

**Rectifier diodes  
Schottky barrier**

**PBYL1625 series**

**FEATURES**

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

**SYMBOL**



**QUICK REFERENCE DATA**

|                                   |
|-----------------------------------|
| $V_R = 20\text{ V} / 25\text{ V}$ |
| $I_{F(AV)} = 16\text{ A}$         |
| $V_F \leq 0.46\text{ V}$          |

**GENERAL DESCRIPTION**

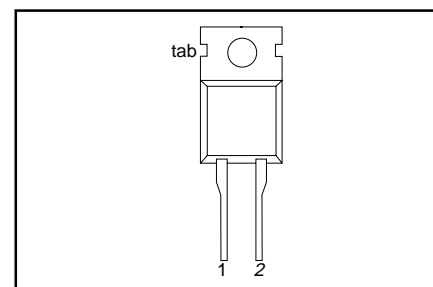
Schottky rectifier diodes intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYL1625 series is supplied in the SOD59 (TO220AC) conventional leaded package.

**PINNING**

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | cathode     |
| 2   | anode       |
| tab | cathode     |

**SOD59 (TO220AC)**



**LIMITING VALUES**

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

| SYMBOL      | PARAMETER                             | CONDITIONS  | MIN. | MAX.     | UNIT     |    |
|-------------|---------------------------------------|---|------|----------|----------|----|
| $V_{RRM}$   | Peak repetitive reverse voltage       | <b>PBYL16</b><br>$T_{mb} \leq 120\text{ °C}$  | -    | 20<br>20 | 25<br>25 | V  |
| $V_{RWM}$   | Working peak reverse voltage          |   | -    | 20       | 25       | V  |
| $V_R$       | Continuous reverse voltage            |   | -    | 20       | 25       | V  |
| $I_{F(AV)}$ | Average rectified forward current     | square wave; $\delta = 0.5$ ; $T_{mb} \leq 131\text{ °C}$   | -    | 16       |          | A  |
| $I_{FRM}$   | Repetitive peak forward current       | square wave; $\delta = 0.5$ ; $T_{mb} \leq 131\text{ °C}$   | -    | 32       |          | A  |
| $I_{FSM}$   | Non-repetitive peak forward current   | $t = 10\text{ ms}$  | -    | 135      |          | A  |
|             |                                       | $t = 8.3\text{ ms}$   | -    | 150      |          | A  |
| $I_{RRM}$   | Peak repetitive reverse surge current | sinusoidal; $T_j = 125\text{ °C}$ 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      |          | °C |
| $T_{stg}$   | Storage temperature                   |   | - 65 | 175      |          | °C |

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**THERMAL RESISTANCES**

| SYMBOL         | PARAMETER                                    | CONDITIONS  | MIN. | TYP. | MAX. | UNIT |
|----------------|--|-------------|------|------|------|------|
| $R_{th\ j-mb}$ | Thermal resistance junction to mounting base | in free air | -    | -    | 2    | K/W  |
| $R_{th\ j-a}$  | Thermal resistance junction to ambient       |             | -    | 60   | -    | K/W  |

**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise specified

| SYMBOL | PARAMETER            | CONDITIONS  | MIN. | TYP. | MAX. | UNIT |
|--------|----------------------|---|------|------|------|------|
| $V_F$  | Forward voltage      | $I_F = 16\text{ A}; T_j = 125\text{ °C}$                                  | -    | 0.42 | 0.46 | V    |
|        |                      | $I_F = 32\text{ A}; T_j = 125\text{ °C}$                                  | -    | 0.57 | 0.61 | V    |
|        |                      | $I_F = 32\text{ A}$   | -    | 0.55 | 0.68 | V    |
| $I_R$  | Reverse current      | $V_R = V_{RWM}$   | -    | 1    | 5    | mA   |
|        |                      | $V_R = V_{RWM}; T_j = 100\text{ °C}$                                      | -    | 22   | 40   | mA   |
| $C_d$  | Junction capacitance | $V_R = 5\text{ V}; f = 1\text{ MHz}; T_j = 25\text{ °C to }125\text{ °C}$ | -    | 700  | -    | pF   |

