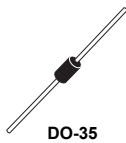


## Diac in DO-35 with tight $V_{BO}$



### Features

- $V_{BO}$ : 32 V
- Low breakover current: 15  $\mu$ A max.
- Breakover voltage range: 30 to 34 V

### Applications

- Triggering device for Triac or SCR based motor / light dimmer
- 32 V trigger device for oscillator circuit
- Start up triggering in lighting ballast for CFL, TL or LED lamps

### Description

Functioning as a trigger diode with a fixed voltage reference, the **DB3TG** can be used in conjunction with Triacs for simplified gate control circuits or as a starting element in fluorescent lamp ballasts.

#### Product status link

[DB3TG](#)

#### Product summary

| Part number  | $V_{BO}$  |
|--------------|-----------|
| <b>DB3TG</b> | 30 - 34 V |

# 1 Characteristics

**Table 1. Absolute maximum ratings (limiting values),  $T_j = 25\text{ °C}$  unless otherwise specified**

| Symbol    | Parameter  | Value       | Unit               |
|-----------|--|-------------|--------------------|
| $I_{TRM}$ | Repetitive peak on-state current, $t_p = 20\ \mu\text{s}$ , $F = 120\ \text{Hz}$ | 2.00        | A                  |
| $T_{stg}$ | Storage junction temperature range   | -40 to +125 | $^{\circ}\text{C}$ |
| $T_j$     | Operating junction temperature range   | -40 to +125 | $^{\circ}\text{C}$ |

**Table 2. Electrical characteristics ( $T_j = 25\text{ °C}$  unless otherwise specified)**

| Symbol                | Parameter                                | Test conditions                                  | Value | Unit |               |
|-----------------------|--|--|-------|------|---------------|
| $V_{BO}$              | Breakover voltage <sup>(1)</sup>         | $C = 10\ \text{nF}$ <sup>(2)</sup>               | Min.  | 30   | V             |
|                       |  |  | Typ.  | 32   |               |
|                       |  |  | Max.  | 34   |               |
| $ V_{BO1} - V_{BO2} $ | Breakover voltage symmetry               | $C = 10\ \text{nF}$ <sup>(2)</sup>               | Max.  | 2    | V             |
| $\Delta V$            | Dynamic breakover voltage <sup>(1)</sup> | $V_{BO}$ and $V_F$ at 10 mA                      | Min.  | 9    | V             |
| $V_O$                 | Output voltage <sup>(1)</sup>            | See Figure 2. Test circuit, ( $R = 20\ \Omega$ ) | Min.  | 5    | V             |
| $I_{BO}$              | Breakover current <sup>(1)</sup>         | $C = 10\ \text{nF}$ <sup>(2)</sup>               | Max.  | 15   | $\mu\text{A}$ |
| $t_r$                 | Rise time <sup>(1)</sup>                 | See Figure 3. Rise time measurement              | Max.  | 2    | $\mu\text{s}$ |
| $I_R$                 | Leakage current <sup>(1)</sup>           | $V_R = 0.5 \times V_{BO\ \text{max}}$            | Max.  | 10   | $\mu\text{A}$ |
| $I_P$                 | Peak current <sup>(1)</sup>              | See Figure 2. Test circuit                       | Min.  | 0.30 | A             |

1. Applicable to both forward and reverse directions.
2. Connected in parallel to the device

Figure 1. Voltage - current characteristic curve.

