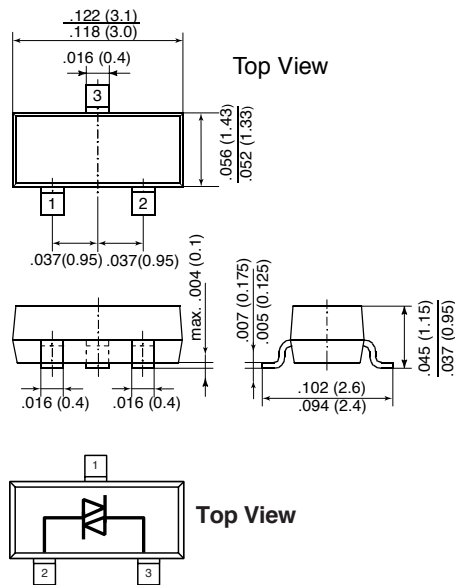


# IDB31

## PLANAR SILICON BIDIRECTIONAL TRIGGER DIODE

### SOT-23



Dimensions in inches and (millimeters)

### FEATURES

- ◆ Intend for use in triac and thyristors circuits
- ◆  $V_{BO}$ : 30V to 34V
- ◆ Excellent Breakover Voltage Symmetry: typ. 1%
- ◆ Low Breakover Current: 20 $\mu$ A typ.
- ◆ Marking: B31
- ◆ Bidirectional Operation:  
Pin 2 and 3 connected to the circuit  
Pin 1 has to stay open



### IMPORTANT

Do not connect Pin 1 to ground, VCC or any signal lines.  
Pin 1 has to be soldered at a solderpad without any further lines

### MECHANICAL DATA

**Case:** SOT-23 Plastic Package

**Weight:** approx. 0.008g

**Marking code:** B31

### MAXIMUM RATINGS

In accordance with the Absolut Maximum Rating System (IEC 134).

	SYMBOL	VALUE	UNIT
Power dissipation	$P_{tot}$	150 (NOTE 1)	mW
Repetitive peak on-state current $t_p=20\mu s$ , $f=100Hz$	$I_{TRM}$	2	Amps
Operating junction temperature range at $t_p < 1$ s, $T_{amb} = 25^\circ C$	$T_J$	-40 to +125	$^\circ C$
Storage temperature range	$T_S$	-40 to +125	$^\circ C$
Thermal resistance junction to ambient air	$R_{thA}$	400 (NOTE 1)	$^\circ C/W$

#### NOTES:

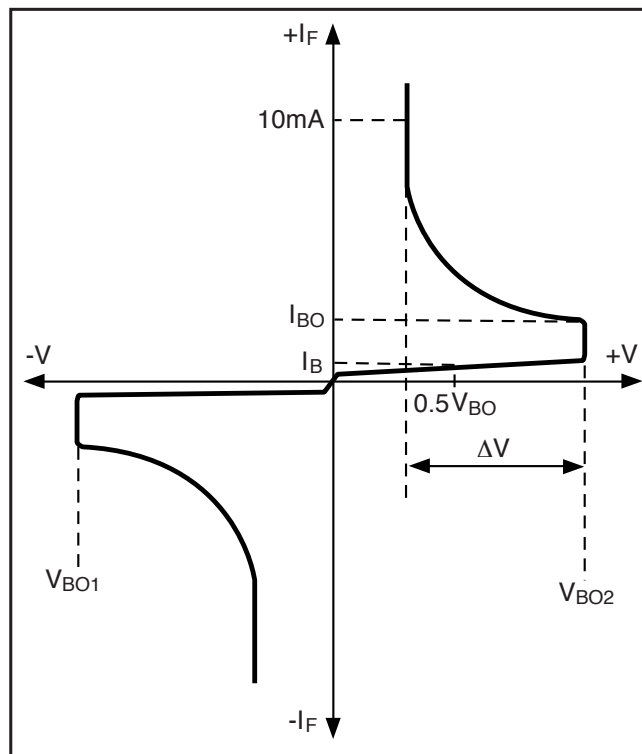
(1) Device on fiberglass substrate, see layout in Fig. 4

## ELECTRICAL CHARACTERISTICS

at  $T_j = 25\text{ }^\circ\text{C}$ , unless otherwise specified; electrical characteristics applicable in both, forward and reverse direction

	SYMBOL	MIN.	TYP.	MAX.	UNIT
Breakover Voltage see Fig. 1	$V_{BO}$	30	32	34	Volts
Breakover Voltage Symmetry see Fig. 1	$ V_{BO1}  -  V_{BO2} $	-	-	$\pm 2$	Volts
Dynamic Breakback Voltage ( $I_{BO}$ to $I_F=10\text{mA}$ ), see Fig. 1	$ \Delta V $	5	8	-	Volts
Output Voltage see Fig. 2	$V_O$	5	-	-	Volts
Breakover Current see Fig. 1	$I_{BO}$	4	20	50	$\mu\text{A}$
Rise time see Fig. 3	$t_r$	-	100	-	ns
Leakage current $V_B=0,5 \cdot V_{BO}$ max. see Fig. 1	$I_B$	-	-	0.5	$\mu\text{A}$

