

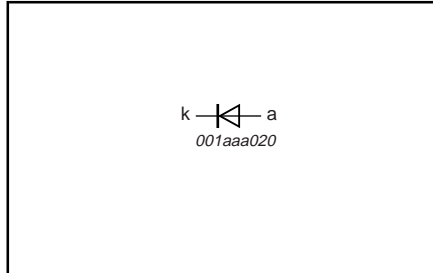
Rectifier diodes ultrafast

BYR29 series

FEATURES

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

SYMBOL



QUICK REFERENCE DATA

$$V_R = 500 \text{ V} / 600 \text{ V} / 700 \text{ V} / 800 \text{ V}$$

$$V_F \leq 1.5 \text{ V}$$

$$I_{F(AV)} = 8 \text{ A}$$

$$t_{rr} \leq 75 \text{ ns}$$

GENERAL DESCRIPTION

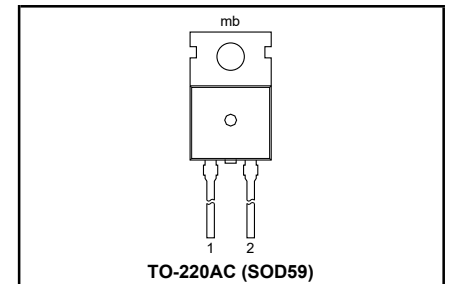
Ultra-fast, epitaxial rectifier diodes intended for use as output rectifiers in high frequency switched mode power supplies.

The BYR29 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 |
|-------------|--------------------------------------|---|------|-------------|-------------|-------------|-------------|-------------------|
| | | BYR29 | | -500 | -600 | -700 | -800 | |
| V_{RRM} | Peak repetitive reverse voltage | | - | 500 | 600 | 700 | 800 | V |
| V_{RWM} | Crest working reverse voltage | | - | 500 | 600 | 700 | 800 | V |
| V_R | Continuous reverse voltage | | - | 500 | 600 | 700 | 800 | V |
| $I_{F(AV)}$ | Average forward current ¹ | square wave; $\delta = 0.5$; $T_{mb} \leq 115^\circ \text{C}$ | - | 8 | | | | A |
| I_{FRM} | Repetitive peak forward current | $t = 25 \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 115^\circ \text{C}$ | - | 16 | | | | A |
| I_{FSM} | Non-repetitive peak forward current | $t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; with reapplied $V_{RRM(max)}$ | - | 60 | | | | 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 | | - | - | 2.5 | K/W |
| $R_{th j-a}$ | Thermal resistance junction to ambient | in free air. | - | 60 | - | K/W |

