodes	-	-	1.5	K/W
$R_{th(j-a)}$	Thermal resistance junction to ambient	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	$I_f = 10\text{ A}; T_j = 125\text{ }^{\circ}\text{C}$	-	0.45	0.57	V
		$I_f = 20\text{ A}; T_j = 125\text{ }^{\circ}\text{C}$	-	0.64	0.72	V
		$I_f = 20\text{ A}$	-	0.64	0.84	V
I_R	Reverse current per diode	$V_R = V_{RWM}$	-	0.3	1.3	mA
		$V_R = V_{RWM}; T_j = 100\text{ }^{\circ}\text{C}$	-	22	35	mA
C_d	Junction capacitance per diode	$V_R = 5\text{ V}; f = 1\text{ MHz}; T_j = 25\text{ }^{\circ}\text{C to } 125\text{ }^{\circ}\text{C}$	-	380	-	pF

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