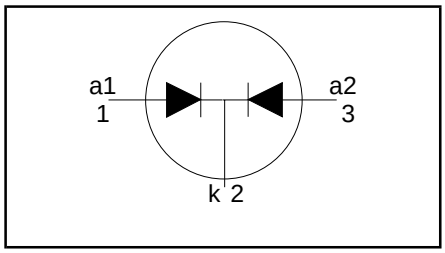
Rectifier diodes Schottky barrier

PBYR245CT series

FEATURES

- Low forward volt drop
- Fast switching
- Reverse surge capability
- High thermal cycling performance
- low profile surface mounting package

SYMBOL



QUICK REFERENCE DATA

V_R = 40 V/ 45 V

$I_{O(AV)}$ = 2 A

$V_F \leq 0.45V$

GENERAL DESCRIPTION

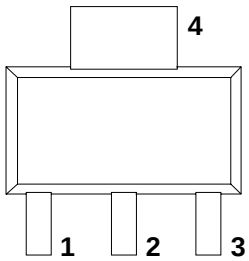
Dual, common cathode schottky rectifier diodes in a plastic envelope. Intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYR245CT series is supplied in the surface mounting SOT223 package.

PINNING

PIN	DESCRIPTION
1	anode 1
2	cathode
3	anode 2
tab	cathode

SOT223



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.		UNIT
		PBYR2		40CT	45CT	
V_{RRM}	Peak repetitive reverse voltage		-	40	45	V
V_{RWM}	Working peak reverse voltage		-	40	45	V
V_R	Continuous reverse voltage	$T_{sp} \leq 74$ ˚C	-	40	45	V
$I_{O(AV)}$	Average rectified output current (both diodes conducting)	square wave; $\delta = 0.5$; $T_{sp} \leq 119$ ˚C	-	2		A
I_{FRM}	Repetitive peak forward current per diode	square wave; $\delta = 0.5$; $T_{sp} \leq 119$ ˚C	-	2		A
I_{FSM}	Non-repetitive peak forward current per diode	t = 10 ms	-	6		A
		t = 8.3 ms sinusoidal; T_j = 125 ˚C prior to surge; with reapplied $V_{RRM(max)}$	-	6.6		A
I_{RRM}	Peak repetitive reverse surge current per diode	pulse width and repetition rate limited by $T_{j\,max}$	-	1		A
T_j	Operating junction temperature		-	150		˚C
T_{stg}	Storage temperature		- 40	150		˚C

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\,j\text{-}a}$	Thermal resistance junction to ambient	pcb mounted, minimum footprint	-	156	-	K/W
		pcb mounted, pad area as in fig:1	-	70	-	K/W

ELECTRICAL CHARACTERISTICS

T_j = 25 ˚C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage	I_F = 1 A; T_j = 125˚C	-	0.41	0.45	V
		I_F = 2 A	-	0.58	0.7	V
I_R	Reverse current	$V_R = V_{RWM}$	-	0.03	0.2	mA
		$V_R = V_{RWM}$; T_j = 100˚C	-	1.5	10	mA
C_d	Junction capacitance	V_R = 5 V; f = 1 MHz, T_j = 25˚C to 125˚C	-	60	-	pF

PRINTED CIRCUIT BOARD

Dimensions in mm.

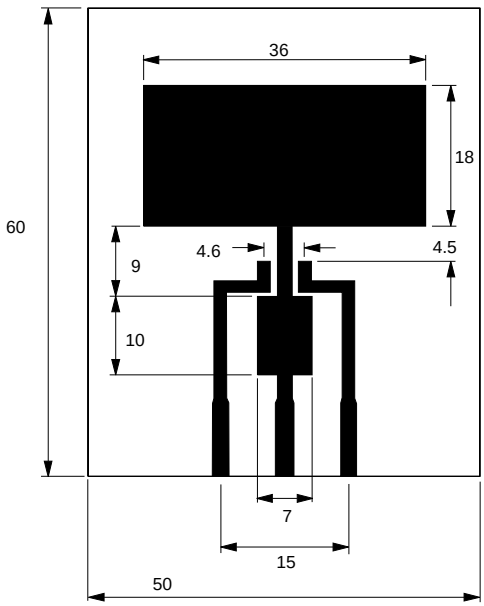


Fig.1. PCB for thermal resistance and power rating for SOT223.
PCB: FR4 epoxy glass (1.6 mm thick), copper laminate (35 μm thick).

