

Diac in DO-35 with tight V_{BO}



Features

- V_{BO} : 32 V
- Low breakover current: 15 μ 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}
DB3TG	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, $t_p = 20\text{ }\mu\text{s}$, $F = 120\text{ Hz}$	2.00	A
T_{stg}	Storage junction temperature range	-40 to +125	°C
T_j	Operating junction temperature range	-40 to +125	°C

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

Symbol	Parameter	Test conditions		Value	Unit
V _{BO}	Breakover voltage ⁽¹⁾	C = 10 nF ⁽²⁾	Min.	30	V
			Typ.	32	
			Max.	34	
V _{BO1} - V _{BO2}	Breakover voltage symmetry	C = 10 nF ⁽²⁾	Max.	2	V
Δ V	Dynamic breakover voltage ⁽¹⁾	V _{BO} and V _F at 10 mA	Min.	9	V
V _O	Output voltage ⁽¹⁾	See Figure 2. Test circuit, (R = 20 Ω)	Min.	5	V
I _{BO}	Breakover current ⁽¹⁾	C = 10 nF ⁽²⁾	Max.	15	μA
t _r	Rise time ⁽¹⁾	See Figure 3. Rise time measurement	Max.	2	μs
I _R	Leakage current ⁽¹⁾	V _R = 0.5 x V _{BO} max	Max.	10	μA
I _P	Peak current ⁽¹⁾	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.

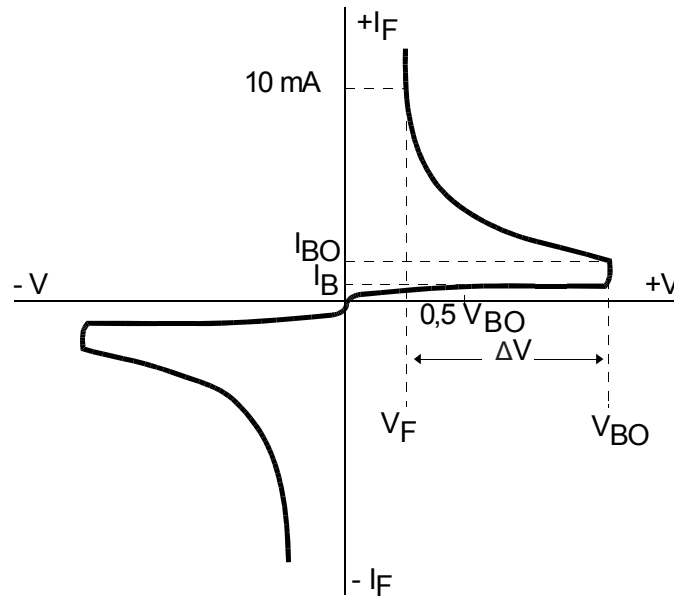


Figure 2. Test circuit

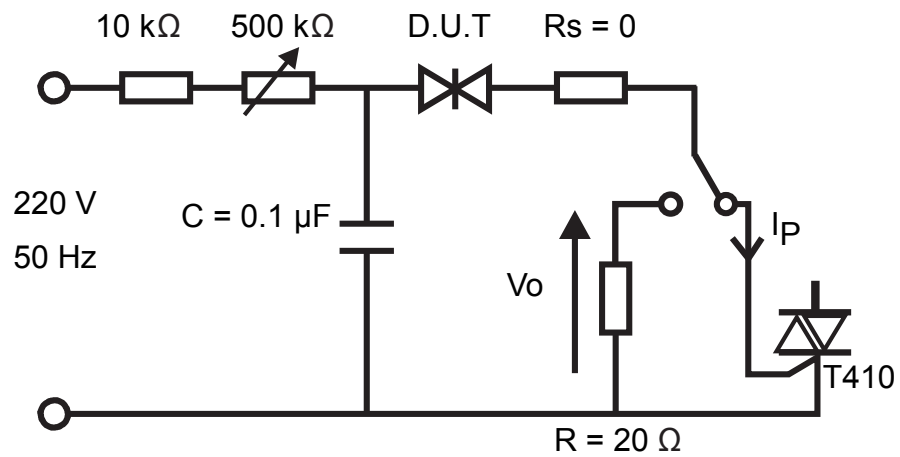
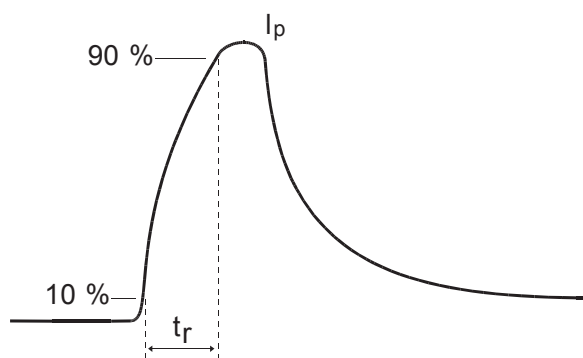


