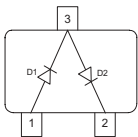


**Silicon Switching Diode Array**

- For high-speed switching applications
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101


**SMBD7000/MMBD7000**


| Type              | Package | Configuration | Marking |
|-------------------|---------|---------------|---------|
| SMBD7000/MMBD7000 | SOT23   | series        | s5C     |

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

| Parameter                                              | Symbol    | Value       | Unit             |
|--------------------------------------------------------|-----------|-------------|------------------|
| Diode reverse voltage                                  | $V_R$     | 100         | V                |
| Peak reverse voltage                                   | $V_{RM}$  | 100         |                  |
| Forward current                                        | $I_F$     | 200         | mA               |
| Non-repetitive peak surge forward current              | $I_{FSM}$ |             | A                |
| $t = 1 \mu\text{s}$                                    |           | 4.5         |                  |
| $t = 1 \text{ s}$                                      |           | 0.5         |                  |
| Total power dissipation<br>$T_S \leq 28^\circ\text{C}$ | $P_{tot}$ | 330         | mW               |
| Junction temperature                                   | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                                    | $T_{stg}$ | -65 ... 150 |                  |

**Thermal Resistance**

| Parameter                                                     | Symbol     | Value      | Unit |
|---------------------------------------------------------------|------------|------------|------|
| Junction - soldering point <sup>2)</sup><br>SMBD7000/MMBD7000 | $R_{thJS}$ | $\leq 360$ | K/W  |

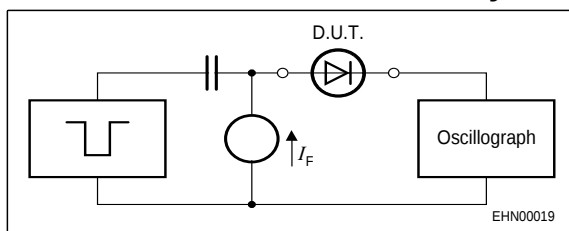
<sup>1)</sup>Pb-containing package may be available upon special request

<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.                               |         |
| DC Characteristics                                                                                    |            |                             |                       |                                    |         |
| Breakdown voltage<br>$I_{(BR)} = 100 \mu A$                                                           | $V_{(BR)}$ | 100                         | -                     | -                                  | V       |
| Reverse current<br>$V_R = 50 V$<br>$V_R = 100 V$<br>$V_R = 50 V, T_A = 150 ^\circ C$                  | $I_R$      | -<br>-<br>-                 | -<br>-<br>-           | 0.3<br>0.5<br>100                  | $\mu A$ |
| Forward voltage<br>$I_F = 1 mA$<br>$I_F = 10 mA$<br>$I_F = 50 mA$<br>$I_F = 100 mA$<br>$I_F = 150 mA$ | $V_F$      | 550<br>670<br>-<br>750<br>- | -<br>-<br>-<br>-<br>- | 700<br>820<br>1000<br>1100<br>1250 | mV      |
| AC Characteristics                                                                                    |            |                             |                       |                                    |         |
| Diode capacitance<br>$V_R = 0 V, f = 1 MHz$                                                           | $C_T$      | -                           | -                     | 2                                  | pF      |
| Reverse recovery time<br>$I_F = 10 mA, I_R = 10 mA$ , measured at $I_R = 1mA$ ,<br>$R_L = 100 \Omega$ | $t_{rr}$   | -                           | -                     | 4                                  | ns      |

