



## DB3 DB4 SMDB3

### DIAC

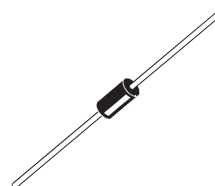
#### FEATURES

- $V_{BO}$  : 32V and 40V
- LOW BREAKOVER CURRENT

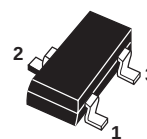
#### DESCRIPTION

Functioning as a trigger diode with a fixed voltage reference, the DB3/DB4 series can be used in conjunction with triacs for simplified gate control circuits or as a starting element in fluorescent lamp ballasts.

A new surface mount version is now available in SOT-23 package, providing reduced space and compatibility with automatic pick and place equipment.



**DO-35**  
**(DB3 and DB4)**



**SOT-23**  
**(SMDB3)\***  
**Pin 1 and 3 must be shorted together**

#### ABSOLUTE MAXIMUM RATINGS (limiting values)

| Symbol             | Parameter                                                                 |           | Value         | Unit |
|--------------------|---------------------------------------------------------------------------|-----------|---------------|------|
| $I_{TRM}$          | Repetitive peak on-state current<br>$t_p = 20 \mu s$ $F = 120 \text{ Hz}$ | SMDB3     | 1.00          | A    |
|                    |                                                                           | DB3 / DB4 | 2.00          |      |
| $T_{stg}$<br>$T_j$ | Storage temperature range<br>Operating junction temperature range         |           | - 40 to + 125 | °C   |

Note: \* SMDB3 indicated as Preliminary spec as product is still in development stage.

## DB3 DB4 SMDB3

### ELECTRICAL CHARACTERISTICS (T<sub>j</sub> = 25°C unless otherwise specified)

| Symbol                              | Parameter                   | Test Conditions                            |      | SMDB3 | DB3  | DB4 | Unit |
|-------------------------------------|-----------------------------|--------------------------------------------|------|-------|------|-----|------|
| V <sub>BO</sub>                     | Breakover voltage *         | C = 22nF **                                | MIN. | 28    | 28   | 35  | V    |
|                                     |                             |                                            | TYP. | 32    | 32   | 40  |      |
|                                     |                             |                                            | MAX. | 36    | 36   | 45  |      |
| V <sub>BO1</sub> - V <sub>BO2</sub> | Breakover voltage symmetry  | C = 22nF **                                | MAX. | 3     |      |     | V    |
| ΔV                                  | Dynamic breakover voltage * | V <sub>BO</sub> and V <sub>F</sub> at 10mA | MIN. | 10    | 5    |     | V    |
| V <sub>O</sub>                      | Output voltage *            | see diagram 2 (R=20Ω)                      | MIN. | 10    | 5    |     | V    |
| I <sub>BO</sub>                     | Breakover current *         | C = 22nF **                                | MAX. | 10    | 50   |     | μA   |
| t <sub>r</sub>                      | Rise time *                 | see diagram 3                              | MAX. | 0.50  | 2    |     | μs   |
| I <sub>R</sub>                      | Leakage current *           | V <sub>R</sub> = 0.5 V <sub>BO</sub> max   | MAX. | 1     | 10   |     | μA   |
| I <sub>P</sub>                      | Peak current *              | see diagram 2 (Gate)                       | MIN. | 1     | 0.30 |     | A    |

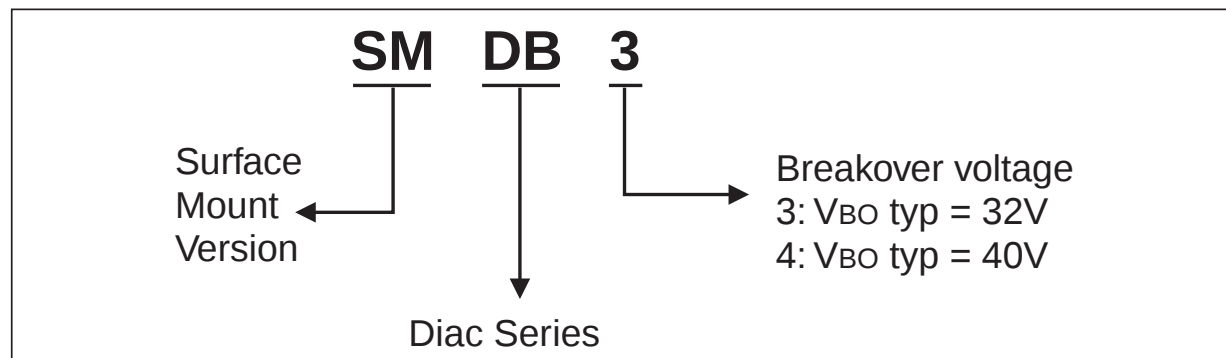
\* Applicable to both forward and reverse directions.

