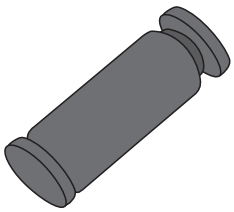
TMMDB3TG

Datasheet

Diac in MINIMELF package with tight V_{BO}



MINIMELF

Features

- V_{BO}: 32 V
- Low breakover voltage: 15 µA max.
- Breakover voltage range: 30 to 34 V

Applications

- General purpose AC line load switching
- Motor control circuits
- Home appliances
- Heating
- Lighting
- Inrush current limiting circuits
- Overvoltage crowbar protection

Description

Functioning as a trigger diode with a fixed voltage reference, the TMMDB3TG can be used in conjunction with Triacs for simplified gate control circuits or as a starting element in fluorescent lamp ballasts.

Product status link
TMMDB3TG

Product summary	
Order code	**V_{BO}**
TMMDB3TG	30 - 34 V

1 Characteristics

Table 1. Absolute maximum ratings (limiting values), T_j = 25 °C unless otherwise specified

Symbol	Parameter	Value	Unit
I_{TRM}	Repetitive peak on-state current, t_p = 20 µs, F = 120 Hz	2	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 °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	
I V_{BO1} - V_{BO2} I	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.

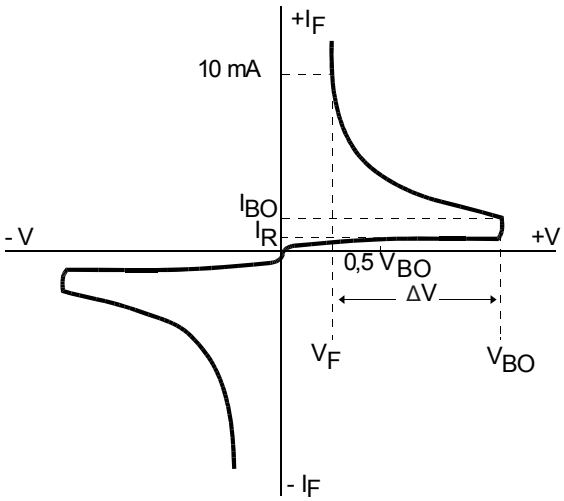


Figure 2. **Test circuit**

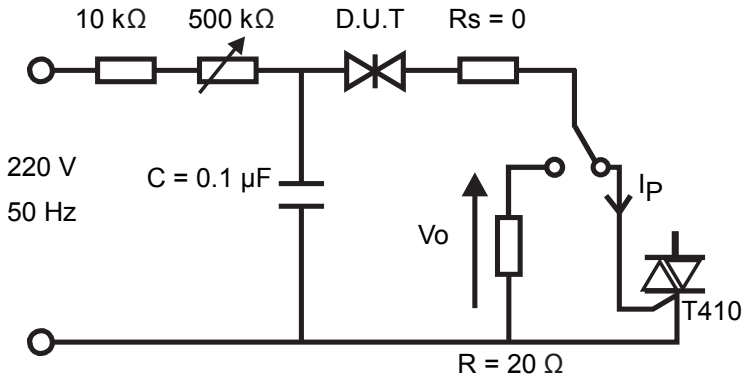
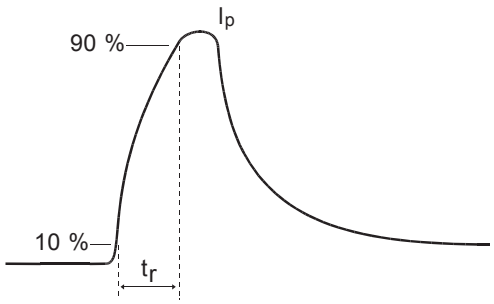


