

**Rectifier diodes  
ultrafast**

**BYW29 series**

**GENERAL DESCRIPTION**

Glass passivated high efficiency rectifier diodes in a plastic envelope, featuring low forward voltage drop, ultra-fast recovery times and soft recovery characteristic. They are intended for use in switched mode power supplies and high frequency circuits in general where low conduction and switching losses are essential.

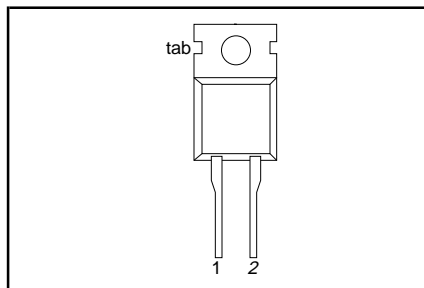
**QUICK REFERENCE DATA**

| SYMBOL      | PARAMETER   | MAX.       | MAX.       | MAX.       | UNIT |
|-------------|---|------------|------------|------------|------|
| $V_{RRM}$   | <b>BYW29-</b><br>Repetitive peak reverse voltage<br>Forward voltage<br>Forward current<br>Reverse recovery time | <b>100</b> | <b>150</b> | <b>200</b> | V    |
| $V_F$       |   | 100        | 150        | 200        | V    |
| $I_{F(AV)}$ |   | 0.895      | 0.895      | 0.895      | A    |
| $t_{rr}$    |   | 8          | 8          | 8          | ns   |
|             |   | 25         | 25         | 25         | ns   |

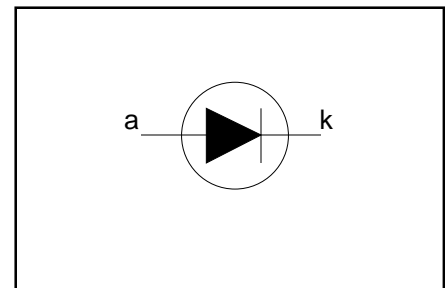
**PINNING - TO220AC**

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | cathode (k) |
| 2   | anode (a)   |
| tab | cathode (k) |

**PIN CONFIGURATION**



**SYMBOL**



**LIMITING VALUES**

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

| SYMBOL       | PARAMETER                            | CONDITIONS                              | MIN. | MAX. |      |      | UNIT             |
|--------------|--------------------------------------|---|------|------|------|------|------------------|
|              |                                      |   |      | -100 | -150 | -200 |                  |
| $V_{RRM}$    | Repetitive peak reverse voltage      |   | -    | 100  | 150  | 200  | V                |
| $V_{RWM}$    | Crest working reverse voltage        |   | -    | 100  | 150  | 200  | V                |
| $V_R$        | Continuous reverse voltage           |   | -    | 100  | 150  | 200  | V                |
| $I_{F(AV)}$  | Average forward current <sup>1</sup> | square wave; $\delta = 0.5$ ;           | -    | 8    |      |      | A                |
|              |                                      | $T_{mb} \leq 128^\circ\text{C}$         | -    | 7.3  |      |      | A                |
|              |                                      | sinusoidal; $a = 1.57$ ;                | -    | 11.3 |      |      | A                |
| $I_{F(RMS)}$ | RMS forward current                  | $T_{mb} \leq 130^\circ\text{C}$         | -    | 16   |      |      | A                |
| $I_{FRM}$    | Repetitive peak forward current      | $t = 25 \mu\text{s}$ ; $\delta = 0.5$ ; | -    | 80   |      |      | A                |
|              |                                      | $T_{mb} \leq 128^\circ\text{C}$         | -    | 88   |      |      | A                |
| $I_{FSM}$    | Non-repetitive peak forward current  | $t = 10 \text{ ms}$                     | -    | 80   |      |      | A                |
|              |                                      | $t = 8.3 \text{ ms}$                    | -    | 88   |      |      | A                |
|              |                                      | sinusoidal; with reapplied              | -    | 88   |      |      | A                |
| $I^2t$       | $I^2t$ for fusing                    | $V_{RWM(max)}$                          | -    | 32   |      |      | A <sup>2</sup> s |
| $T_{stg}$    | Storage temperature                  | $t = 10 \text{ ms}$                     | -40  | 150  |      |      | °C               |
| $T_j$        | Operating junction temperature       |   | -    | 150  |      |      | °C               |