\*\* Connected in parallel to the device.

### PRODUCT SELECTOR

| Part Number | V <sub>BO</sub> | Package |
|-------------|-----------------|---------|
| SMDB3       | 28 - 36         | SOT-23  |
| DB3         | 28 - 36         | DO-35   |
| DB4         | 35 - 45         | DO-35   |

### ORDERING INFORMATION



OTHER INFORMATION

| Part Number | Marking              | Weight | Base Quantity | Packing Mode |
|-------------|----------------------|--------|---------------|--------------|
| SMDB3       | DB3                  | 0.01 g | 3000          | Tape & Reel  |
| DB3         | DB3 (Blue Body Coat) | 0.15 g | 5000          | Tape & Reel  |
| DB4         | DB4 (Blue Body Coat) | 0.15 g | 5000          | Tape & Reel  |

Diagram 1: Voltage - current characteristic curve.

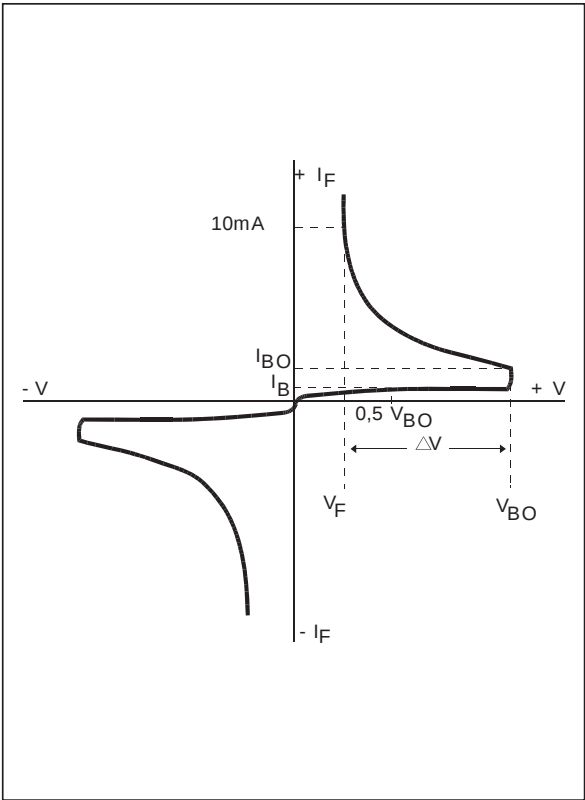


Diagram 2: Test circuit.

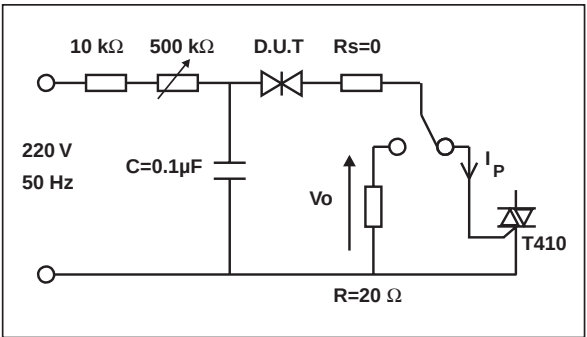
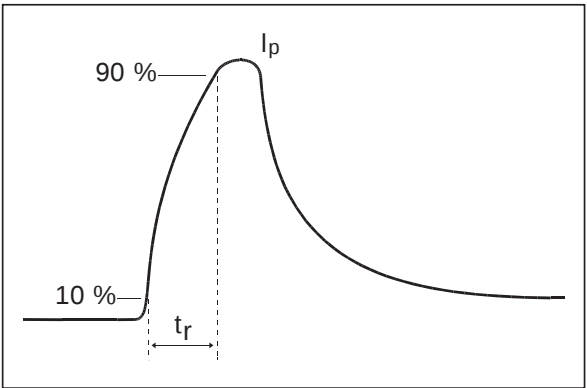
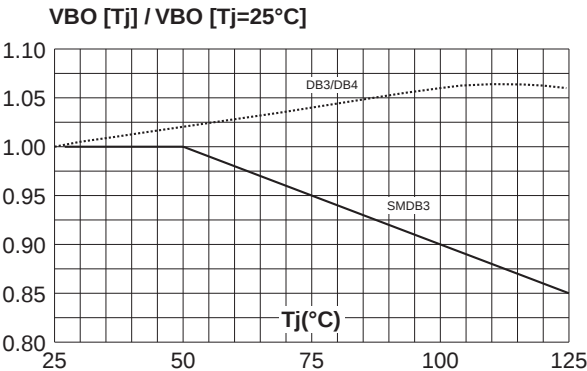


