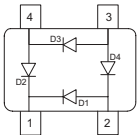


**Silicon Switching Diode Array**

- Bridge configuration
- High-speed switching diode chip
- Pb-free (RoHS compliant) package <sup>1)</sup>
- Qualified according AEC Q101


**BGX50A**


| Type   | Package | Configuration | Marking |
|--------|---------|---------------|---------|
| BGX50A | SOT143  | bridge        | U1s     |

**Maximum Ratings** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

| Parameter  | Symbol    | Value       | Unit |
|--|-----------|-------------|------|
| Diode reverse voltage                                  | $V_R$     | 50          | V    |
| Peak reverse voltage                                   | $V_{RM}$  | 70          |      |
| Forward current  | $I_F$     | 140         | mA   |
| Non-repetitive peak surge forward current              | $I_{FSM}$ | -           |      |
| Total power dissipation<br>$T_S \leq 74^\circ\text{C}$ | $P_{tot}$ | 210         | mW   |
| Junction temperature                                   | $T_j$     | 150         | °C   |
| Storage temperature                                    | $T_{stg}$ | -65 ... 150 |      |

**Thermal Resistance**

| Parameter  | Symbol     | Value | Unit |
|--|------------|-------|------|
| Junction - soldering point <sup>2)</sup><br>BGX50A | $R_{thJS}$ | 360   | K/W  |

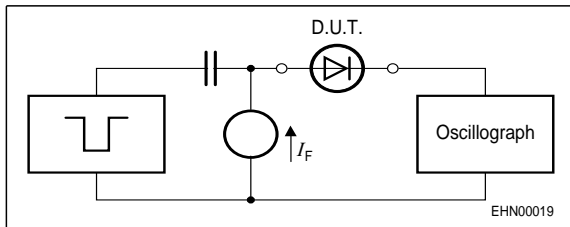
<sup>1</sup>Pb-containing package may be available upon special request