**Test circuit for reverse recovery time**

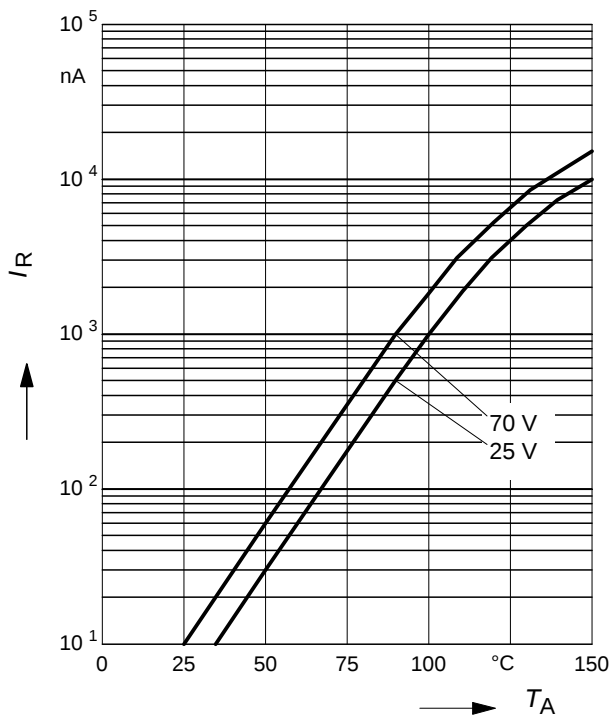


Pulse generator:  $t_p = 100\text{ns}$ ,  $D = 0.05$ ,  $t_r = 0.6\text{ns}$ ,  
 $R_i = 50\Omega$