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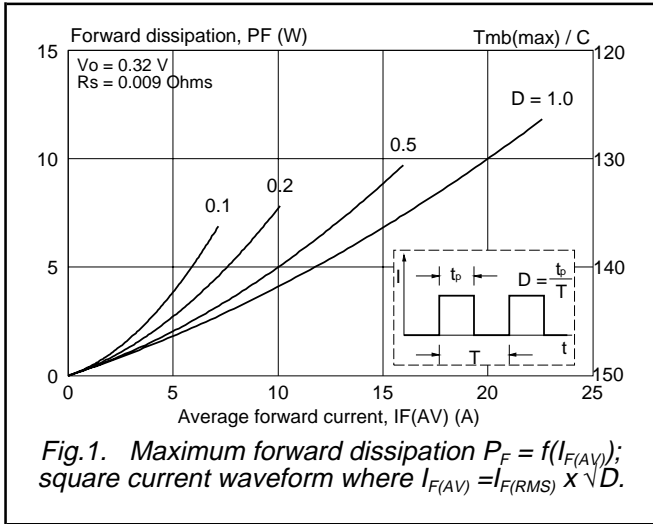


Fig.1. Maximum forward dissipation  $P_F = f(I_{F(AV)})$ ; square current waveform where  $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$ .

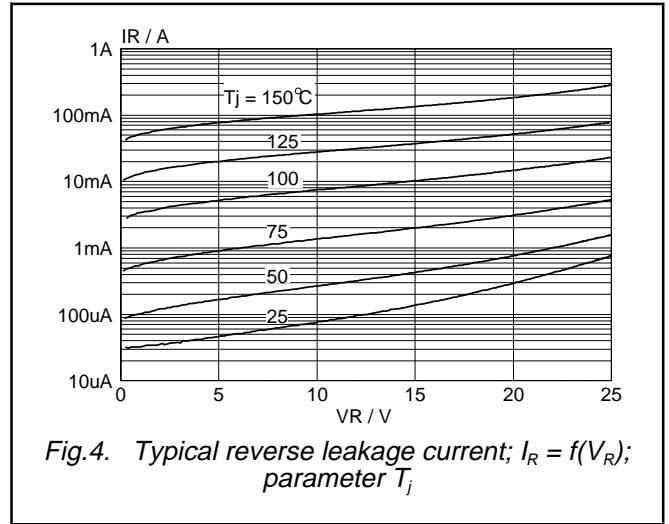


Fig.4. Typical reverse leakage current;  $I_R = f(V_R)$ ; parameter  $T_j$

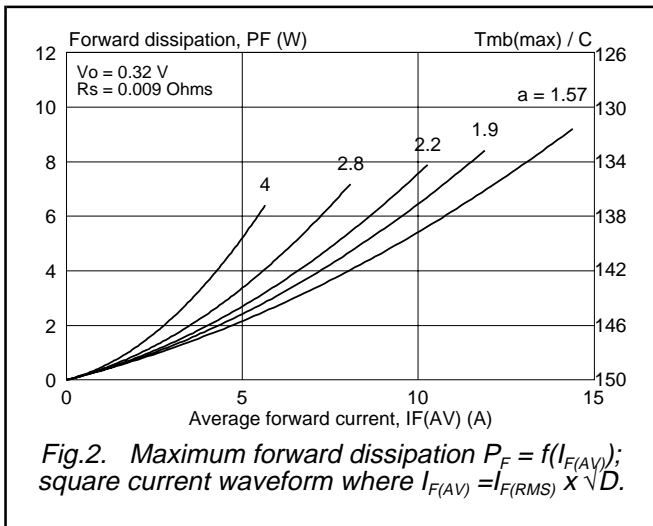


Fig.2. Maximum forward dissipation  $P_F = f(I_{F(AV)})$ ; square current waveform where  $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$ .