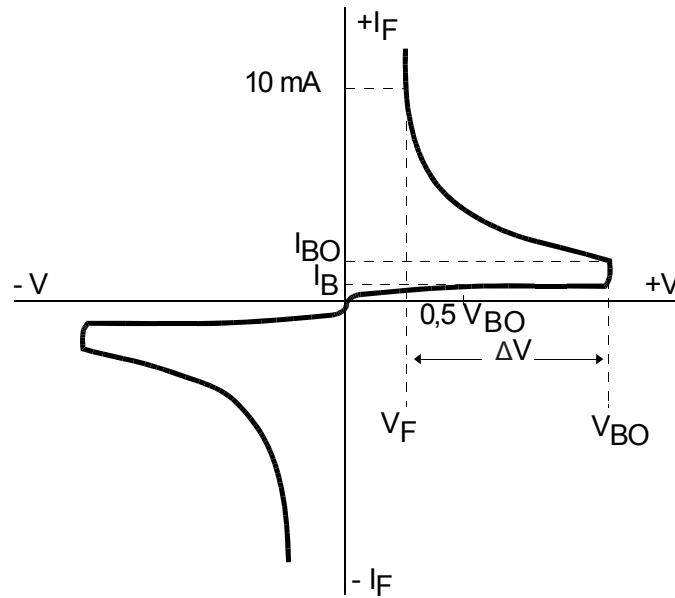


Figure 2. Test circuit

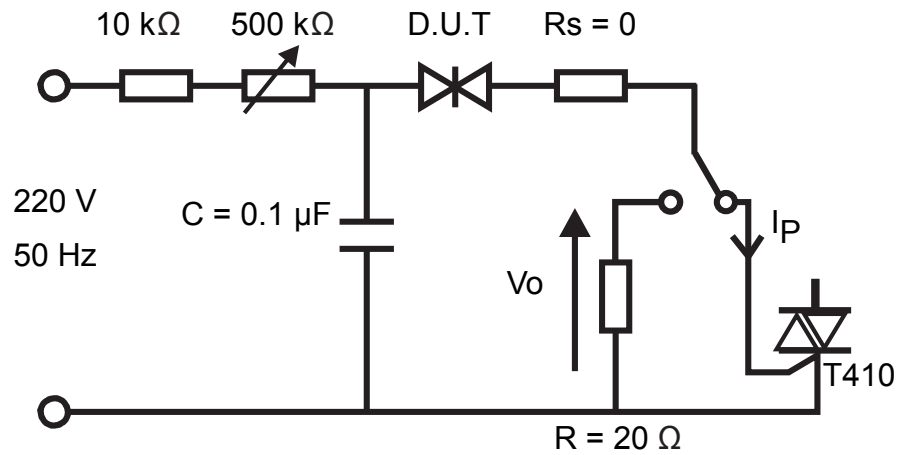
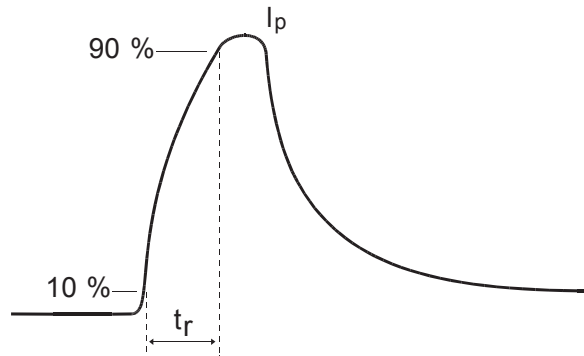
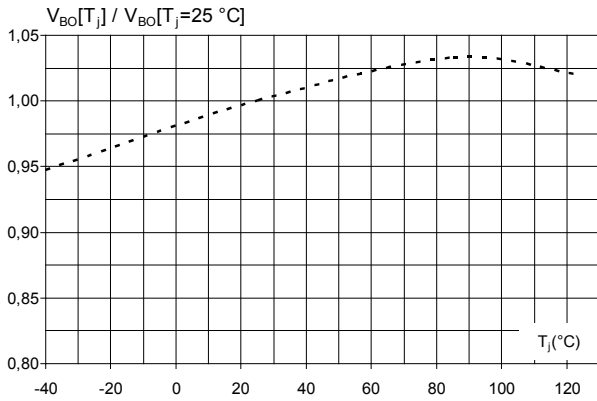


Figure 3. Rise time measurement

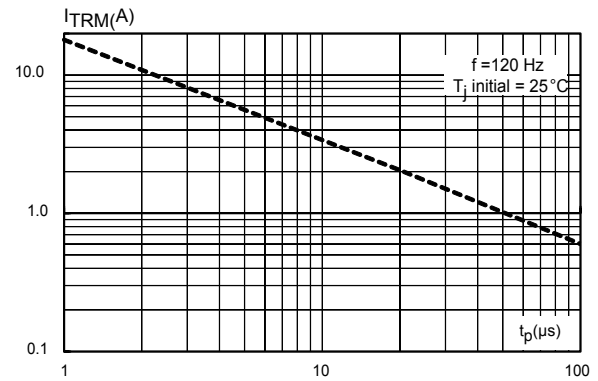


## 1.1 Characteristics (curves)

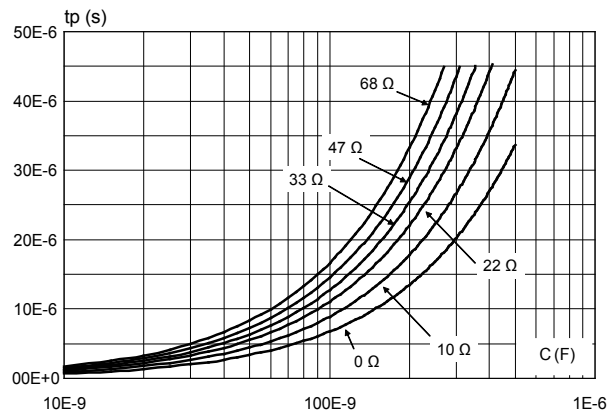
**Figure 4. Relative variation of  $V_{BO}$  versus junction temperature (typical values)**



**Figure 5. Peak on-state current versus Triac gate current pulse duration  $t_p$**



**Figure 6. Triac gate current pulse duration  $t_p$  (to have  $I_p > 50 \text{ mA}$ ) versus  $R_s$  and  $C$  values (typical values)**



Note: according to Figure 2. Test circuit

## 2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of **ECOPACK** packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK is an ST trademark.

