

# Schottky Dual Diode

## **PBYR2540CTX**

40V / 20A

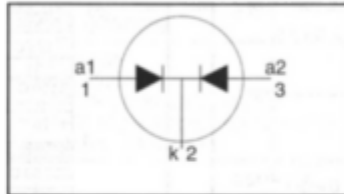
# DATASHEET

OEM – Philips

Source: Philips Databook 1999

**Rectifier diodes  
Schottky barrier**
**PBYR2545CTF, PBYR2545CTX**
**FEATURES**

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

**SYMBOL**

**QUICK REFERENCE DATA**

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

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

$$V_F \leq 0.65 \text{ V}$$

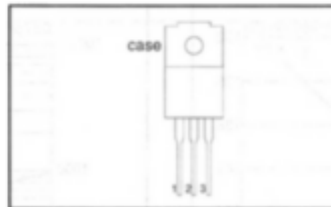
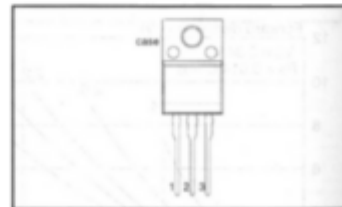
**GENERAL DESCRIPTION**

Dual, common cathode 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 PBYR2545CTF is supplied in the SOT186 package.  
The PBYR2545CTX is supplied in the SOT186A package.

**PINNING**

PIN	DESCRIPTION
1	anode 1 (a)
2	cathode (k)
3	anode 2 (a)
tab	isolated

**SOT186**

**SOT186A**

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
				40CTF 40CTX	45CTF 45CTX	
$V_{RRM}$	Peak repetitive reverse voltage		-	40	45	V
$V_{RWM}$	Working peak reverse voltage		-	40	45	V
$V_R$	Continuous reverse voltage	$T_{ha} \leq 86 \text{ }^\circ\text{C}$	-	40	45	V
$I_{O(AV)}$	Average rectified output current (both diodes conducting)	square wave; $\delta = 0.5$ ; $T_{ha} \leq 98 \text{ }^\circ\text{C}$	-	20		A
$I_{FRM}$	Repetitive peak forward current per diode	square wave; $\delta = 0.5$ ; $T_{ha} \leq 98 \text{ }^\circ\text{C}$	-	20		A
$I_{FSM}$	Non-repetitive peak forward current per diode	$t = 10 \text{ ms}$	-	135		A
		$t = 8.3 \text{ ms}$	-	150		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		$^\circ\text{C}$

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### ISOLATION LIMITING VALUE & CHARACTERISTIC

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{isol}$	Peak isolation voltage from all terminals to external heatsink	SOT186 package; R.H. $\leq$ 65%; clean and dustfree	-	-	1500	V
$V_{isol}$	R.M.S. isolation voltage from all terminals to external heatsink	SOT186A package; $f = 50\text{-}60\text{ Hz}$ ; sinusoidal waveform; R.H. $\leq$ 65%; clean and dustfree	-	-	2500	V
$C_{isol}$	Capacitance from pin 2 to external heatsink	$f = 1\text{ MHz}$	-	10	-	pF

### THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\text{-}j\text{-}hs}$	Thermal resistance junction to heatsink	per diode	-	-	4.8	K/W
		both diodes (with heatsink compound)	-	-	4	K/W
$R_{th\text{-}j\text{-}a}$	Thermal resistance junction to ambient	in free air	-	55	-	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	0.65	V
		$I_F = 20\text{ A}$	-	0.63	0.68	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

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