



DB3 DB4 SMDB3

DIAC

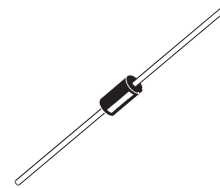
FEATURES

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

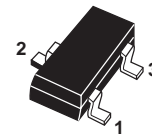
DESCRIPTION

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 $t_p = 20 \mu s$ $F = 120 \text{ Hz}$ | SMDB3 | 1.00 |
| | | DB3 / DB4 | 2.00 |
| T_{stg} T_j | Storage temperature range Operating junction temperature range | - 40 to + 125 | $^{\circ}C$ |

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

DB3 DB4 SMDB3

ELECTRICAL CHARACTERISTICS (Tj = 25°C unless otherwise specified)

| Symbol | Parameter | Test Conditions | SMDB3 | DB3 | DB4 | Unit | |
|-------------------------------------|-----------------------------|--|-------|------|------|------|---|
| V _{BO} | Breakover voltage * | C = 22nF ** | MIN. | 28 | 28 | 35 | V |
| | | | TYP. | 32 | 32 | 40 | |
| | | | MAX. | 36 | 36 | 45 | |
| V _{BO1} - V _{BO2} | Breakover voltage symmetry | C = 22nF ** | MAX. | 3 | | V | |
| ΔV | Dynamic breakover voltage * | V _{BO} and V _F at 10mA | MIN. | 10 | 5 | V | |
| V _O | Output voltage * | see diagram 2 (R=20Ω) | MIN. | 10 | 5 | V | |
| I _{BO} | Breakover current * | C = 22nF ** | MAX. | 10 | 50 | μA | |
| tr | Rise time * | see diagram 3 | MAX. | 0.50 | 2 | μs | |
| I _R | Leakage current * | V _R = 0.5 V _{BO} max | MAX. | 1 | 10 | μA | |
| I _P | Peak current * | see diagram 2 (Gate) | MIN. | 1 | 0.30 | A | |

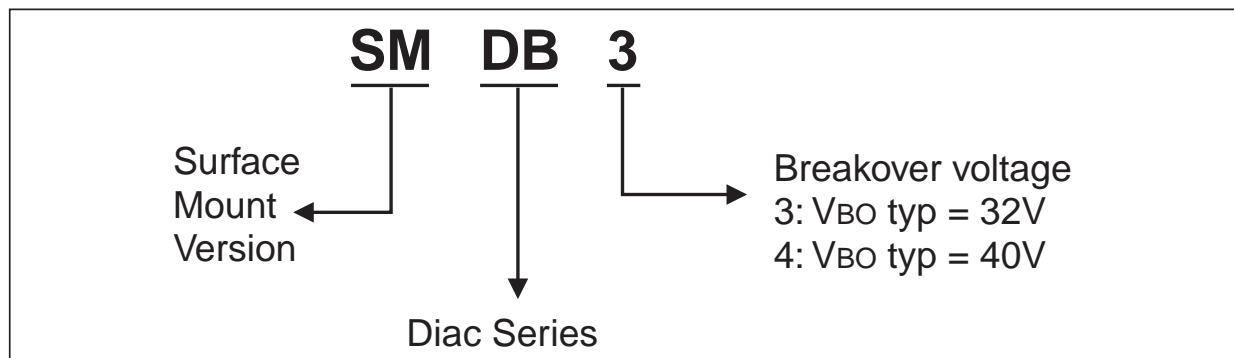
* Applicable to both forward and reverse directions.

** Connected in parallel to the device.

PRODUCT SELECTOR

| Part Number | V _{BO} | 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.