### 2.1 DO-35 package information

Figure 7. DO-35 package outline

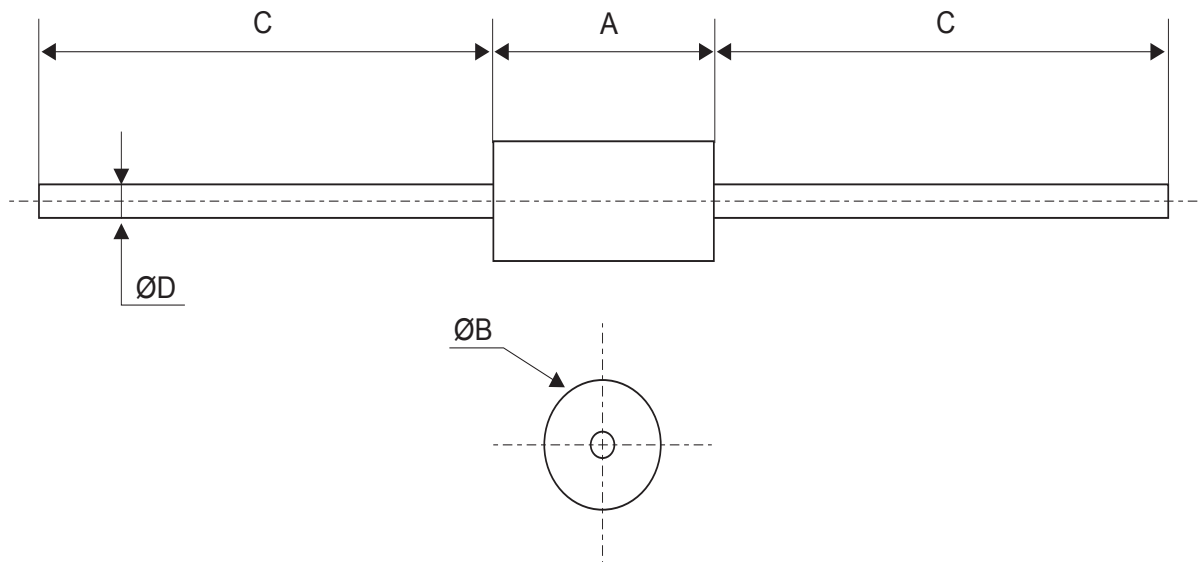


Table 3. DO-35 package mechanical data

| Ref. | Dimensions  |      |                       |       |
|------|-------------|------|-----------------------|-------|
|      | Millimeters |      | Inches <sup>(1)</sup> |       |
|      | Min.        | Max. | Min.                  | Max.  |
| A    | 3.05        | 4.50 | 0.120                 | 0.177 |
| B    | 1.53        | 2    | 0.060                 | 0.079 |
| C    | 28          | 31   | 1.102                 | 1.220 |
| D    | 0.46        | 0.55 | 0.018                 | 0.022 |

1. Inches given for reference only

### 3 Ordering information

Figure 8. Ordering information scheme

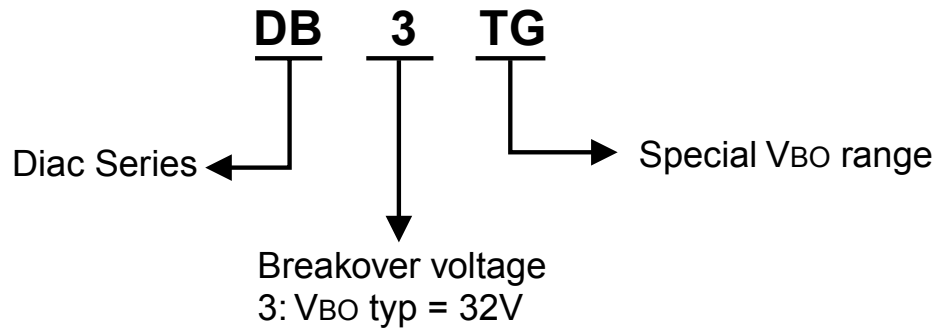


Table 4. Ordering information

| Order code | Marking                | Package | Weight | Base qty. | Delivery mode |
|------------|------------------------|---------|--------|-----------|---------------|
| DB3TG      | DB3TG (Blue Body Coat) | DO-35   | 0.15 g | 5000      | Tape and reel |

## Revision history

**Table 5. Document revision history**

| Date        | Version | Changes  |
|-------------|---------|--|
| Oct-2001    | 2       | Previous release.  |
| 07-May-2019 | 3       | Updated <a href="#">Section 1.1 Characteristics (curves)</a> . |



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