<sup>2</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

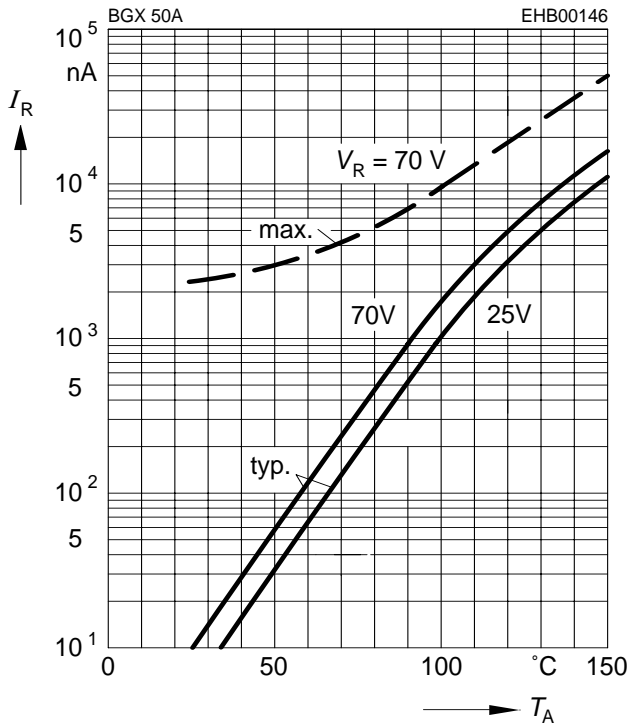
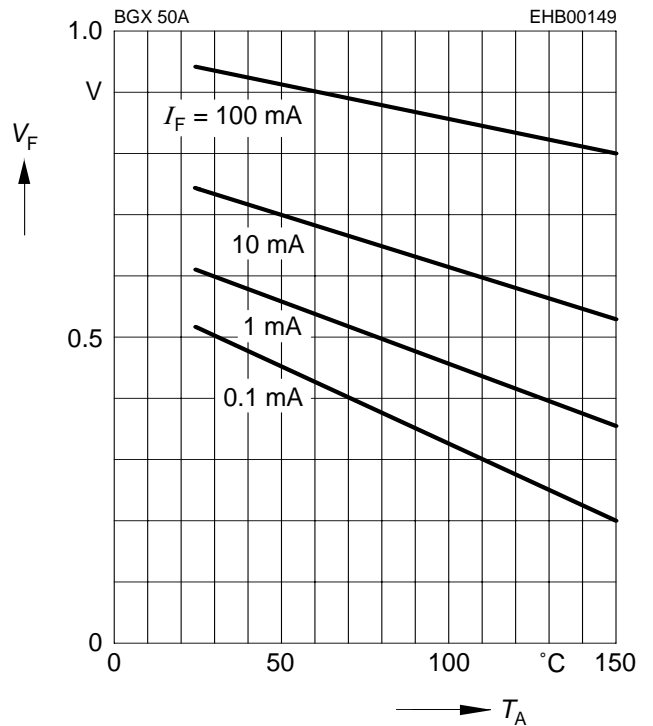
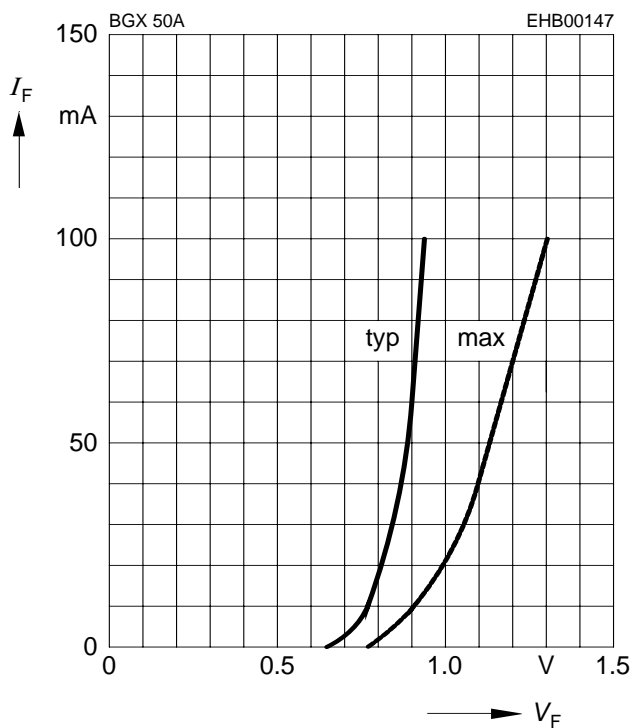
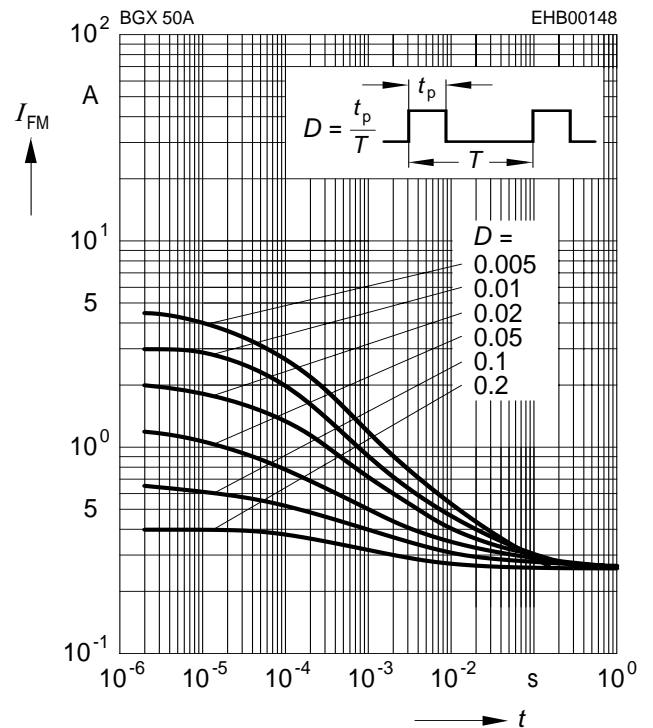
| Parameter                                    | Symbol     | Values |      |      | Unit          |
|--|------------|--------|------|------|---------------|
|  |            | min.   | typ. | max. |               |
| <b>DC Characteristics</b>                    |            |        |      |      |               |
| Breakdown voltage                            | $V_{(BR)}$ | -      | -    | -    |               |
| Reverse current                              | $I_R$      |        |      |      | $\mu\text{A}$ |
| $V_R = 50\text{ V}$                          |            | -      | -    | 0.2  |               |
| $V_R = 50\text{ V}, T_A = 150^\circ\text{C}$ |            | -      | -    | 100  |               |
| Forward voltage                              | $V_F$      | -      | -    | 1.3  | V             |
| $I_F = 100\text{ mA}$                        |            |        |      |      |               |

|   |          |   |   |     |               |
|---|----------|---|---|-----|---------------|
| <b>AC Characteristics</b>   |          |   |   |     |               |
| Diode capacitance   | $C_T$    | - | - | 1.5 | $\mu\text{F}$ |
| $V_R = 0\text{ V}, f = 1\text{ MHz}$  |          |   |   |     |               |
| Reverse recovery time   | $t_{rr}$ | - | - | 6   | ns            |
| $I_F = 10\text{ mA}, I_R = 10\text{ mA}$ , measured at $I_R = 1\text{ mA}$ ,<br>$R_L = 100\ \Omega$ |          |   |   |     |               |