<sup>1</sup> Neglecting switching and reverse current losses

---

**Rectifier diodes  
ultrafast**


---

**BYW29 series**


---

**THERMAL RESISTANCES**

| SYMBOL         | PARAMETER                                    | CONDITIONS  | MIN. | TYP. | MAX. | UNIT |
|----------------|--|-------------|------|------|------|------|
| $R_{th\ j-mb}$ | Thermal resistance junction to mounting base | in free air | -    | -    | 2.7  | K/W  |
| $R_{th\ j-a}$  | Thermal resistance junction to ambient       |             | -    | 60   | -    | K/W  |

**STATIC CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise stated

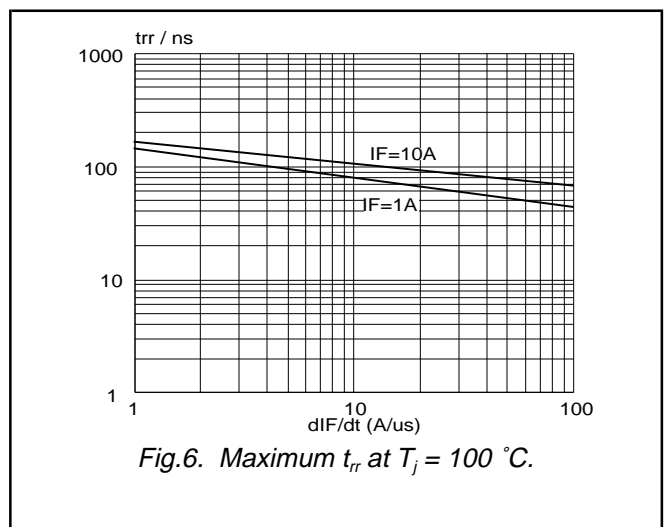
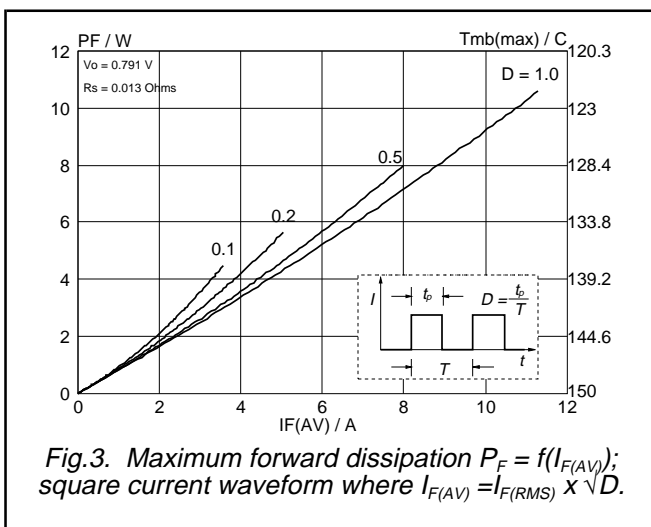
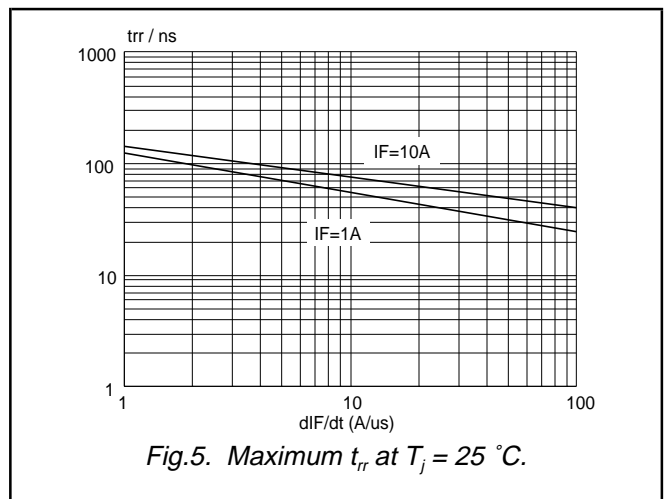
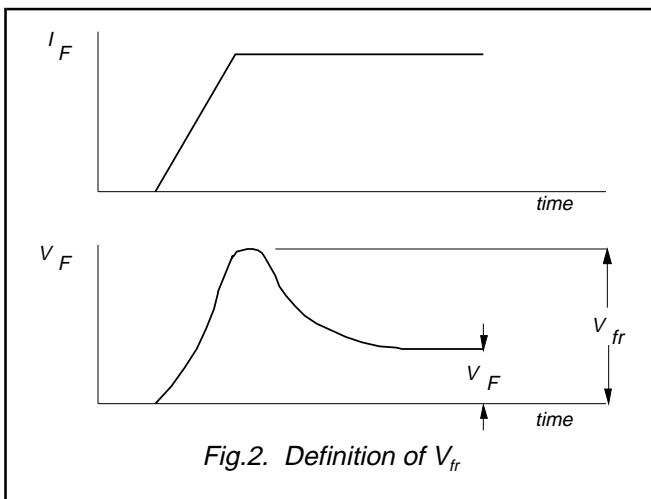