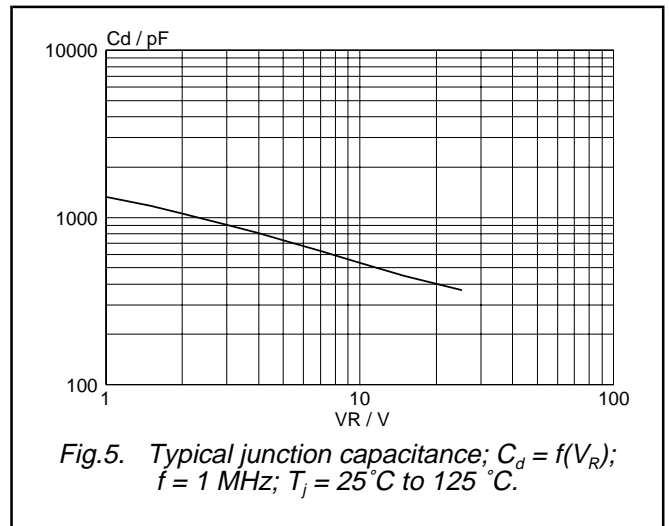


Fig.5. Typical junction capacitance;  $C_d = f(V_R)$ ;  $f = 1\text{ MHz}$ ;  $T_j = 25^\circ\text{C}$  to  $125^\circ\text{C}$ .

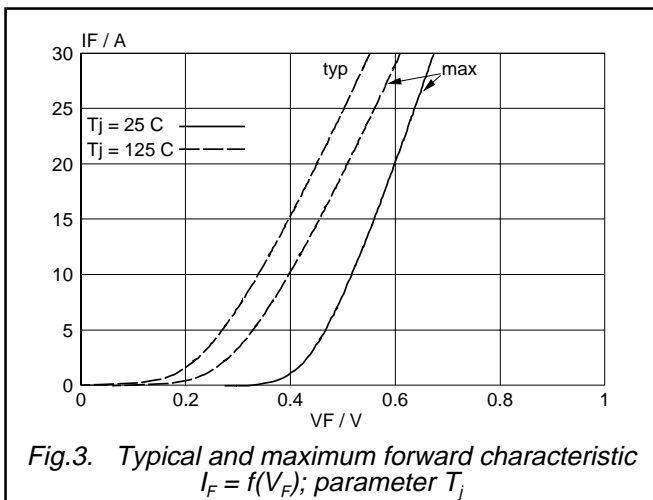


Fig.3. Typical and maximum forward characteristic  $I_F = f(V_F)$ ; parameter  $T_j$

