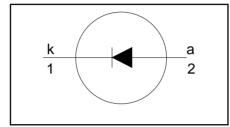
PBYR1045F, PBYR1045X series

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

$$V_R = 40 \text{ V} / 45 \text{ V}$$
 $I_{F(AV)} = 10 \text{ A}$
 $V_F \le 0.59 \text{ V}$

GENERAL DESCRIPTION

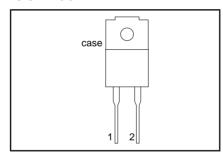
Schottky rectifier diodes in a plastic envelope with electrically isolated mounting tab. Intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

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

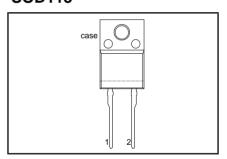
PINNING

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
V	Peak repetitive reverse	PBYR10 PBYR10		40F 40X 40	45F 45X 45	V
V_{RRM}	voltage		-	40	45	'
V_{RWM}	Working peak reverse voltage		-	40	45	V
V_R	Continuous reverse voltage	T _{hs} ≤ 95 °C	-	40	45	V
I _{F(AV)}	Average rectified forward current	square wave; δ = 0.5; $T_{hs} \le 112 ^{\circ}C$	-	1	0	Α
I _{FRM}	Repetitive peak forward current	square wave; $\delta = 0.5$; $T_{hs} \le 112 ^{\circ}C$	-	2	0	А
I _{FSM}	Non-repetitive peak forward current	t = 10 ms t = 8.3 ms sinusoidal; $T_j = 125 ^{\circ}\text{C}$ prior to surge; with reapplied $V_{\text{RRM(max)}}$	-		00 10	A A
I _{RRM}	Peak repetitive reverse surge current	pulse width and repetition rate limited by T _{i max}	-	,	I	Α
T _j	Operating junction temperature	,	-	15	50	°C
T_{stg}	Storage temperature		- 65	17	75	°C

PBYR1045F, PBYR1045X series

ISOLATION LIMITING VALUE & CHARACTERISTIC

 $T_{hs} = 25$ °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. ≤ 65%; clean and dustfree	-	-	1500	V
V _{isol}	R.M.S. isolation voltage from both terminals to external heatsink	SOD113 package; f = 50-60 Hz; sinusoidal waveform; R.H. ≤ 65%; clean and dustfree	-	-	2500	V
C _{isol}	Capacitance from pin 1 to external heatsink	f = 1 MHz	-	10	-	pF

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
R _{th j-hs}	Thermal resistance junction to heatsink	with heatsink compound	-	-	5.5	K/W
R _{th j-a}	1	in free air	-	55	-	K/W

ELECTRICAL CHARACTERISTICS

T_i = 25 °C unless otherwise specified

	•					
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{F}	Forward voltage	$I_{\rm F} = 10 \text{ A}; T_{\rm i} = 125 ^{\circ}\text{C}$	-	0.5	0.59	V
· ·		$I_{\rm F} = 20 \text{ A}; T_{\rm i} = 125 ^{\circ}\text{C}$	-	0.69	0.75	V
		$I_{\rm F} = 20 {\rm A}$	-	0.65	0.87	V
I _R	Reverse current	$\dot{V}_{R} = V_{RWM}$	-	0.2	1.3	mΑ
		$V_R = V_{RWM}$; $T_i = 100$ °C	-	22	35	mΑ
C_d	Junction capacitance	$V_R = 5 \text{ V}$; f = '1 MHz, $T_j = 25 ^{\circ}\text{C}$ to 125 $^{\circ}\text{C}$	-	350	-	pF

PBYR1045F, PBYR1045X series

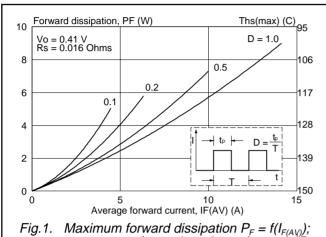
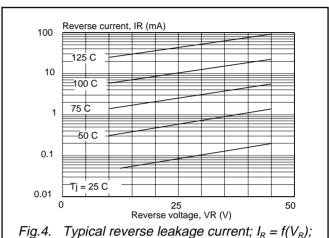


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.



parameter Ti

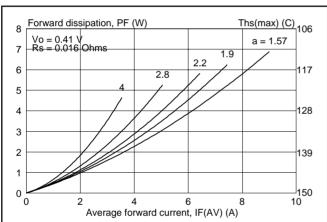
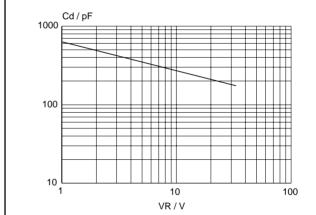


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$; sinusoidal current waveform where a = f(AV) $factor = I_{F(RMS)} / I_{F(AV)}$.



