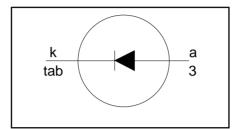
PBYR745B, PBYR745D series

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

$$V_R = 40 \text{ V} / 45 \text{ V}$$
 $I_{F(AV)} = 7.5 \text{ A}$
 $V_F \le 0.57 \text{ V}$

GENERAL DESCRIPTION

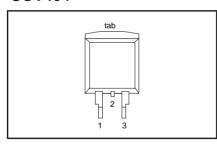
Schottky rectifier diodes in a surface mounting plastic envelope. Intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYR745B series is supplied in the SOT404 surface mounting package. The PBYR745D series is supplied in the SOT428 surface mounting package.

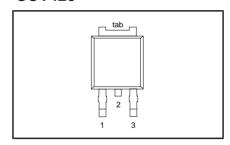
PINNING

PIN	DESCRIPTION		
1	no connection		
2	cathode ¹		
3	anode		
tab	cathode		

SOT404



SOT428



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
		PBYR7 PBYR7		40B 40D	45B 45D	
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} ≤ 114 °C	-	40	45	V
I _{F(AV)}	Average rectified forward current	square wave; $\delta = 0.5$; $T_{mb} \le 136$ °C	-	7	.5	Α
I _{FRM}	Repetitive peak forward current	square wave; $\delta = 0.5$; $T_{mb} \le 136$ °C	-	1	5	Α
I _{FSM}	Non-repetitive peak forward current	t = 10 ms PBYR7B t = 8.3 ms	- -		35 50	A A
		t = 10 ms PBYR7D	-		00	A
		t = 8.3 ms sinusoidal; $T_i = 125 ^{\circ}\text{C}$ prior to surge; with reapplied $V_{\text{RRM}(\text{max})}$	-	11	10	A
I _{RRM}	Peak repetitive reverse surge current	pulse width and repetition rate limited by T _{i max}	-	,	1	Α
T _j	Operating junction temperature	,	-	15	50	°C
T_{stg}	Storage temperature		- 65	17	75	°C

^{1.} It is not possible to make connection to pin 2 of the SOT404 or SOT428 package.

PBYR745B, PBYR745D series

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
tii jiilio	Thermal resistance junction		-	-	3	K/W
R _{th i-a}	to mounting base Thermal resistance junction to ambient	pcb mounted, minimum footprint, FR4 board	-	50	-	K/W

ELECTRICAL CHARACTERISTICS

 $T_i = 25$ °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _F	Forward voltage	$I_{\rm F} = 7.5 \text{ A}; T_{\rm i} = 125^{\circ}\text{C}$	-	0.45	0.57	٧
		$I_{\rm F} = 15 \text{A}; T_{\rm i} = 125 ^{\circ} \text{C}$	-	0.65	0.72	V
		$I_{\rm F} = 15 \text{A}$	-	0.64	0.84	V
I _R	Reverse current	$ \dot{V}_{R} = V_{RWM} $	-	0.13	1	mΑ
		$V_R = V_{RWM}$; $T_j = 100$ °C $V_R = 5$ V; $f = 1$ MHz, $T_i = 25$ °C to 125°C	-	17	22	mΑ
C _d	Junction capacitance	$V_R = 5 \text{ V}$; f = '1 MHz, $T_j = 25 ^{\circ}\text{C}$ to 125 $^{\circ}\text{C}$	-	270	-	pF

PBYR745B, PBYR745D series

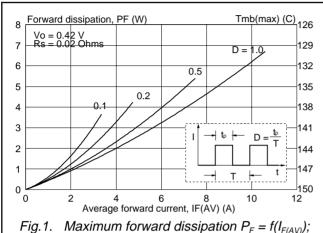
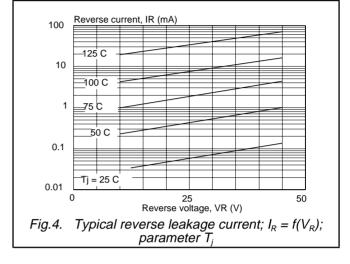
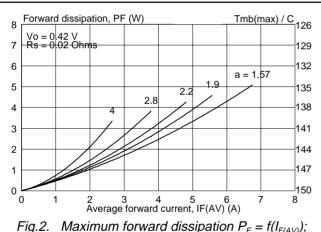
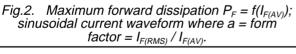
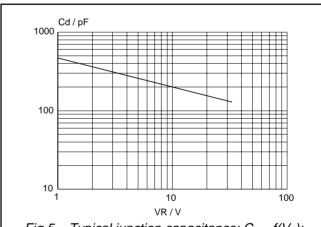


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.