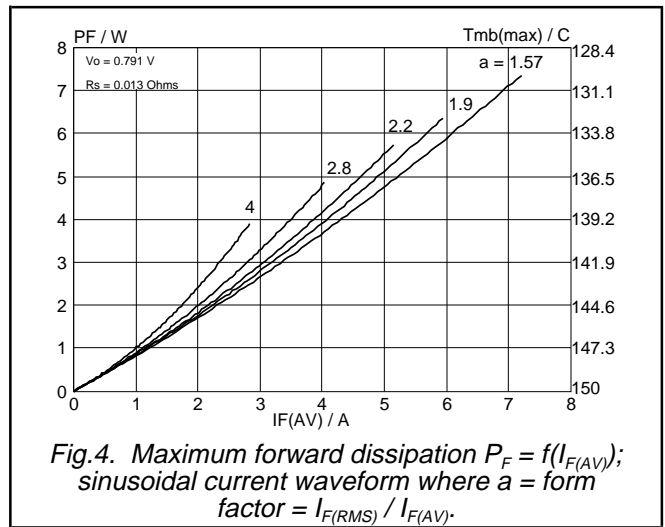
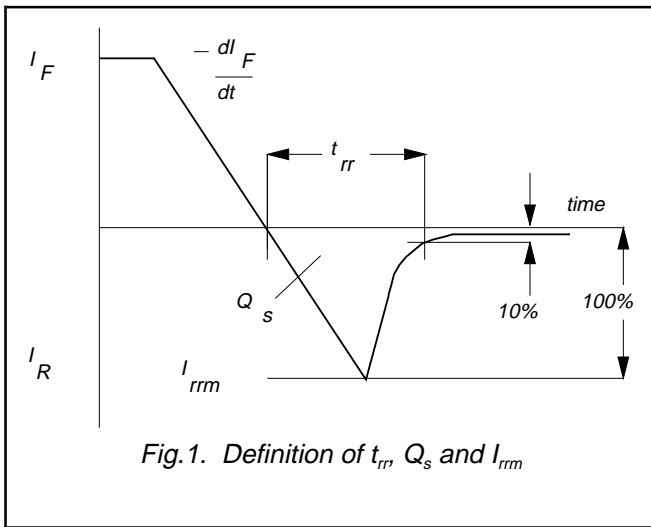
| SYMBOL | PARAMETER       | CONDITIONS                              | MIN. | TYP. | MAX.  | UNIT          |
|--------|-----------------|---|------|------|-------|---------------|
| $V_F$  | Forward voltage | $I_F = 8\text{ A}; T_j = 150\text{ °C}$ | -    | 0.80 | 0.895 | V             |
|        |                 | $I_F = 8\text{ A}$                      | -    | 0.92 | 1.05  | V             |
|        |                 | $I_F = 20\text{ A}$                     | -    | 1.1  | 1.3   | V             |
| $I_R$  | Reverse current | $V_R = V_{RWM}; T_j = 100\text{ °C}$    | -    | 0.3  | 0.6   | mA            |
|        |                 | $V_R = V_{RWM}$                         | -    | 2    | 10    | $\mu\text{A}$ |

