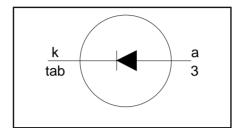
PBYL1025B series

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

$$V_R = 20 \text{ V}/25 \text{ V}$$
 $I_{F(AV)} = 10 \text{ A}$
 $V_F \le 0.4 \text{ V}$

GENERAL DESCRIPTION

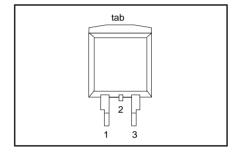
Schottky rectifier diodes intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYL1025B series is supplied in the SOT404 surface mounting package.

PINNING

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

SOT404



LIMITING VALUES

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | | UNIT |
|--------------------|---------------------------------------|---|--------|------|----------|--------|
| | | PBYL10 | | 20B | 25B | |
| V_{RRM} | Peak repetitive reverse voltage | | - | 20 | 25 | V |
| V_{RWM} | Working peak reverse voltage | | - | 20 | 25 | V |
| V_R | Continuous reverse voltage | T _{mb} ≤ 119 °C | - | 20 | 25 | V |
| I _{F(AV)} | Average rectified forward current | square wave; $\delta = 0.5$; $T_{mb} \le 132$ °C | - | 1 | 0 | Α |
| I _{FRM} | Repetitive peak forward current | square wave; $\delta = 0.5$; $T_{mb} \le 132$ °C | - | 2 | 0 | Α |
| I _{FSM} | Non-repetitive peak forward current | t = 10 ms t = 8.3 ms sinusoidal; $T_i = 125 ^{\circ}\text{C}$ prior to | - - | | 30 50 | A A |
| I _{RRM} | Peak repetitive reverse surge current | surge; with reapplied $V_{RRM(max)}$ pulse width and repetition rate limited by $T_{i max}$ | - | , | 1 | А |
| T _j | Operating junction temperature | initited by T _{j max} | - | 15 | 50 | °C |
| T_{stg} | Storage temperature | | - 65 | 17 | 75 | °C |

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¹ it is not possible to make connection to pin 2 of the SOT428 package

PBYL1025B series

THERMAL RESISTANCES

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|----------------------|---|---|------|------|------|------|
| R _{th j-mb} | 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 | $I_F = 10 \text{ A}; T_i = 150^{\circ}\text{C}$ | - | 0.33 | 0.4 | ٧ |
| 1 | _ | $I_{\rm F} = 10 \text{A}, T_{\rm i} = 125 ^{\circ} \text{C}$ | - | 0.39 | 0.45 | V |
| | | $I_{\rm F} = 20 \text{A}; T_{\rm i} = 125 ^{\circ} \text{C}$ | - | 0.54 | 0.61 | V |
| | | $I_{\rm F} = 20 {\rm A}^{\circ}$ | - | 0.57 | 0.64 | V |
| I _R | Reverse current | $\dot{V}_{R} = V_{RWM}$ | - | 0.2 | 5 | mΑ |
| " | | $V_R = V_{RWM}$; $T_i = 100$ °C | - | 15 | 30 | mΑ |
| C _d | Junction capacitance | $V_{R} = V_{RWM}^{\text{NM}}; T_{j} = 100^{\circ}\text{C}$ $V_{R} = 5 \text{ V}; f = 1 \text{ MHz}, T_{j} = 25^{\circ}\text{C to } 125^{\circ}\text{C}$ | - | 580 | - | pF |

PBYL1025B series

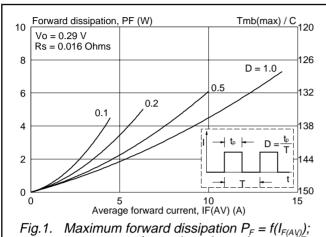


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

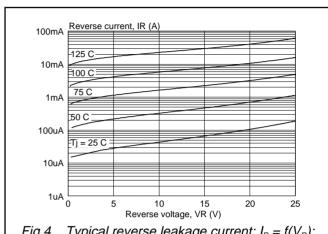


Fig.4. Typical reverse leakage current; $I_R = f(V_R)$; parameter Ti

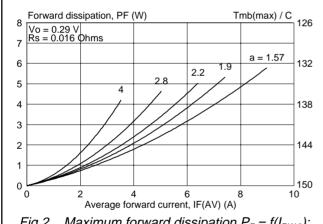
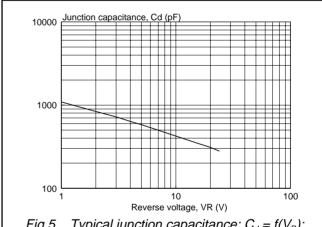


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)});$ square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}.$



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

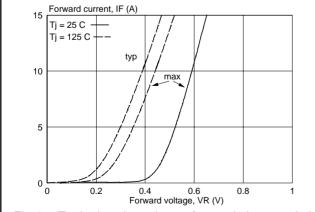
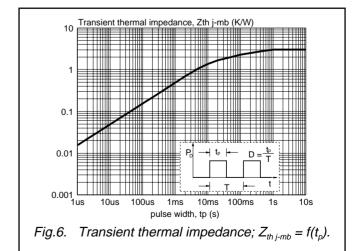
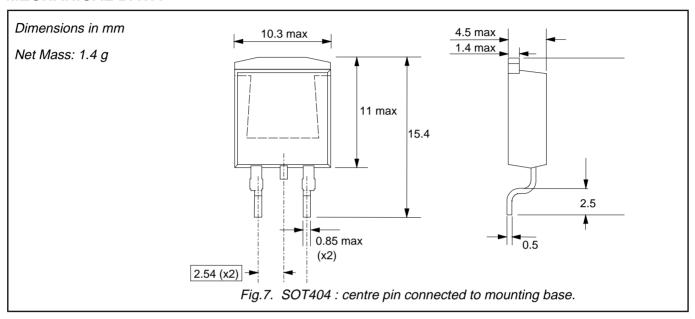


Fig.3. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_i

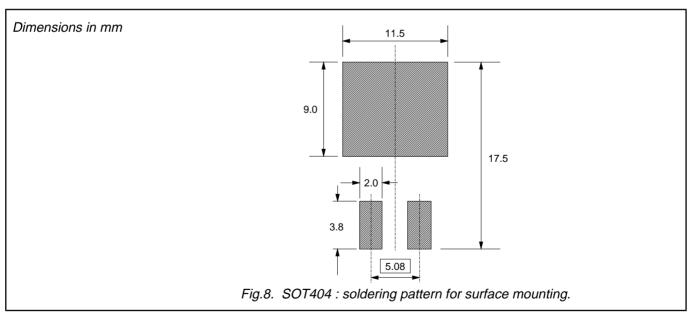


PBYL1025B series

MECHANICAL DATA



MOUNTING INSTRUCTIONS



Notes

1. Epoxy meets UL94 V0 at 1/8".

Philips Semiconductors Product specification

Rectifier diodes Schottky barrier

PBYL1025B 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 late | | | | | |
| 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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