¹ Neglecting switching and reverse current losses

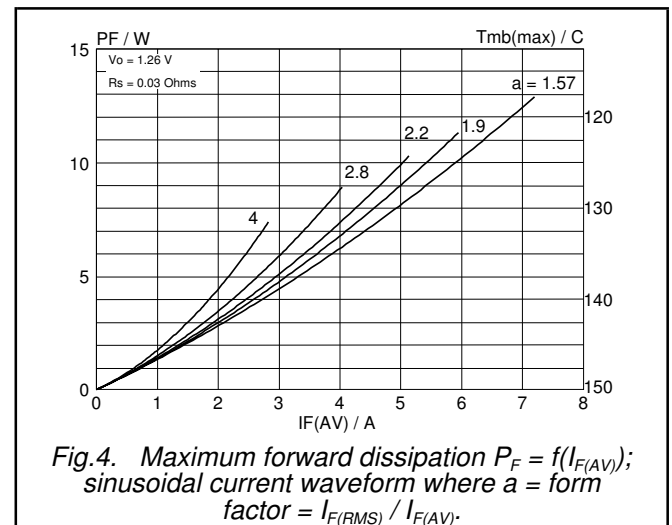
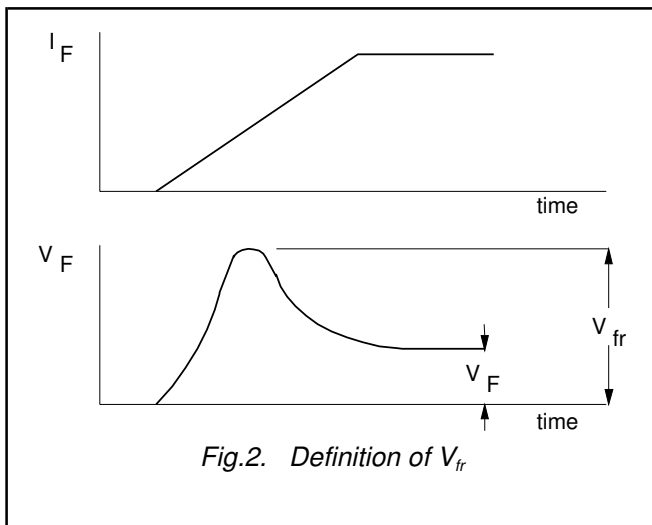
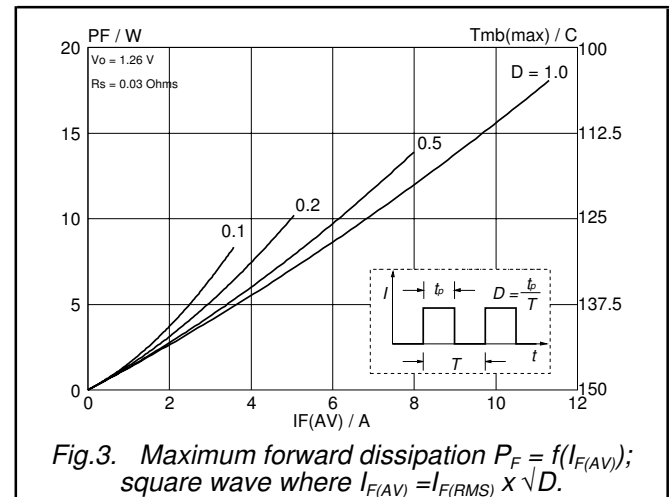
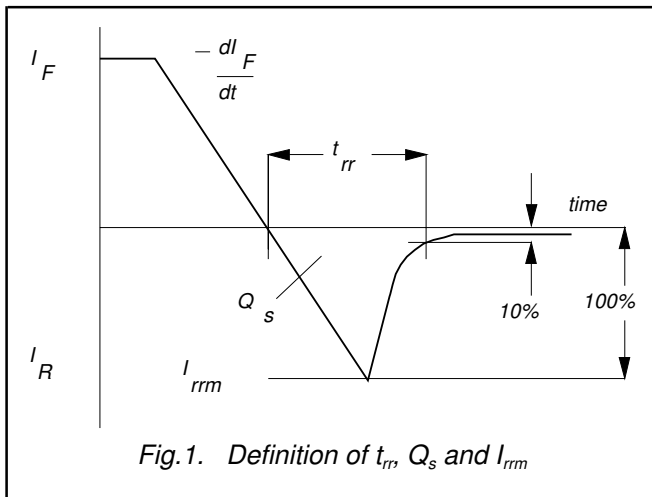
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ELECTRICAL CHARACTERISTICS