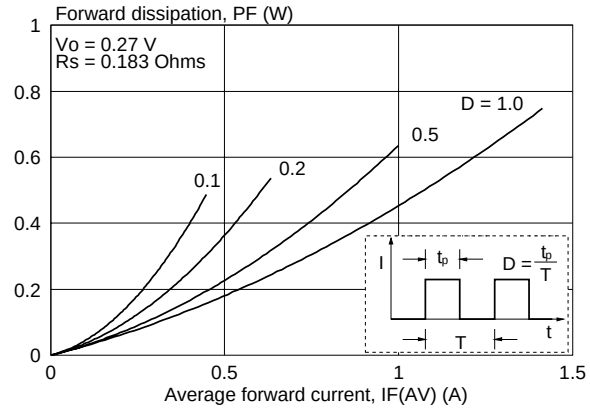


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

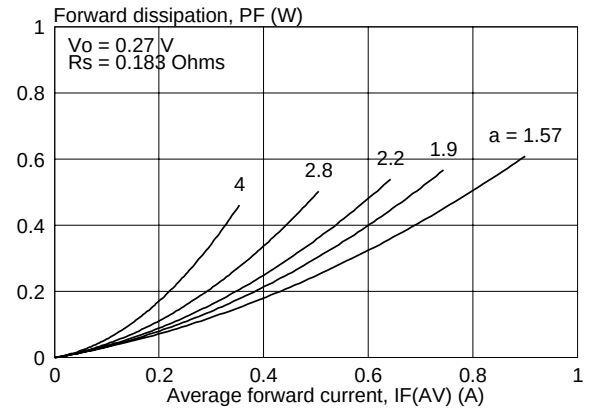


Fig.3. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; sinusoidal current waveform where a = form factor = $I_{F(RMS)} / I_{F(AV)}$.