Typical junction capacitance; $C_d = f(V_R)$; f = 1 MHz; $T_j = 25^{\circ}\text{C}$ to 125°C . Fig.5.

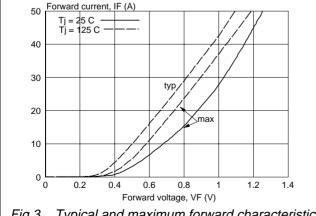
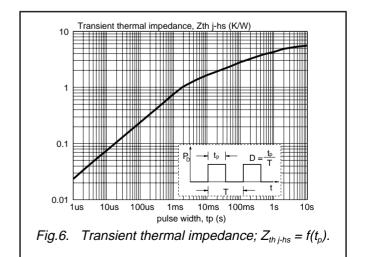
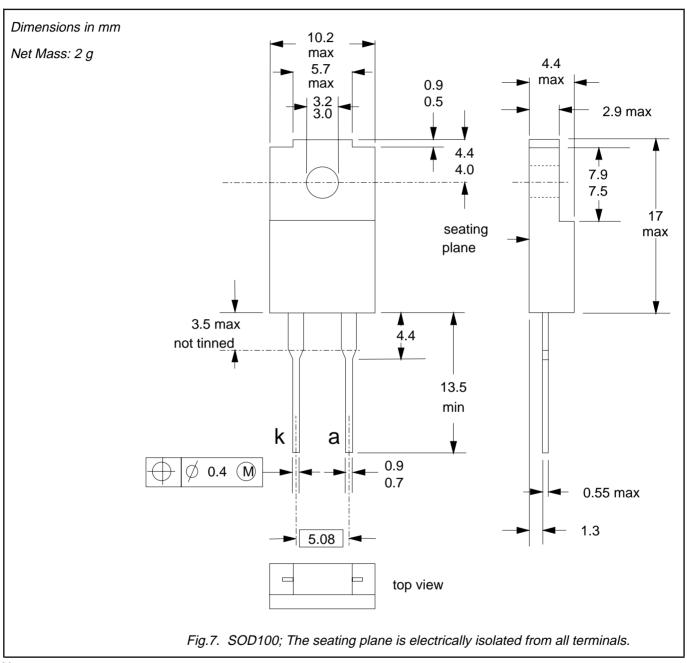


Fig.3. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_i



PBYR1045F, PBYR1045X series

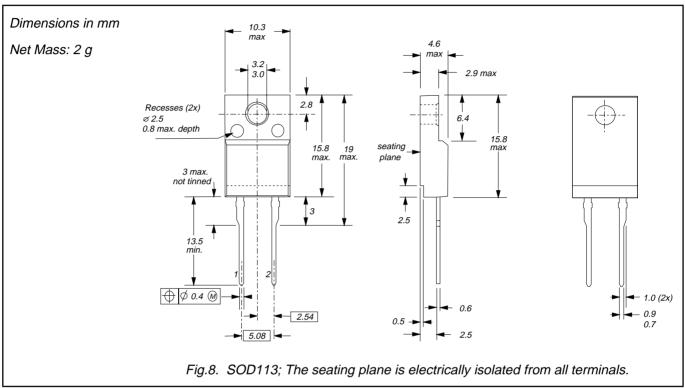
MECHANICAL DATA



- Refer to mounting instructions for F-pack envelopes.
 Epoxy meets UL94 V0 at 1/8".

PBYR1045F, PBYR1045X series

MECHANICAL DATA



Notes

- Refer to mounting instructions for F-pack envelopes.
 Epoxy meets UL94 V0 at 1/8".

Philips Semiconductors Product specification

Rectifier diodes Schottky barrier

PBYR1045F, PBYR1045X series

DEFINITIONS

Data sheet status					
Objective specification	This data sheet contains target or goal specifications for product development.				
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.				
Product specification	This data sheet contains final product specifications.				
Limiting values					

Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of

this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

Application information

Where application information is given, it is advisory and does not form part of the specification.

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