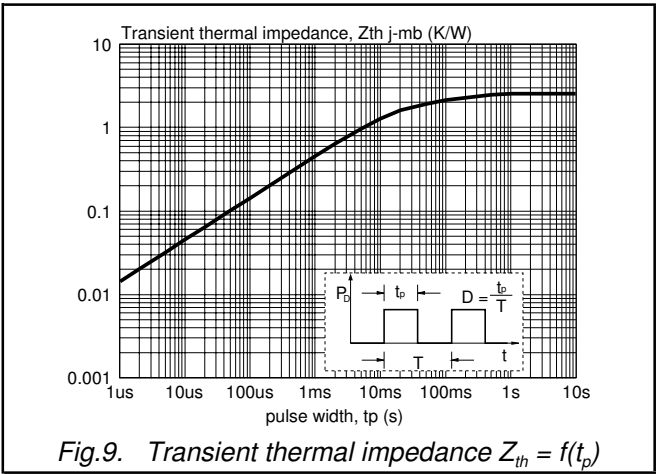
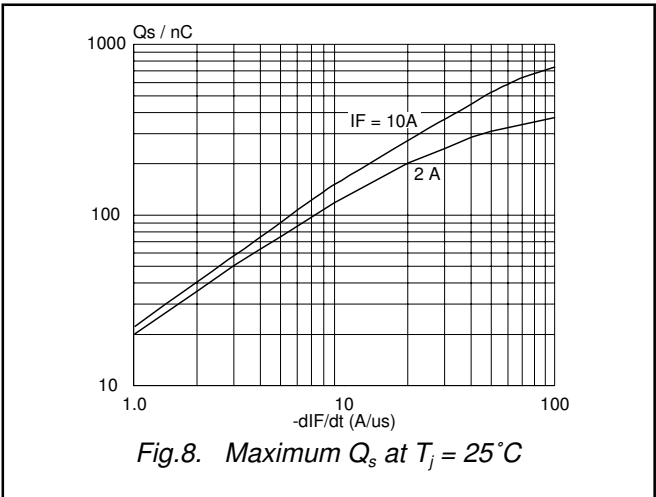
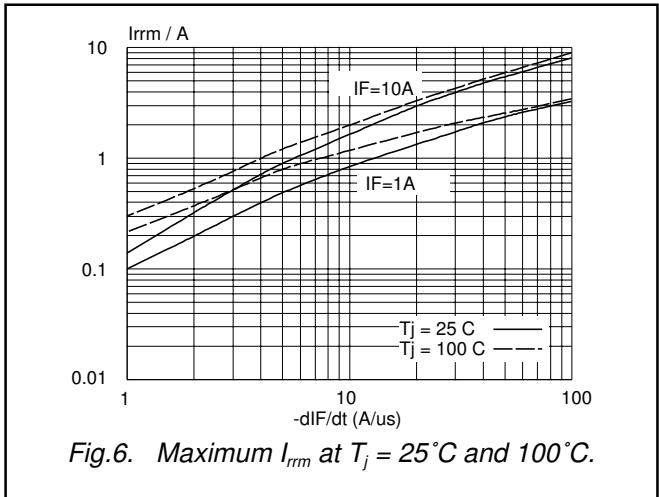
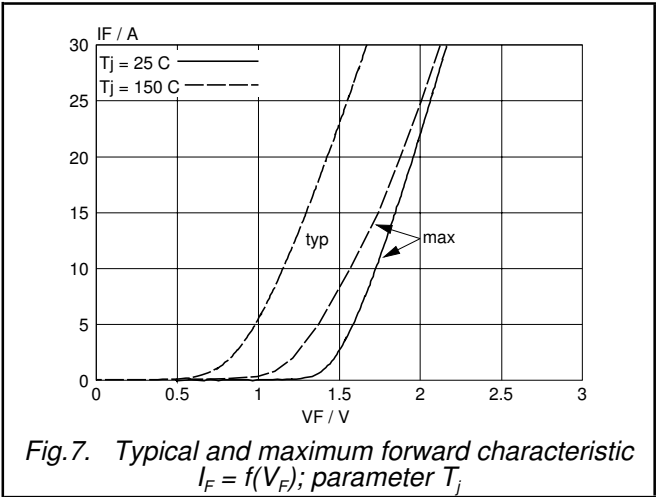
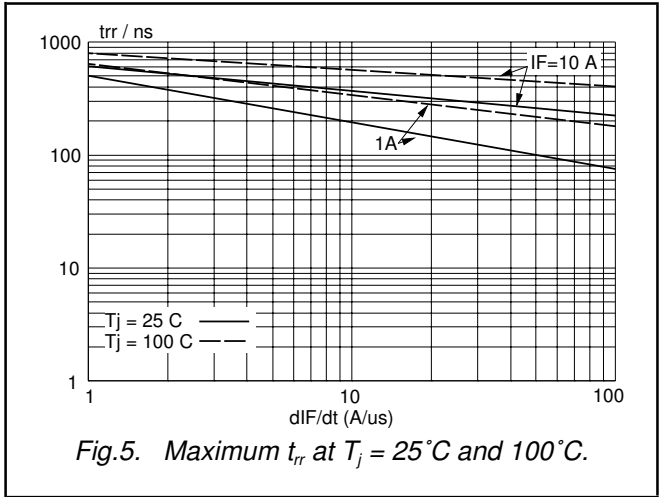
 $T_j = 25\text{ }^{\circ}\text{C}$ unless otherwise stated

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-----------|-------------------------------|--|------|------|------|---------------|
| V_F | Forward voltage | $I_F = 8\text{ A}$; $T_j = 150\text{ }^{\circ}\text{C}$ | - | 1.07 | 1.50 | V |
| I_R | Reverse current | $I_F = 20\text{ A}$ | - | 1.75 | 1.95 | V |
| Q_s | Reverse recovery charge | $V_R = V_{RRM}$ | - | 1.0 | 10 | μA |
| t_{rr} | Reverse recovery time | $V_R = V_{RRM}$; $T_j = 100\text{ }^{\circ}\text{C}$ | - | 0.1 | 0.2 | mA |
| I_{rrm} | Peak reverse recovery current | $I_F = 2\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 20\text{ A}/\mu\text{s}$ | - | 150 | 200 | nC |
| V_{fr} | Forward recovery voltage | $I_F = 1\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 100\text{ A}/\mu\text{s}$ | - | 60 | 75 | ns |
| | | $I_F = 10\text{ A}$ to $V_R \geq 30\text{ V}$; $di_F/dt = 50\text{ A}/\mu\text{s}$; $T_j = 100\text{ }^{\circ}\text{C}$ | - | - | 6 | A |
| | | $I_F = 10\text{ A}$; $di_F/dt = 10\text{ A}/\mu\text{s}$ | - | 5.0 | - | V |