**DYNAMIC CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise stated

| SYMBOL    | PARAMETER                     | CONDITIONS  | MIN. | TYP. | MAX. | UNIT |
|-----------|-------------------------------|---|------|------|------|------|
| $Q_s$     | Reverse recovery charge       | $I_F = 2\text{ A}; V_R \geq 30\text{ V}; -di_F/dt = 20\text{ A}/\mu\text{s}$                            | -    | 4    | 11   | nC   |
| $t_{rr}$  | Reverse recovery time         | $I_F = 1\text{ A}; V_R \geq 30\text{ V};$<br>$-di_F/dt = 100\text{ A}/\mu\text{s}$                      | -    | 20   | 25   | ns   |
| $I_{rrm}$ | Peak reverse recovery current | $I_F = 10\text{ A}; V_R \geq 30\text{ V}; T_j = 100\text{ °C};$<br>$-di_F/dt = 50\text{ A}/\mu\text{s}$ | -    | 1    | 2    | A    |
| $V_{fr}$  | Forward recovery voltage      | $I_F = 1\text{ A}; di_F/dt = 10\text{ A}/\mu\text{s}$   | -    | 1    | -    | V    |

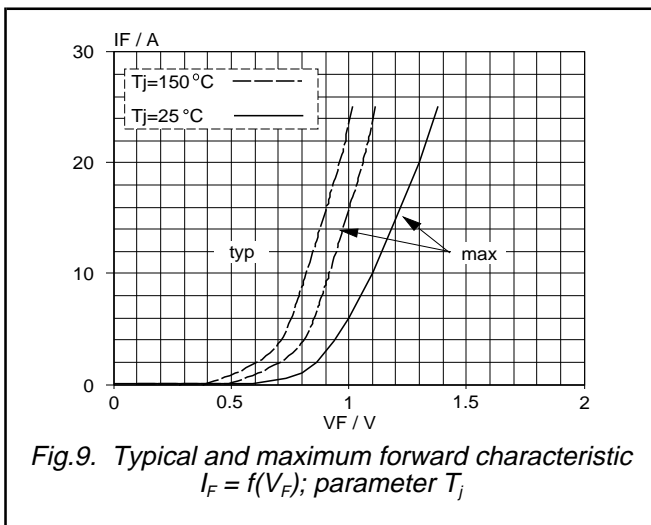
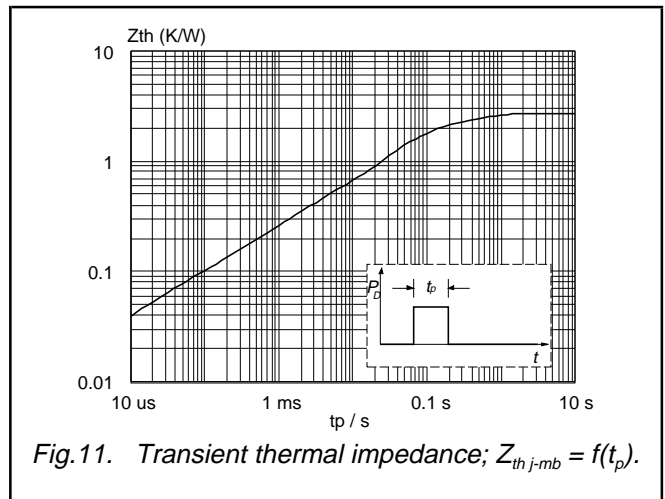
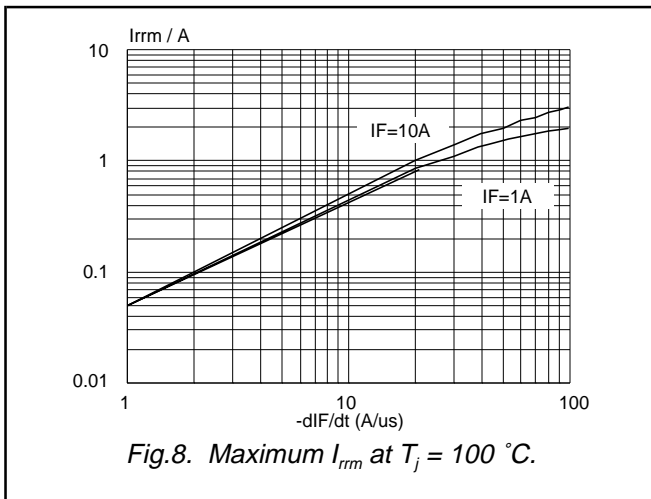
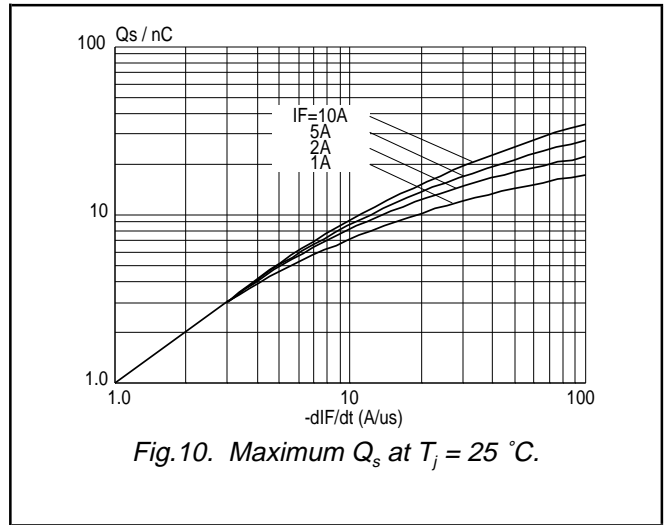
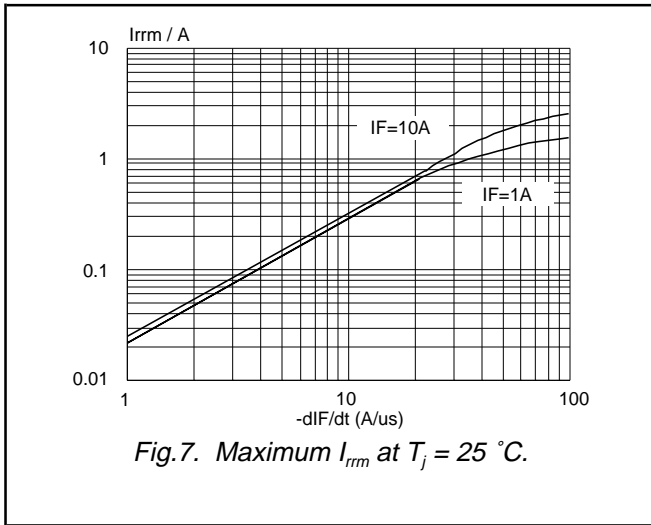
Rectifier diodes  
ultrafast

