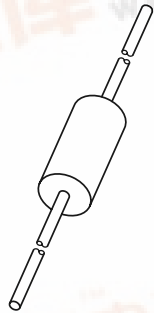


**DISCRETE SEMICONDUCTORS**

# DATA SHEET



## **BYX133GPS**

### High-voltage car ignition diode

Product specification

2002 Jan 24

# High-voltage car ignition diode

## BYX133GPS

### FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability.

### APPLICATIONS

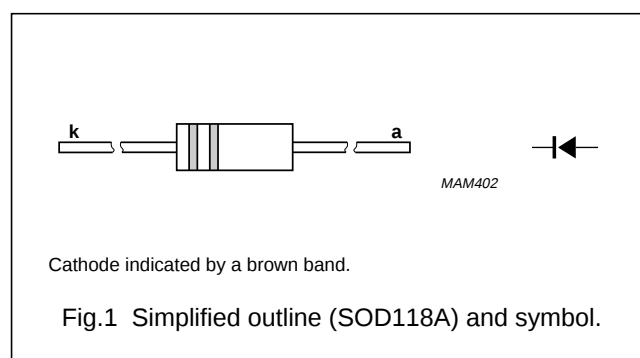
- Car ignition systems
- Automotive applications with extreme temperature requirements.

### DESCRIPTION

Rugged glass package, using a high temperature alloyed construction.

The SOD118A is hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.

The package is designed to be used in an insulating medium such as resin, oil or SF6 gas.



### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| SYMBOL      | PARAMETER                           | CONDITIONS                                                       | MIN. | MAX. | UNIT |
|-------------|-------------------------------------|------------------------------------------------------------------|------|------|------|
| $V_{RRM}$   | repetitive peak reverse voltage     |                                                                  | —    | 3    | kV   |
| $V_{RWM}$   | crest working reverse voltage       |                                                                  | —    | 3    | kV   |
| $I_{F(AV)}$ | average forward current             |                                                                  | —    | 50   | mA   |
| $I_{FRM}$   | repetitive peak forward current     |                                                                  | —    | 1    | A    |
| $I_{RSM}$   | non-repetitive peak reverse current | $t = 100 \mu s$ triangular pulse;<br>$T_{j \max}$ prior to surge | —    | 50   | mA   |
| $T_{stg}$   | storage temperature                 |                                                                  | –65  | +175 | °C   |
| $T_j$       | junction temperature                | continuous                                                       | —    | 175  | °C   |

### CHARACTERISTICS

$T_j = 25 \text{ °C}$  unless otherwise specified.

| SYMBOL      | PARAMETER                           | CONDITIONS                                    | MIN. | MAX. | UNIT    |
|-------------|-------------------------------------|-----------------------------------------------|------|------|---------|
| $V_F$       | forward voltage                     | $I_F = 10 \text{ mA}$                         | 3.75 | 5.25 | V       |
| $V_{(BR)R}$ | reverse avalanche breakdown voltage | $I_R = 100 \mu A$                             | 4    | 5.5  | kV      |
| $I_R$       | reverse current                     | $V_R = V_{RWM \max}$ ; $T_j = 165 \text{ °C}$ | —    | 30   | $\mu A$ |

### THERMAL CHARACTERISTICS

| SYMBOL               | PARAMETER                                   | CONDITIONS                                          | VALUE | UNIT |
|----------------------|---------------------------------------------|-----------------------------------------------------|-------|------|
| $R_{th \text{ j-a}}$ | thermal resistance from junction to ambient | $T_{amb} = T_{leads}$ ; lead length = 10 mm; in oil | 100   | K/W  |

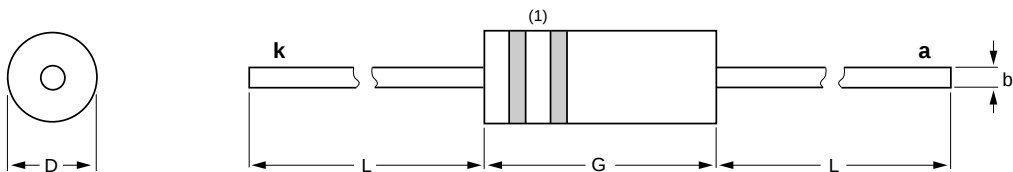
High-voltage car ignition diode

BYX133GPS

PACKAGE OUTLINE

Hermetically sealed plastic package; axial leaded; 2 leads

SOD118A



DIMENSIONS (mm are the original dimensions)

| UNIT | b   | D          | G          | L<br>min. |
|------|-----|------------|------------|-----------|
| mm   | 0.5 | 2.6<br>2.4 | 6.7<br>6.3 | 31        |

Note

1. The marking bands indicate the cathode.

| OUTLINE<br>VERSION | REFERENCES |       |      |  | EUROPEAN<br>PROJECTION | ISSUE DATE |
|--------------------|------------|-------|------|--|------------------------|------------|
|                    | IEC        | JEDEC | EIAJ |  |                        |            |
| SOD118A            |            |       |      |  |                        | 98-05-28   |

## High-voltage car ignition diode

BYX133GPS

## DATA SHEET STATUS

| DATA SHEET STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)</sup> | DEFINITIONS                                                                                                                                                                                                                                                                                                            |
|----------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Objective data                   | Development                   | This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.                                                                                                                            |
| Preliminary data                 | Qualification                 | This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.                                     |
| Product data                     | Production                    | This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Changes will be communicated according to the Customer Product/Process Change Notification (CPCN) procedure SNW-SQ-650A. |

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**NOTES**

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**NOTES**

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**NOTES**

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## **Contact information**

For additional information please visit <http://www.semiconductors.philips.com>. Fax: **+31 40 27 24825**

For sales offices addresses send e-mail to: [sales.addresses@www.semiconductors.philips.com](mailto:sales.addresses@www.semiconductors.philips.com).

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