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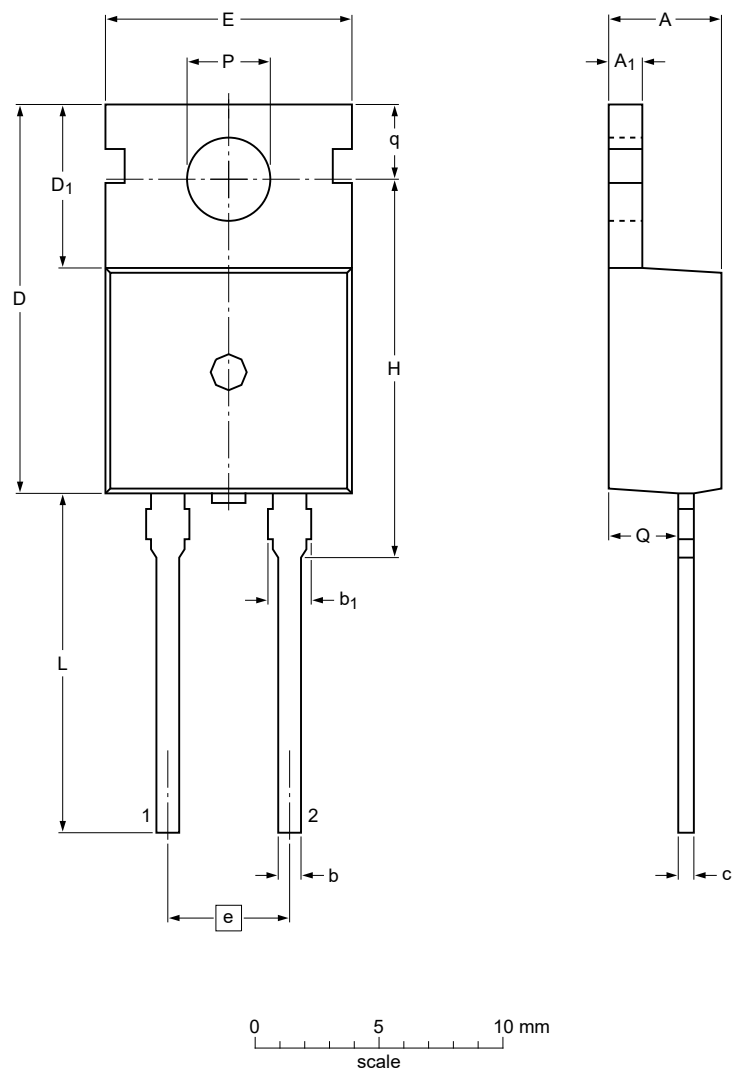
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MECHANICAL DATA

Plastic single-ended package; heatsink mounted; 1 mounting hole; 2-lead TO-220AC

SOD59




Dimensions

| Unit | A | A ₁ | b | b ₁ ⁽¹⁾ | c | D | D ₁ | E | e | H | L | P | Q | q |
|------|-----|----------------|------|-------------------------------|------|------|----------------|-------|-------|-------|------|------|-----|-----|
| max | 4.7 | 1.40 | 0.95 | 1.7 | 0.65 | 15.8 | 6.8 | 10.30 | 5.08 | 16.25 | 15.0 | 3.80 | 2.6 | 2.9 |
| nom | | | | | | | | | (REF) | | | | | |
| min | 4.3 | 1.15 | 0.70 | 1.3 | 0.45 | 15.6 | 6.4 | 9.65 | | 15.70 | 12.5 | 3.65 | 2.2 | 2.7 |

Note

1. Protruded dambar are included in the dimension.

sod059_po

| Outline version | References | | | | European projection | Issue date |
|-----------------|------------|-----------------|-------|--|---|-------------------|
| | IEC | JEDEC | JEITA | | | |
| SOD59 | | 2-lead TO-220AC | | |  | 09-08-25-12-11-27 |

Legal information

Data sheet status

| Document status [1][2] | Product status [3] | Definition |
|--------------------------------|--------------------|---|
| Objective [short] data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary [short] data sheet | Qualification | This document contains data from the preliminary specification. |
| Product [short] data sheet | Production | This document contains the product specification. |

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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