FIG. 1 - CURRENT-VOLTAGE CHARACTERISTICS



# RATINGS AND CHARACTERISTIC CURVES IDB31

FIG. 2 - TEST CIRCUIT

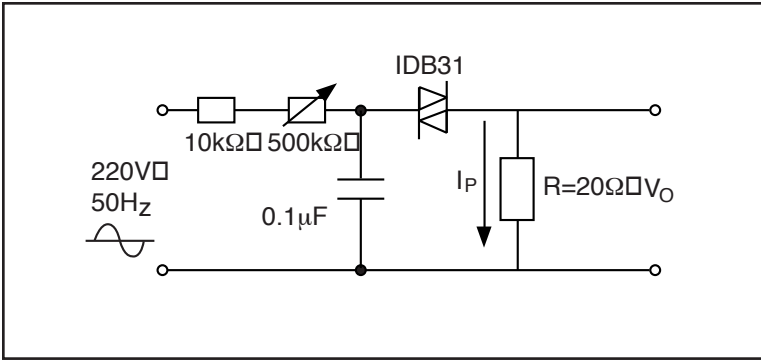


FIG. 3 - TEST CIRCUIT SEE FIG. 1  
ADJUST R FOR  $I_P=0.5A$

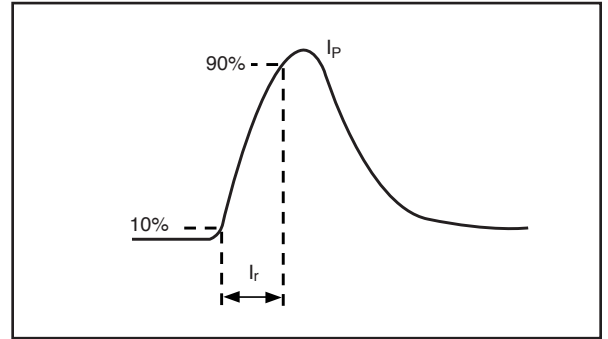


FIG. 4 - Layout for  $R_{th}$  test  
Dimensions in mm  
Thickness:  
Fiberglass 1.5mm  
Cu leads 0.3mm

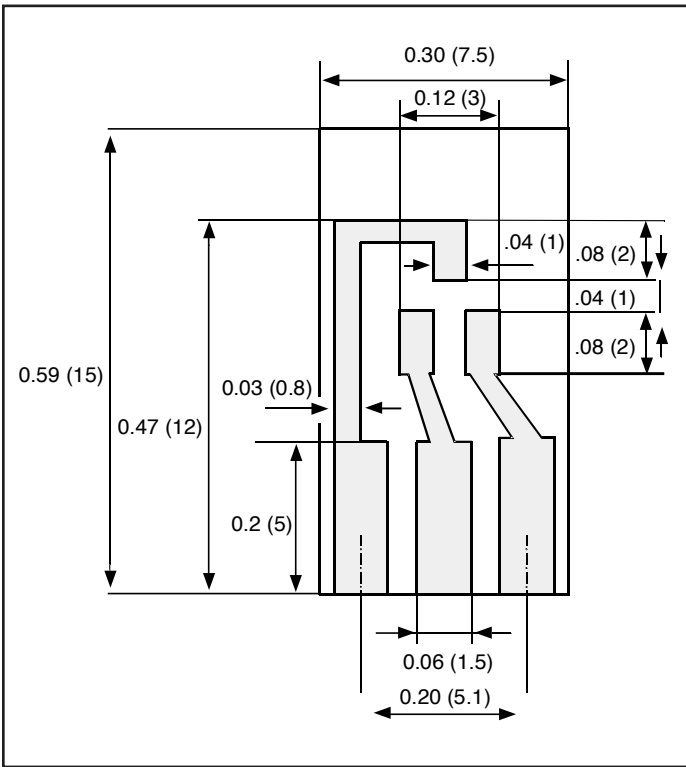


FIG. 5 - ADMISSIBLE POWER DISSIPATION VERSUS AMBIENT TEMPERATURE

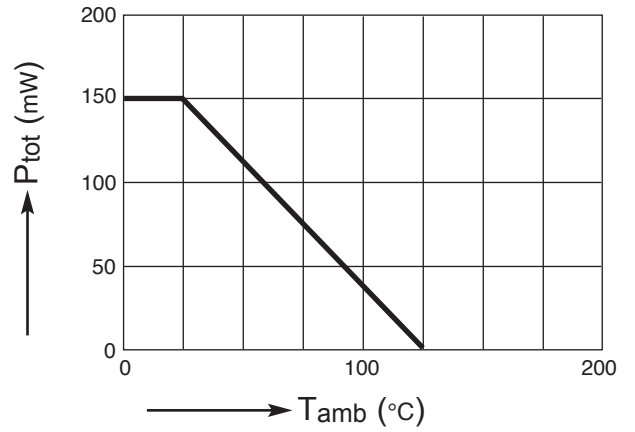


FIG. 6 - RELATIVE VARIATION OF  $V_{BO}$  vs.  $T_j$

