

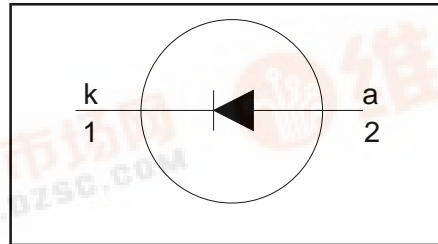
**Rectifier diodes
ultrafast**

BYT79 series

FEATURES

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Low thermal resistance

SYMBOL



QUICK REFERENCE DATA

| |
|----------------------------------------------------|
| $V_R = 300\text{ V} / 400\text{ V} / 500\text{ V}$ |
| $V_F \leq 1.05\text{ V}$ |
| $I_{F(AV)} = 14\text{ A}$ |
| $t_{rr} \leq 60\text{ ns}$ |

GENERAL DESCRIPTION

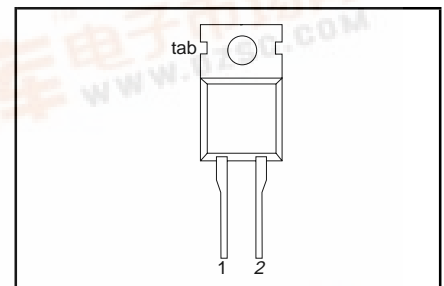
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYT79 series is supplied in the conventional leaded SOD59 (TO220AC) 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 |
|-------------|--------------------------------------|------------------------------------------------------------------|------|------|------|------|------------------|
| | | | | -300 | -400 | -500 | |
| V_{RRM} | Peak repetitive reverse voltage | BYT79 $T_{mb} \leq 147^\circ\text{C}$ | - | 300 | 400 | 500 | V |
| V_R | Continuous reverse voltage | | - | 300 | 400 | 500 | V |
| $I_{F(AV)}$ | Average forward current ¹ | square wave; $\delta = 0.5$; $T_{mb} \leq 117^\circ\text{C}$ | - | 14 | | | A |
| I_{FSM} | Non-repetitive peak forward current. | $t = 10\text{ ms}$ | - | 130 | | | A |
| | | $t = 8.3\text{ ms}$ sinusoidal; with reapplied $V_{RRM(max)}$ | - | 143 | | | A |
| T_{stg} | Storage temperature | | -40 | 150 | | | $^\circ\text{C}$ |
| T_j | Operating junction temperature | | - | 150 | | | $^\circ\text{C}$ |

THERMAL RESISTANCES

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|----------------|----------------------------------------------|--------------|------|------|------|------|
| $R_{th\ j-mb}$ | Thermal resistance junction to mounting base | | - | - | 2.0 | K/W |
| $R_{th\ j-a}$ | Thermal resistance junction to ambient | in free air. | - | 60 | - | K/W |