Figure 3. **Rise time measurement**



1.1 Characteristics (curves)

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

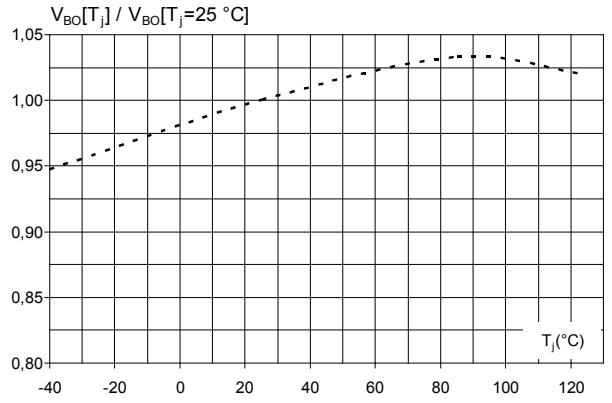


Figure 5. Peak on-state current versus Triac gate current pulse duration t_p

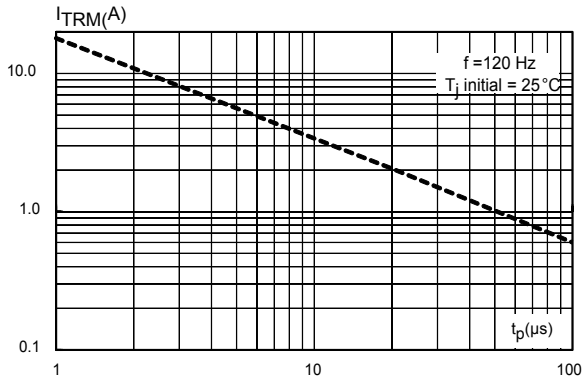
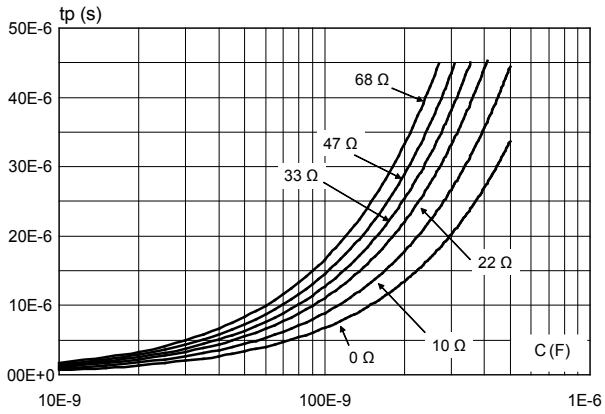


Figure 6. Triac gate current pulse duration t_p (to have I_P > 50 mA) versus Rs and C values (typical values)



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 Minimelf package information

Figure 7. MINIMELF package outline

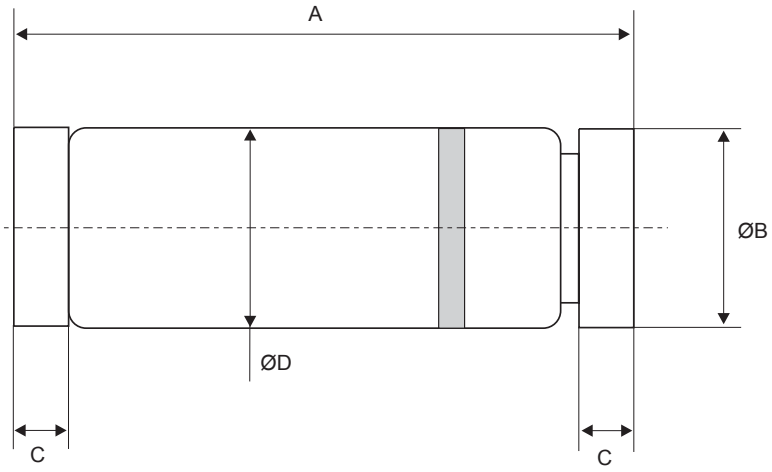
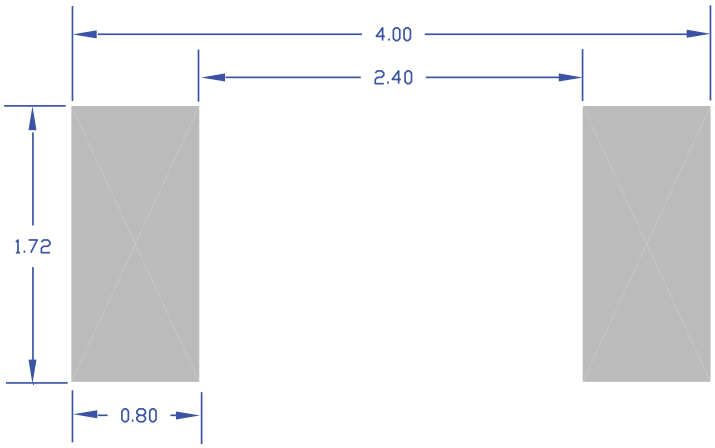


Table 3. MINIMELF package mechanical data

Dim.	mm					
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	3.30	3.50	3.70	0.130	0.138	0.146
B	1.59	1.65	1.70	0.063	0.065	0.067
C	0.40	0.50	0.60	0.016	0.020	0.024
D		1.50			0.059	

Figure 8. **MINIMELF recommended footprint (dimensions are in mm)**



3 Ordering information

Figure 9. **Ordering information scheme**

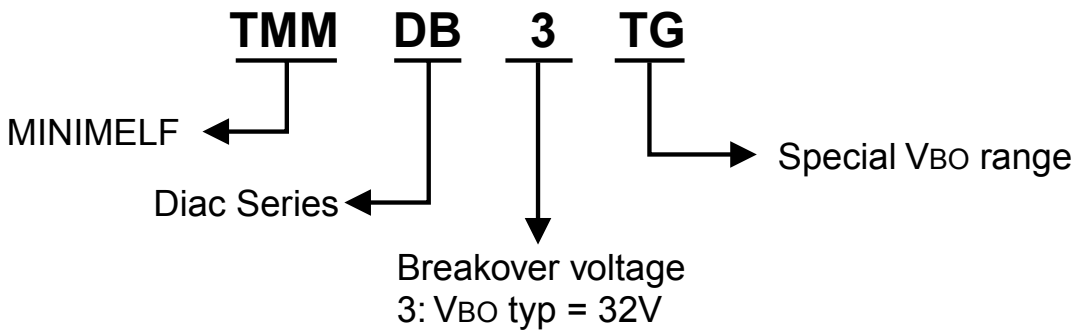


Table 4. **Ordering information**

Order code	Marking	Package	Weight	Base qty.	Delivery mode
TMMDB3TG	(None)	Minimelf	0.04 g	2500	Tape and reel

Revision history

Table 5. Document revision history

Date	Version	Changes
January-2001	2	Previous release.
07-May-2019	3	Updated Section 1.1 Characteristics (curves) and Table 3. MINIMELF package mechanical data. Minor text change to improve readability.