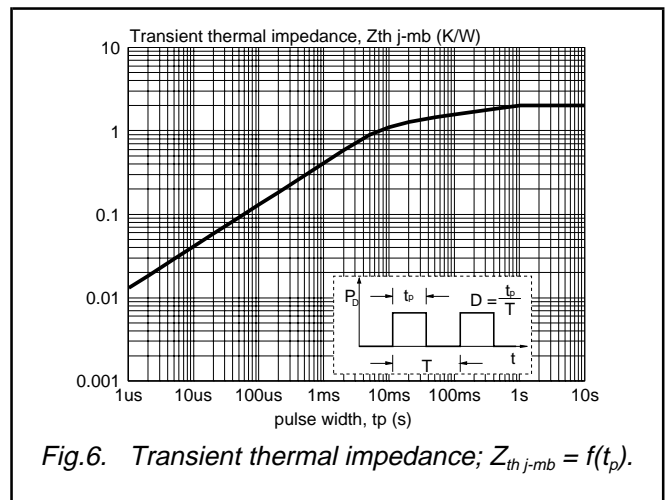
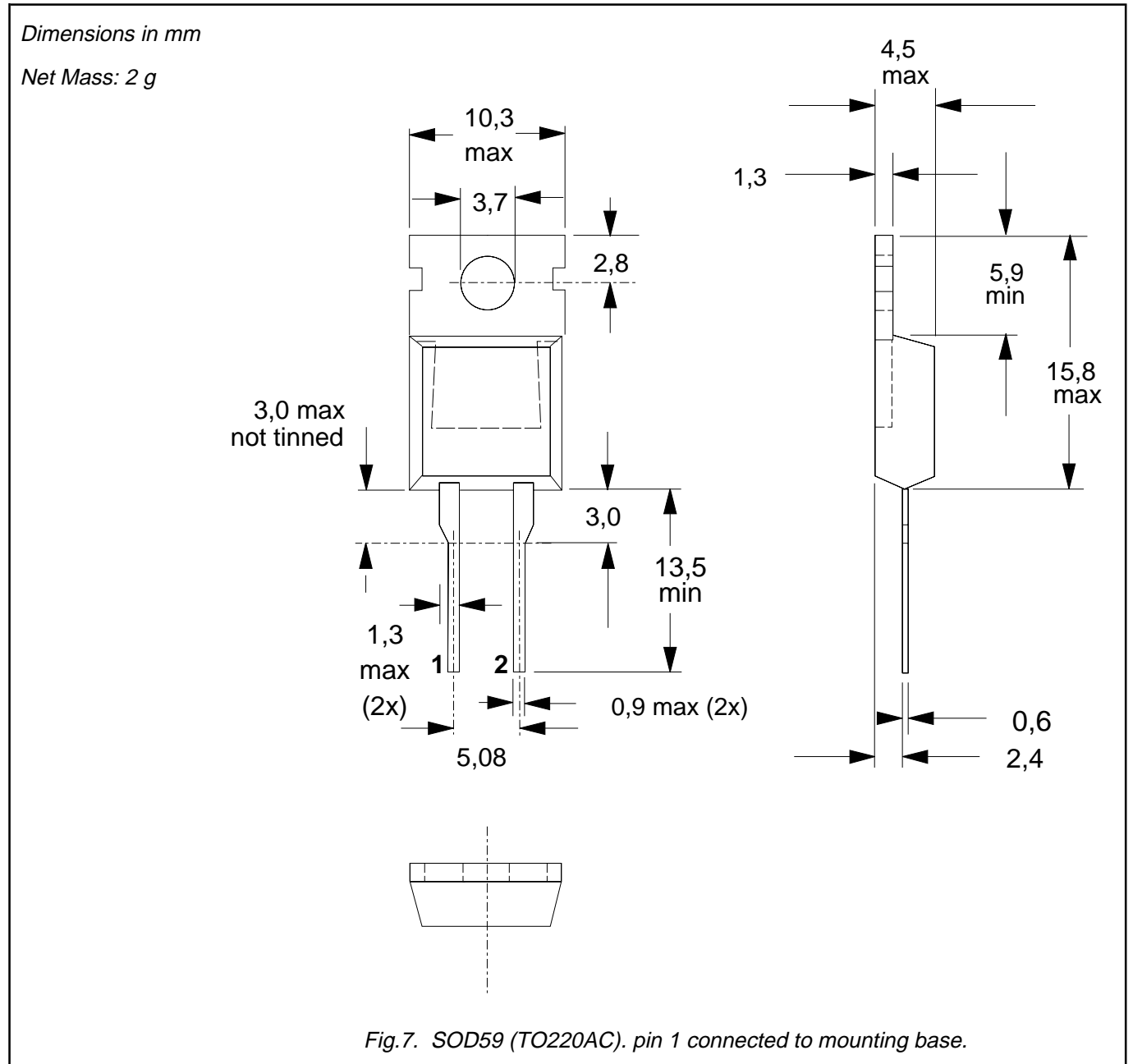


Fig.6. Transient thermal impedance;  $Z_{th\ j-mb} = f(t_p)$ .

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**MECHANICAL DATA**



**Notes**

1. Refer to mounting instructions for TO220 envelopes.
2. Epoxy meets UL94 V0 at 1/8".

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## DEFINITIONS

|  |   |
|--|---|
| <b>Data sheet status</b>   |   |
| 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.                                |
| <b>Limiting values</b>   |   |
| 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. |   |
| <b>Application information</b>   |   |
| Where application information is given, it is advisory and does not form part of the specification.  |   |
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## LIFE SUPPORT APPLICATIONS

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