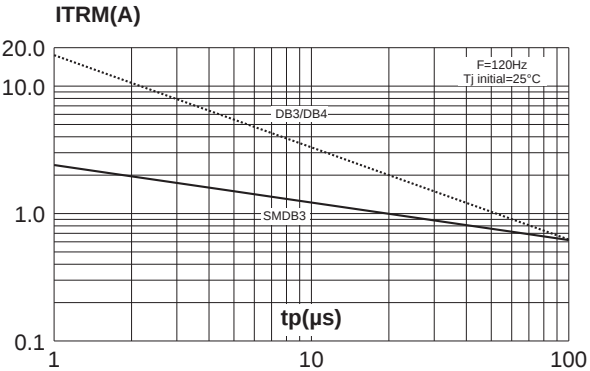
Diagram 3: Rise time measurement.



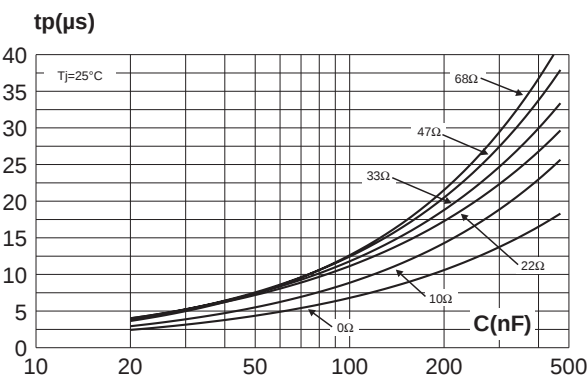
**Fig. 1:** Relative variation of VBO versus junction temperature (typical values).



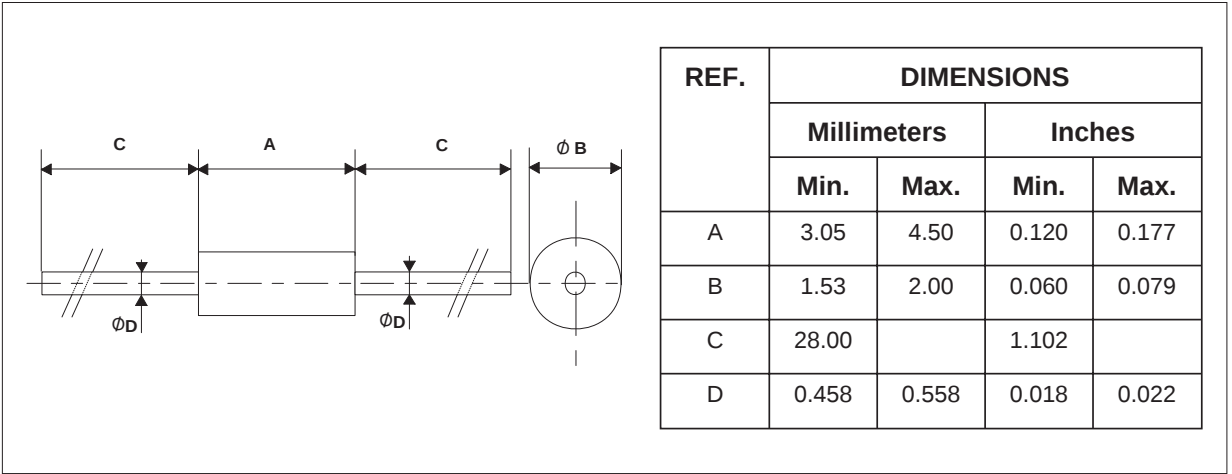
**Fig. 2:** Repetitive peak pulse current versus pulse duration (maximum values).