¹ Neglecting switching and reverse current losses



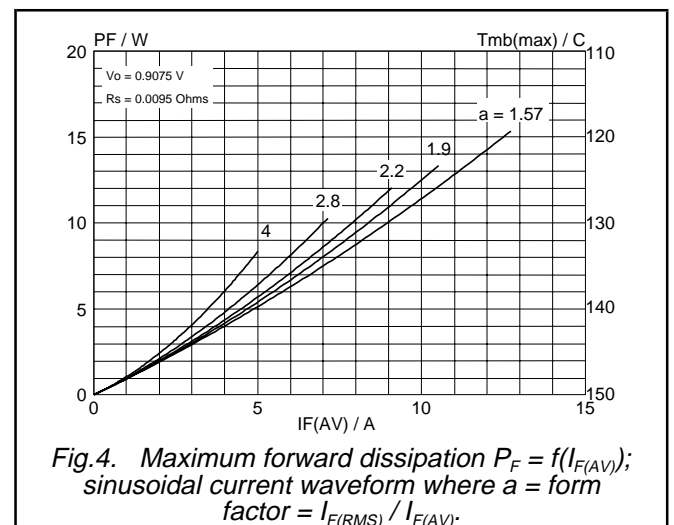
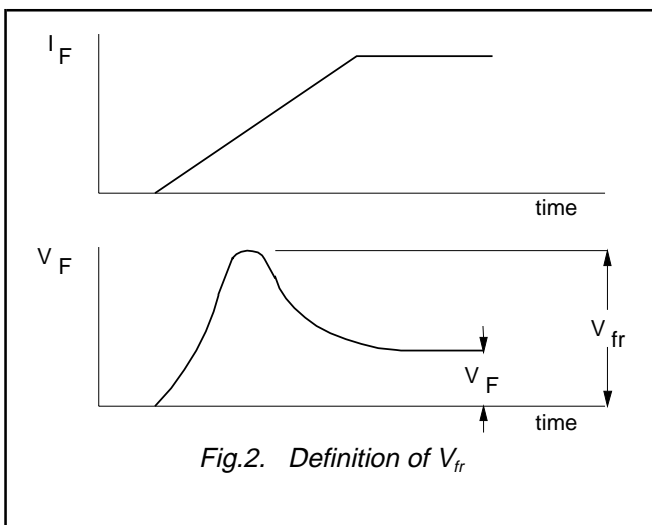
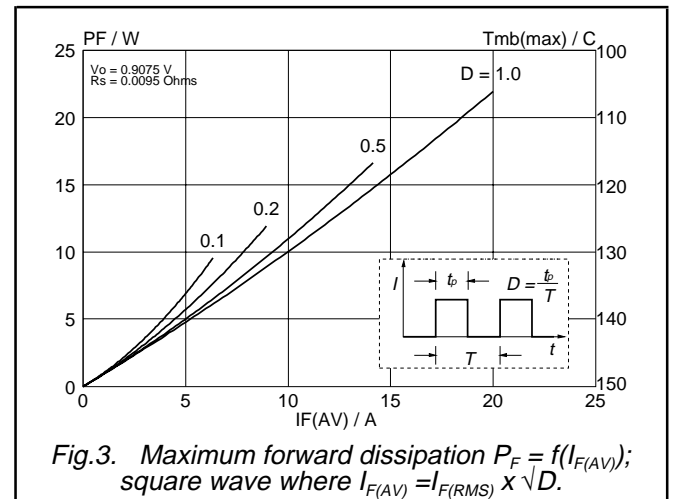
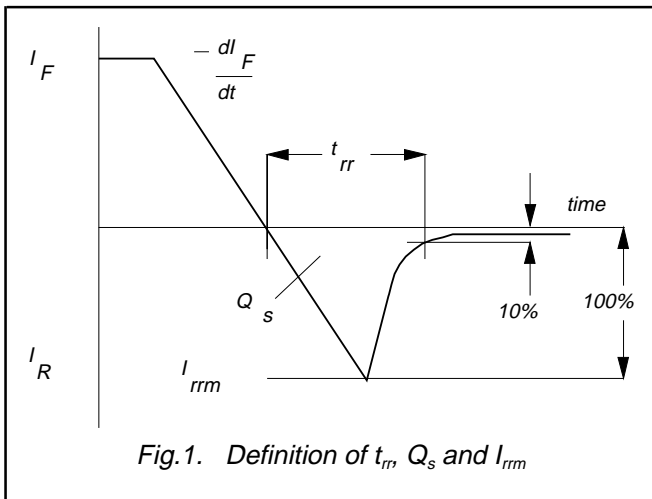
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ELECTRICAL CHARACTERISTICS

