

Schottky Dual Diode

PBYR2045CTF

45V / 20A

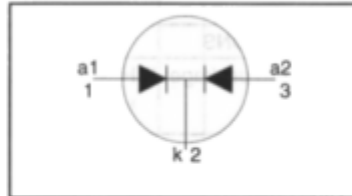
DATASHEET

OEM – Philips

Source: Philips Databook 1999

**Rectifier diodes
Schottky barrier**
PBYR2045CTF, PBYR2045CTX series
FEATURES

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

SYMBOL

QUICK REFERENCE DATA

$V_R = 40\text{ V} / 45\text{ V}$
$I_{O(AV)} = 20\text{ A}$
$V_F \leq 0.57\text{ V}$

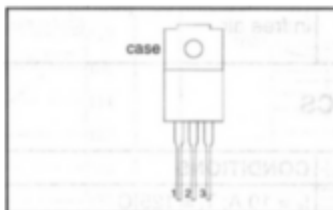
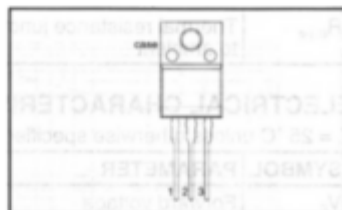
GENERAL DESCRIPTION

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 PBYR2045CTF series is supplied in the SOT186 package.
The PBYR2045CTX series 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	$T_{ns} \leq 84\text{ }^\circ\text{C}$	-	40	45	V
$I_{O(AV)}$	Average rectified output current (both diodes conducting)	square wave; $\delta = 0.5$; $T_{ns} \leq 78\text{ }^\circ\text{C}$	-	20		A
I_{FRM}	Repetitive peak forward current per diode	square wave; $\delta = 0.5$; $T_{ns} \leq 78\text{ }^\circ\text{C}$	-	20		A
I_{FSM}	Non-repetitive peak forward current per diode	$t = 10\text{ ms}$	-	100		A
		$t = 8.3\text{ ms}$	-	110		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

$T_{res} = 25\text{ °C}$ 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
$R_{th\ j-hs}$	Thermal resistance junction to heatsink	per diode both diodes (with heatsink compound)	-	-	6	K/W
$R_{th\ j-a}$	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	$I_F = 10\text{ A}$; $T_j = 125\text{ °C}$ $I_F = 20\text{ A}$; $T_j = 125\text{ °C}$ $I_F = 20\text{ A}$	-	0.45 0.64 0.64	0.57 0.72 0.84	V V V
I_R	Reverse current	$V_R = V_{RWM}$ $V_R = V_{RWM}$; $T_j = 100\text{ °C}$	-	0.3 22	1.3 35	mA mA
C_g	Junction capacitance	$V_R = 5\text{ V}$; $f = 1\text{ MHz}$; $T_j = 25\text{ °C}$ to 125 °C	-	380	-	pF

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