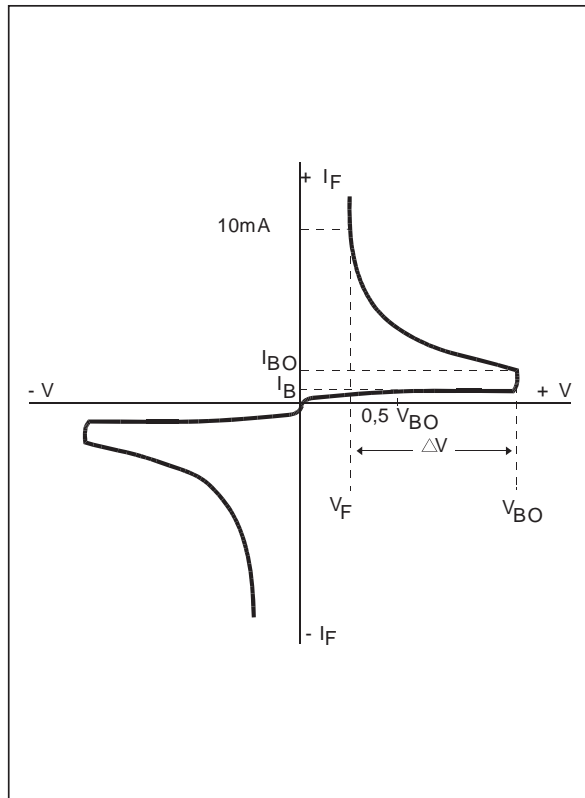


Diagram 2: Test circuit.

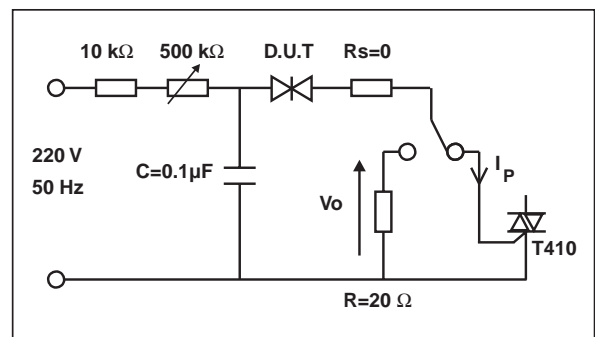


Diagram 3: Rise time measurement.

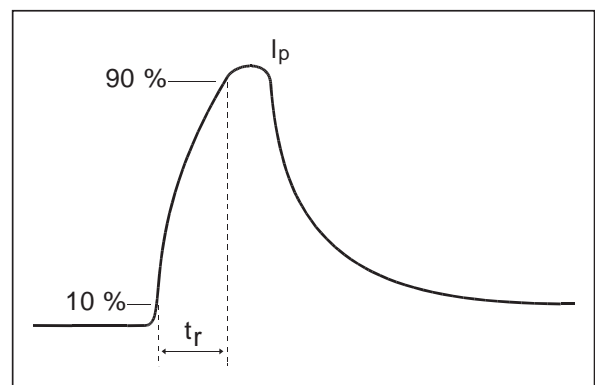


Fig. 1: Relative variation of VBO versus junction temperature (typical values).

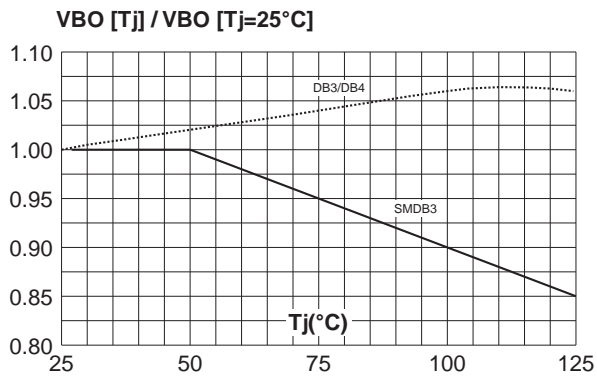


Fig. 2: Repetitive peak pulse current versus pulse duration (maximum values).