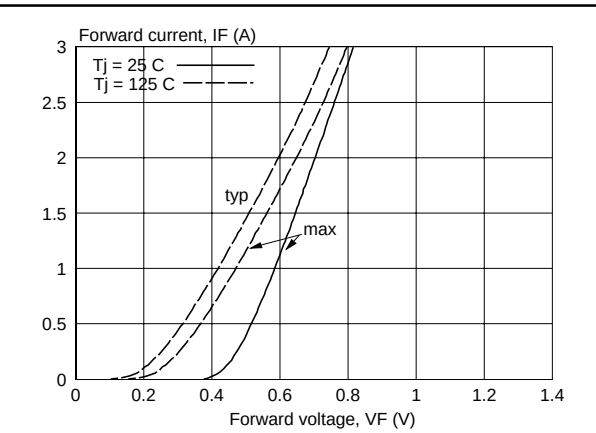


Fig.4. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

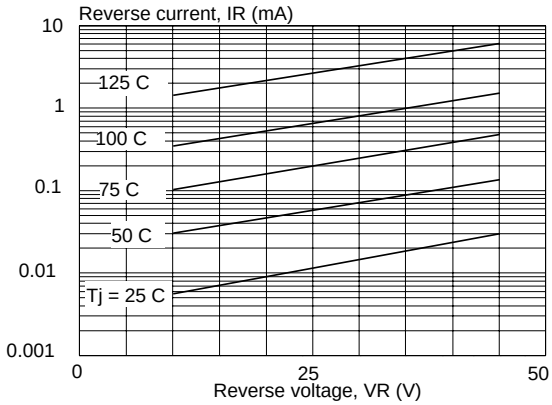


Fig.5. Typical reverse leakage current per diode; $I_R = f(V_R)$; parameter T_j

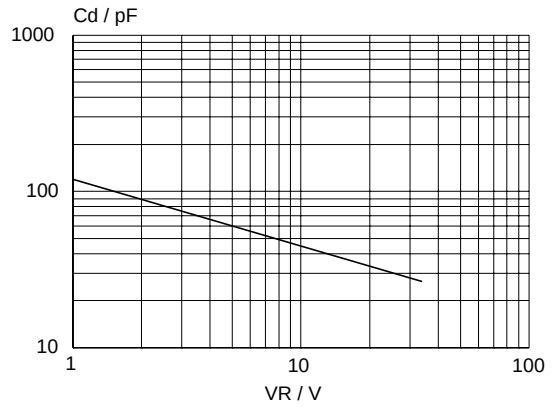


Fig.6. Typical junction capacitance per diode; $C_d = f(V_R)$; f = 1 MHz; T_j = 25˚C to 125 ˚C.

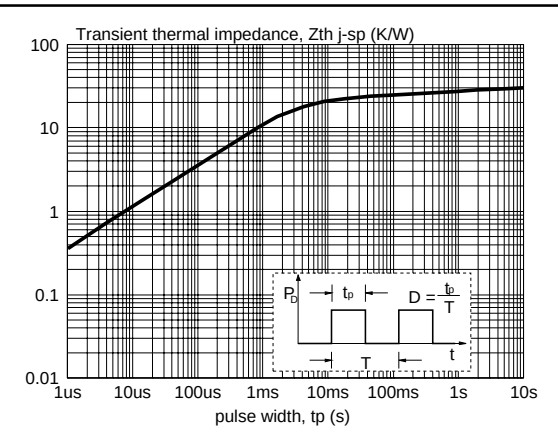


Fig.7. Transient thermal impedance; per diode; $Z_{th\ j\text{-}sp} = f(t_p)$.

MECHANICAL DATA

Dimensions in mm

Net Mass: 0.11 g

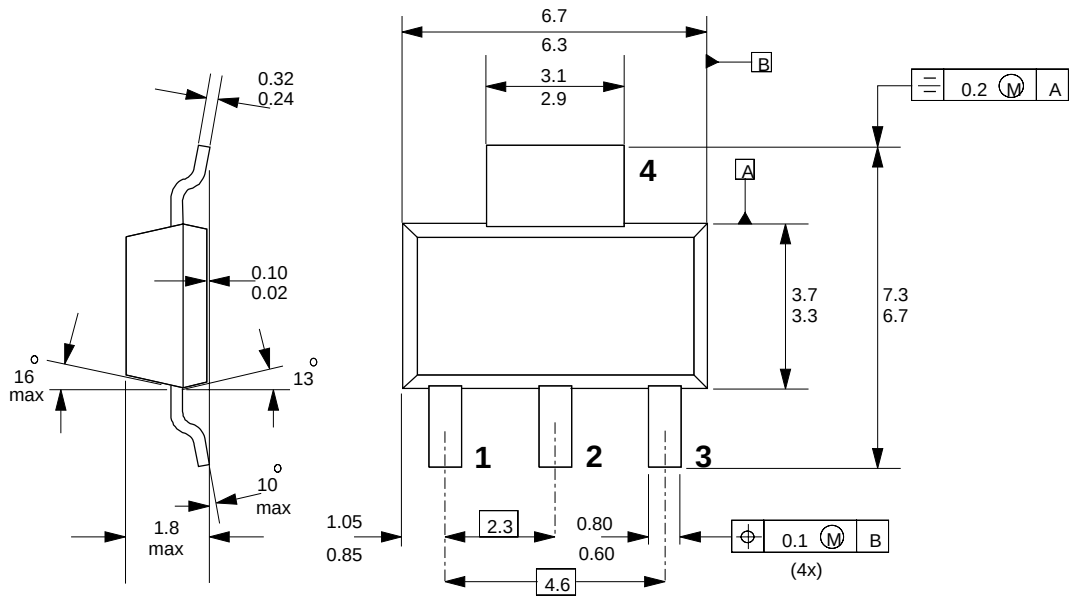


Fig.8. SOT223 surface mounting package.

Notes

1. For further information, refer to Philips publication SC18 " SMD Footprint Design and Soldering Guidelines". Order code: 9397 750 00505.
2. Epoxy meets UL94 V0 at 1/8".

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.	

LIFE SUPPORT APPLICATIONS

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