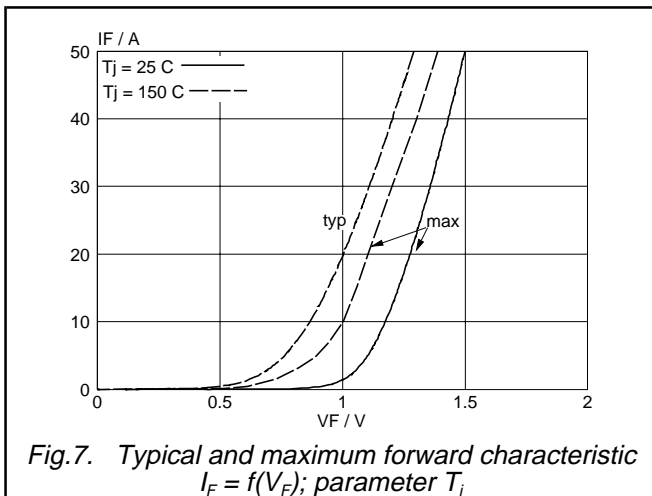
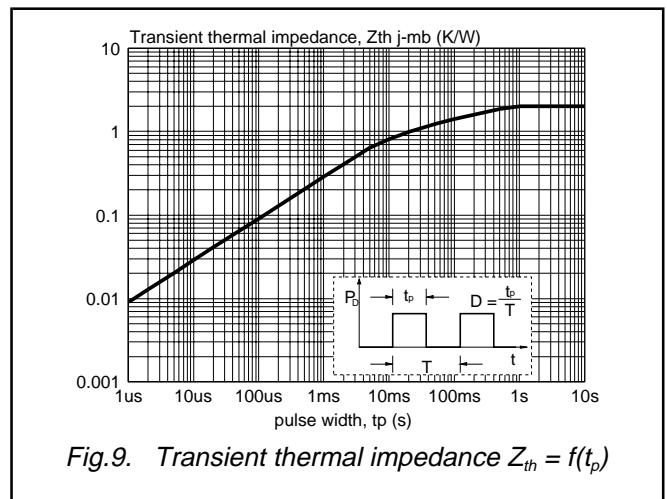
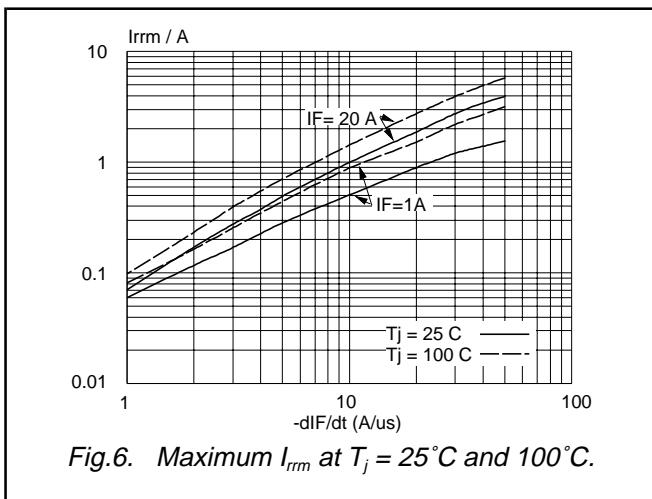
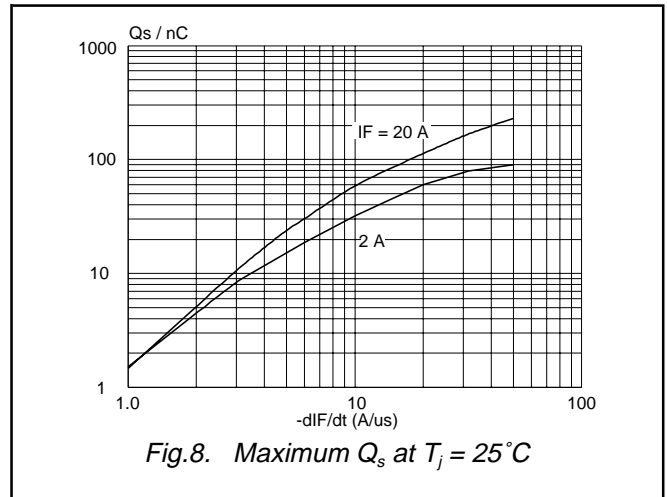
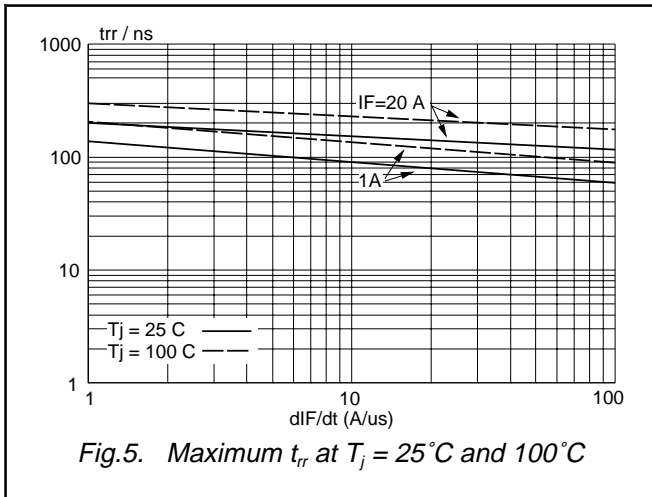
$T_j = 25\text{ }^\circ\text{C}$ unless otherwise stated

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------|------|------|---------------|
| V_F | Forward voltage | $I_F = 15\text{ A}; T_j = 150\text{ }^\circ\text{C}$ | - | 0.90 | 1.05 | V |
| I_R | Reverse current | $I_F = 30\text{ A}$ $V_R = V_{RRM}$ | - | 1.17 | 1.38 | V |
| Q_s | Reverse recovery charge | $V_R = V_{RRM}; T_j = 100\text{ }^\circ\text{C}$ $I_F = 2\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 20\text{ A}/\mu\text{s}$ | - | 5.0 | 50 | μA |
| t_{rr} | Reverse recovery time | $V_R = V_{RRM}; T_j = 100\text{ }^\circ\text{C}$ $I_F = 2\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 20\text{ A}/\mu\text{s}$ | - | 0.2 | 0.8 | nA |
| t_{rr} | Reverse recovery time | $I_F = 1\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 100\text{ A}/\mu\text{s}$ | - | 50 | 60 | nC |
| I_{rrm} | Peak reverse recovery current | $I_F = 1\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 100\text{ A}/\mu\text{s}$ | - | 50 | 60 | ns |
| V_{fr} | Forward recovery voltage | $I_F = 10\text{ A to } V_R \geq 30\text{ V};$ $di_F/dt = 50\text{ A}/\mu\text{s}; T_j = 100\text{ }^\circ\text{C}$ | - | 4.0 | 5.2 | A |
| V_{fr} | Forward recovery voltage | $I_F = 10\text{ A}; di_F/dt = 10\text{ A}/\mu\text{s}$ | - | 2.5 | - | V |