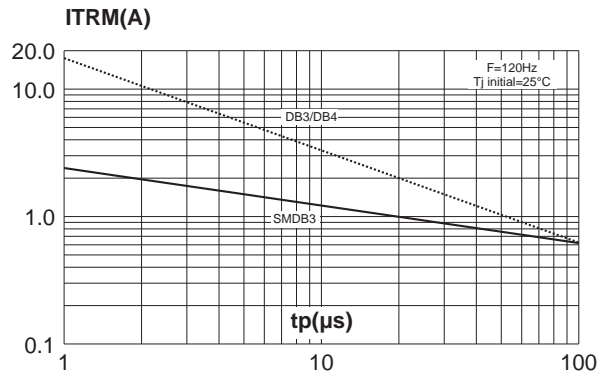
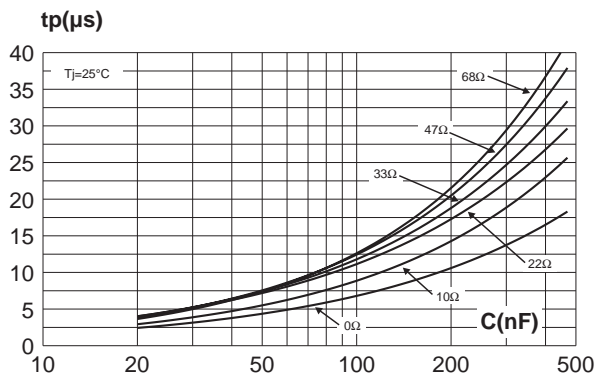
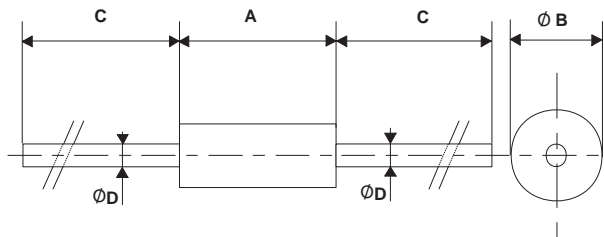


Fig. 3: Time duration while current pulse is higher 50mA versus C and Rs (typical values).



PACKAGE MECHANICAL DATA (in millimeters)
DO-35



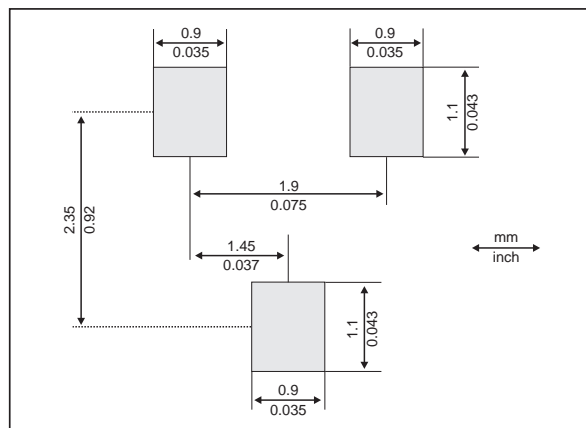
| REF. | DIMENSIONS | | | |
|------|-------------|-------|--------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 3.05 | 4.50 | 0.120 | 0.177 |
| B | 1.53 | 2.00 | 0.060 | 0.079 |
| C | 28.00 | | 1.102 | |
| D | 0.458 | 0.558 | 0.018 | 0.022 |

PACKAGE MECHANICAL DATA (in millimeters)

SOT-23

| REF. | DIMENSIONS | | | |
|------|-------------|------|------------|-------|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 0.89 | 1.4 | 0.035 | 0.055 |
| A1 | 0 | 0.1 | 0 | 0.004 |
| B | 0.3 | 0.51 | 0.012 | 0.02 |
| c | 0.085 | 0.18 | 0.003 | 0.007 |
| D | 2.75 | 3.04 | 0.108 | 0.12 |
| e | 0.85 | 1.05 | 0.033 | 0.041 |
| e1 | 1.7 | 2.1 | 0.067 | 0.083 |
| E | 1.2 | 1.6 | 0.047 | 0.063 |
| H | 2.1 | 2.75 | 0.083 | 0.108 |
| L | 0.6 typ. | | 0.024 typ. | |
| S | 0.35 | 0.65 | 0.014 | 0.026 |

FOOTPRINT



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