**Fig. 3:** Time duration while current pulse is higher 50mA versus C and Rs (typical values).

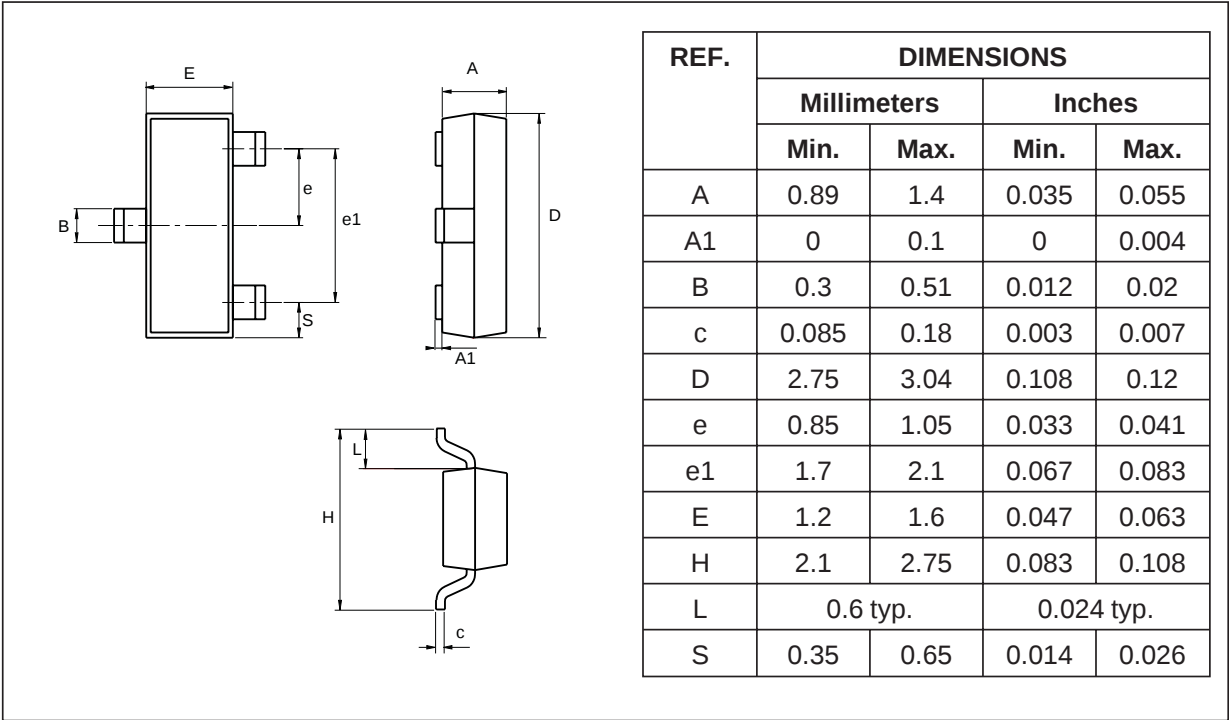


**PACKAGE MECHANICAL DATA (in millimeters)**  
DO-35

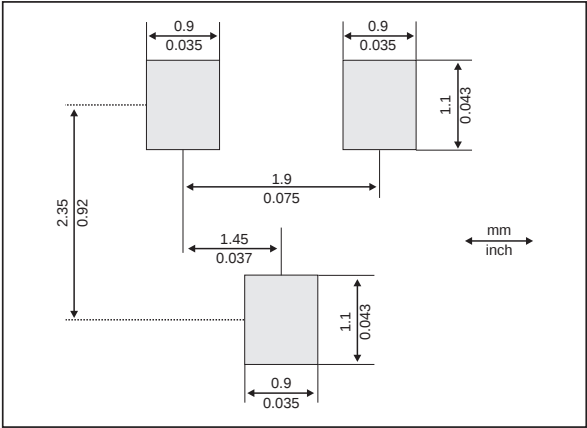


PACKAGE MECHANICAL DATA (in millimeters)

SOT-23



FOOTPRINT



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