BYW29 series



Rectifier diodes  
ultrafast

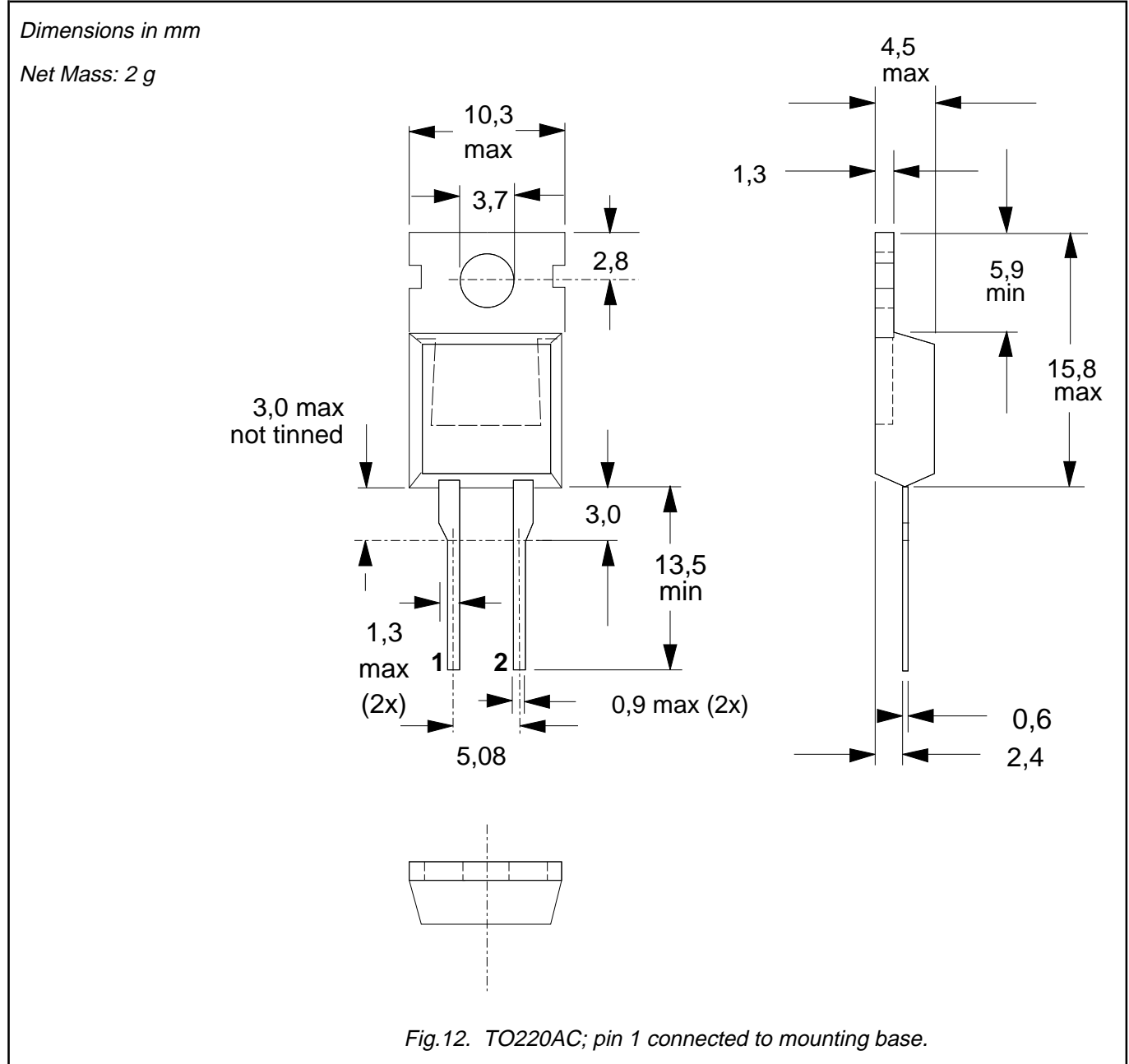
BYW29 series



Rectifier diodes  
ultrafast

BYW29 series

**MECHANICAL DATA**



**Notes**

- 1. Accessories supplied on request: refer to mounting instructions for TO220 envelopes.
- 2. Epoxy meets UL94 V0 at 1/8".

---

**Rectifier diodes  
ultrafast**


---

**BYW29 series**


---

**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.  |   |
| © Philips Electronics N.V. 1994  |   |
| All rights are reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner.  |   |
| The information presented in this document does not form part of any quotation or contract, it is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent or other industrial or intellectual property rights.   |   |

**LIFE SUPPORT APPLICATIONS**

These products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.