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

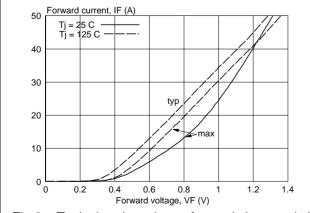
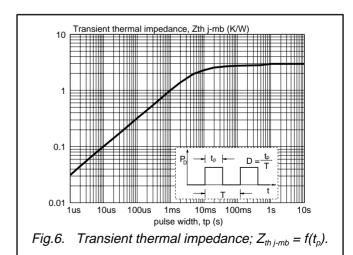


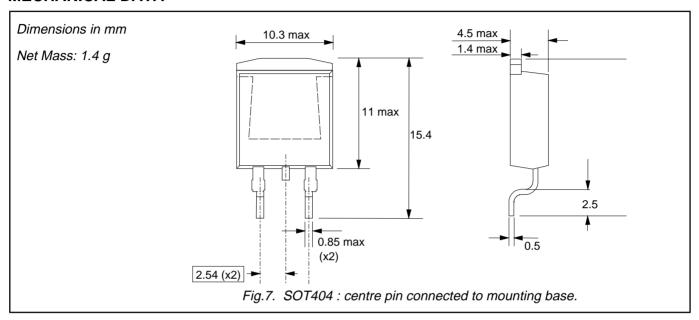
Fig.3. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_i



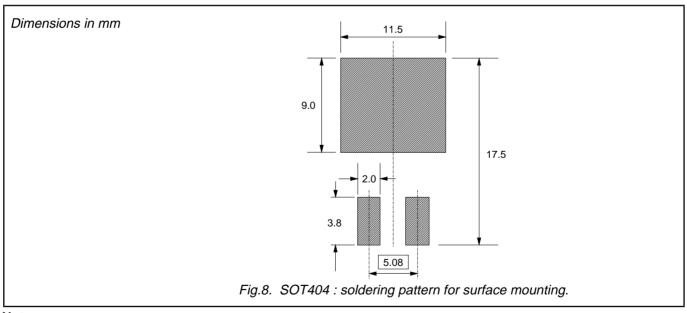
July 1998 3 Rev 1.200

PBYR745B, PBYR745D series

MECHANICAL DATA



MOUNTING INSTRUCTIONS

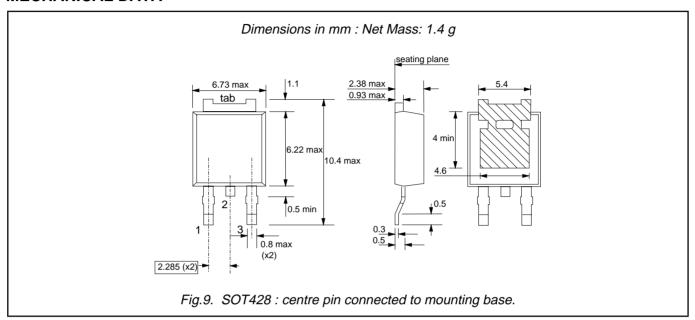


Notes

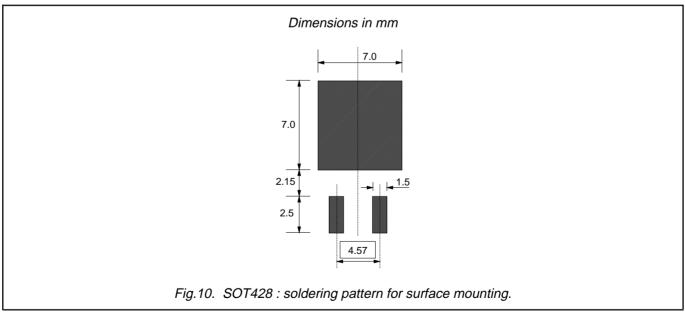
- Observe the general handling precautions for electrostatic-discharge sensitive devices (ESDs) to prevent damage to MOS gate oxide.
 Epoxy meets UL94 V0 at 1/8".

PBYR745B, PBYR745D series

MECHANICAL DATA



MOUNTING INSTRUCTIONS



Notes

- Observe the general handling precautions for electrostatic-discharge sensitive devices (ESDs) to prevent damage to MOS gate oxide.
 Epoxy meets UL94 V0 at 1/8".

Philips Semiconductors Product specification

Rectifier diodes Schottky barrier

PBYR745B, PBYR745D 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 la				
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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