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MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

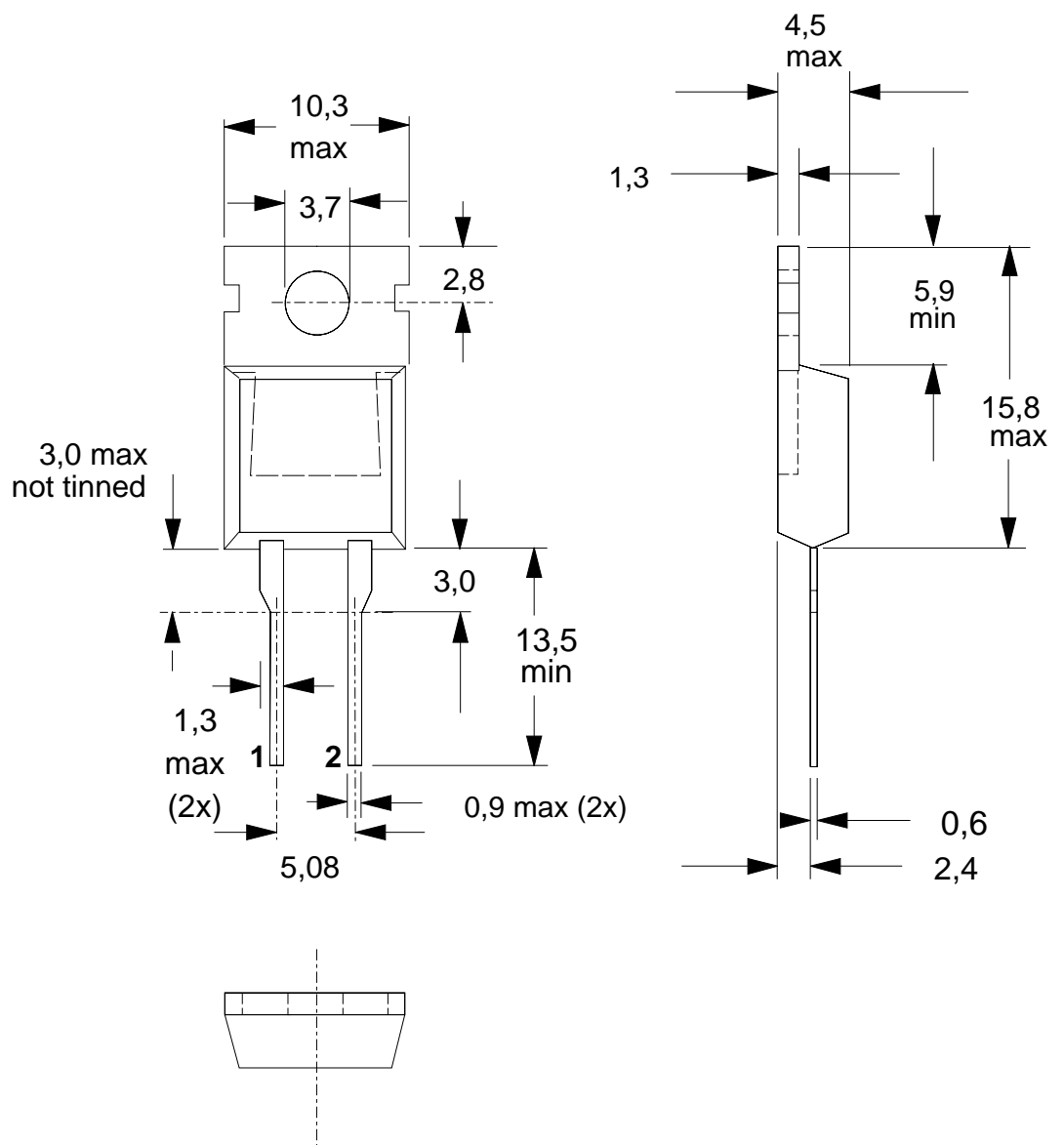


Fig.10. SOD59 (TO220AC). pin 1 connected to mounting base.

Notes

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

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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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