**Test circuit for reverse recovery time**


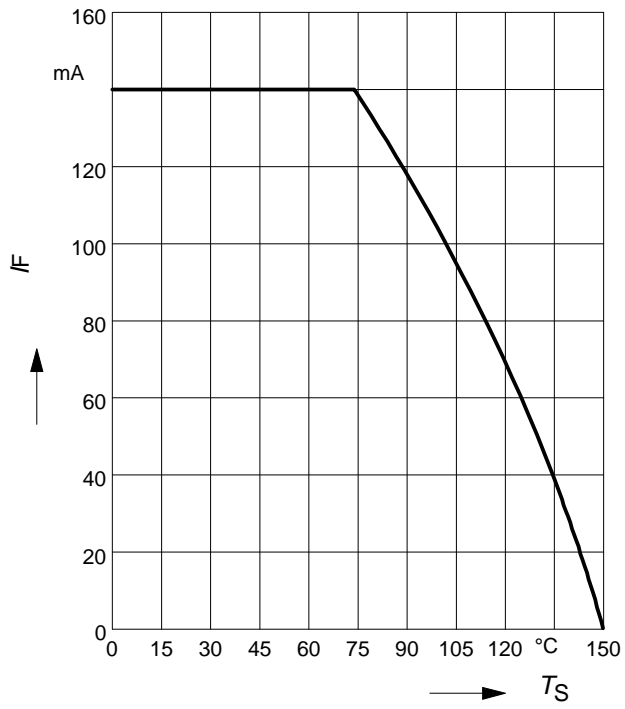
Pulse generator:  $t_p = 100\text{ ns}$ ,  $D = 0.05$ ,  $t_r = 0.6\text{ ns}$ ,  
 $R_i = 50\ \Omega$

Oscilloscope:  $R = 50\ \Omega$ ,  $t_r = 0.35\text{ ns}$ ,  $C \leq 1\text{ pF}$

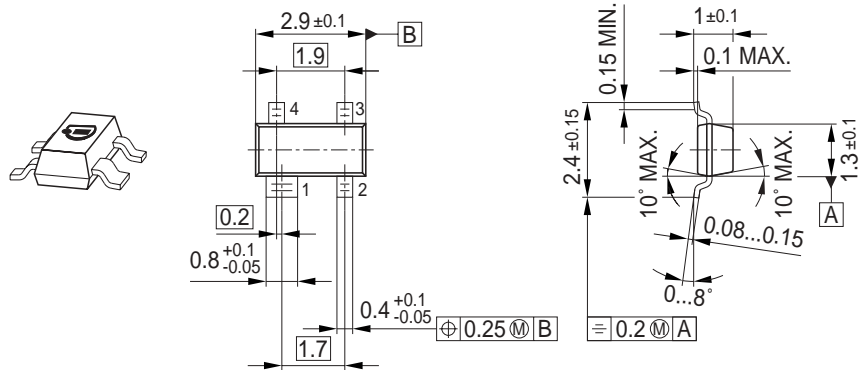
**Reverse current  $I_R = f(T_A)$** 
 $V_R = \text{Parameter}$ 

**Forward Voltage  $V_F = f(T_A)$** 
 $I_F = \text{Parameter}$ 

**Forward current  $I_F = f(V_F)$** 
 $T_A = 25^\circ\text{C}$ 

**Peak forward current  $I_{FM} = f(t_p)$** 
 $T_A = 25^\circ\text{C}$ 


Forward current  $I_F = f(T_S)$

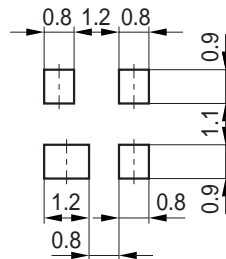
BGX50A



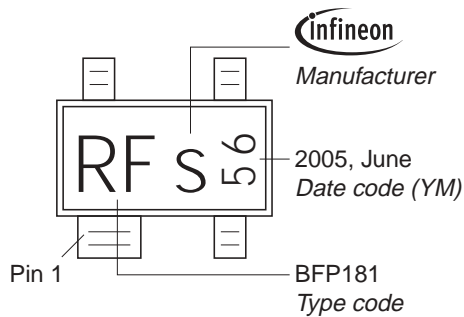
Package Outline



Foot Print

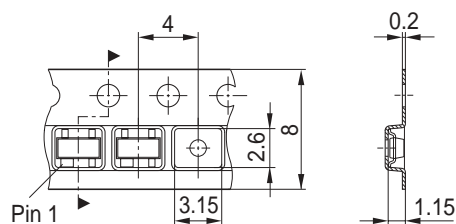


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø330 mm = 10.000 Pieces/Reel



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