Figure 3. Rise time measurement



1.1 Characteristics (curves)

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

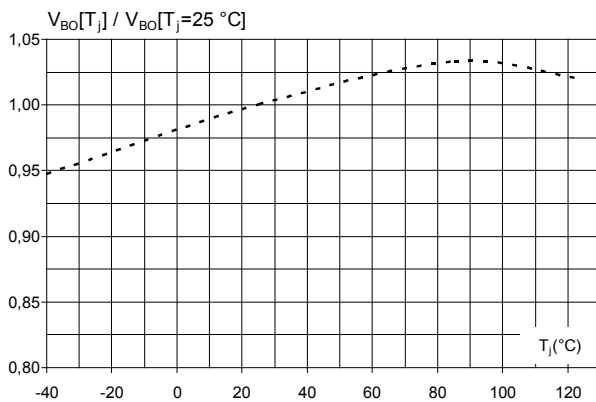


Figure 5. Peak on-state current versus Triac gate current pulse duration t_p

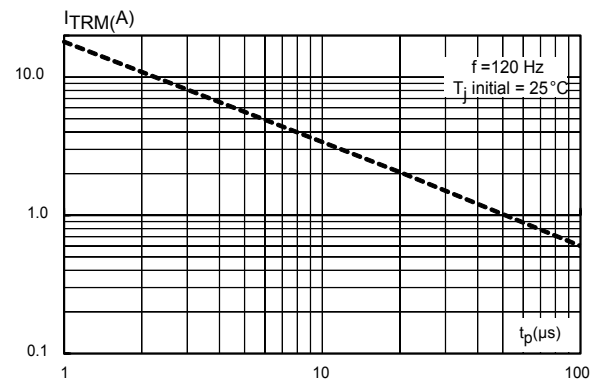
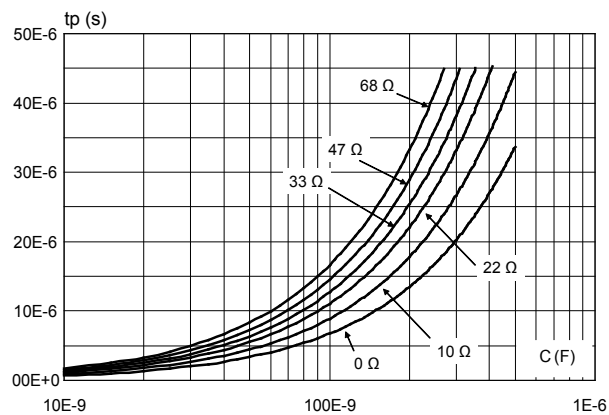


Figure 6. Triac gate current pulse duration t_p (to have $I_p > 50$ mA) versus R_s and C values (typical values)



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. ECOPACK is an ST trademark.

2.1 DO-35 package information

Figure 7. DO-35 package outline

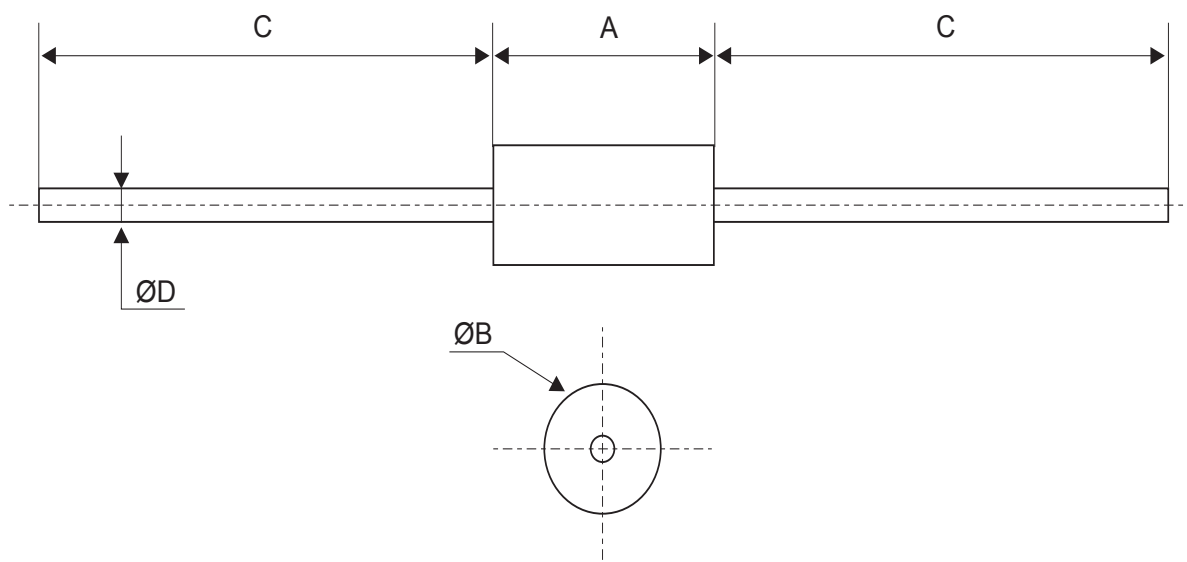


Table 3. DO-35 package mechanical data

Ref.	Dimensions			
	Millimeters		Inches ⁽¹⁾	
	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

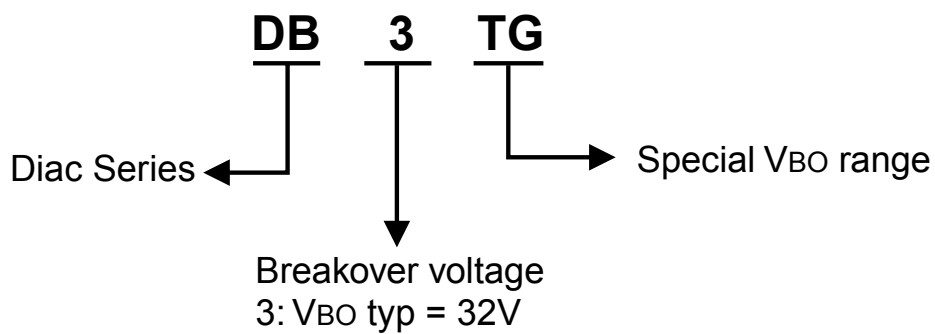


Table 4. Ordering information

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 Section 1.1 Characteristics (curves) .

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