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

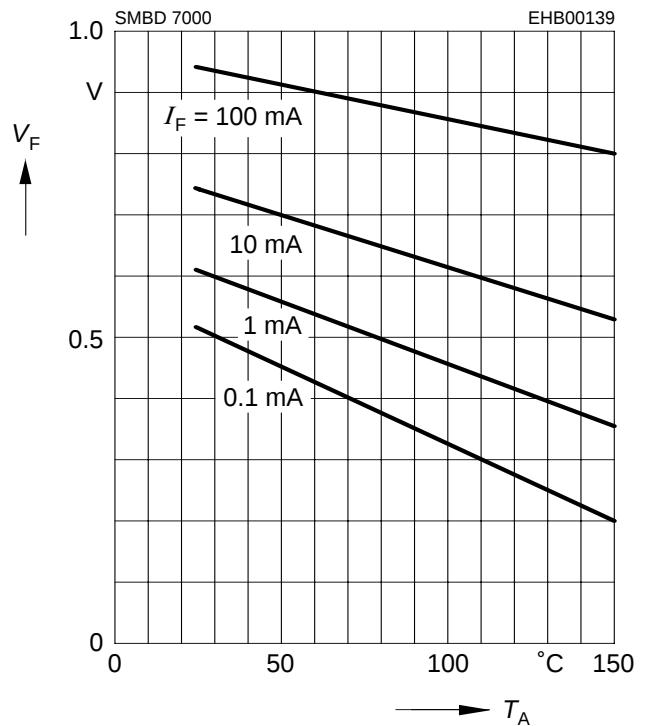
**Reverse current  $I_R = f(T_A)$**

$V_R$  = Parameter



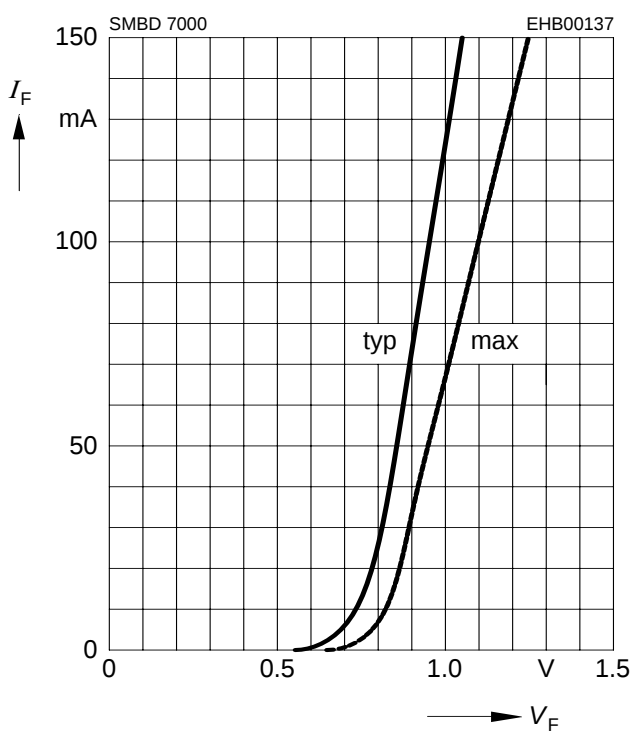
**Forward Voltage  $V_F = f(T_A)$**

$I_F$  = Parameter



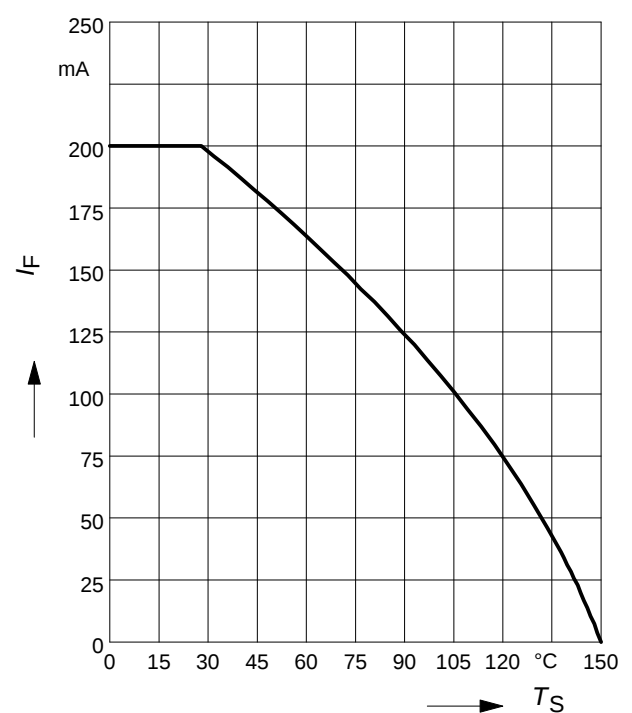
**Forward current  $I_F = f(V_F)$**

$T_A = 25^\circ\text{C}$

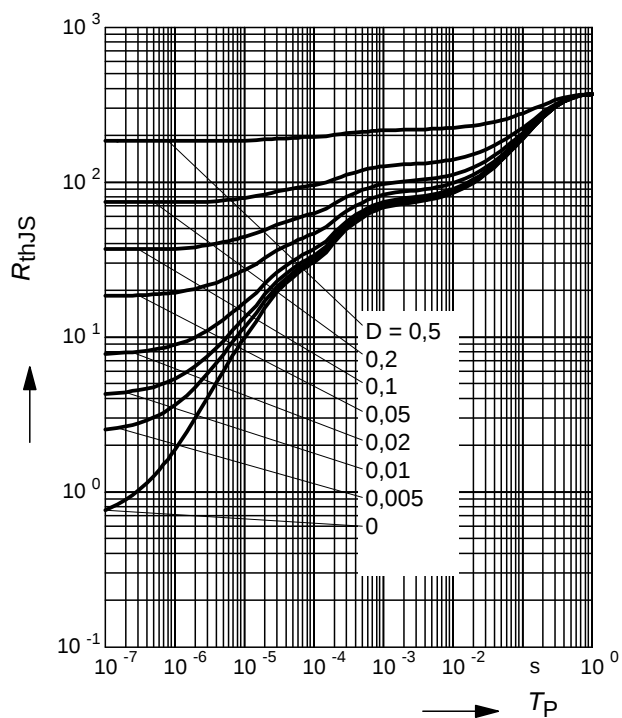


**Forward current  $I_F = f(T_S)$**

SMBD7000/MMBD7000

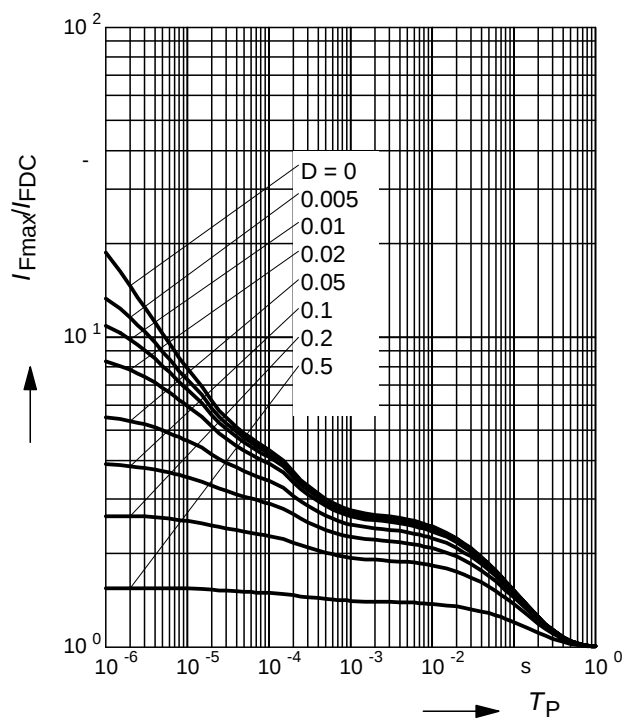


Permissible Puls Load  $R_{thJS} = f(t_p)$

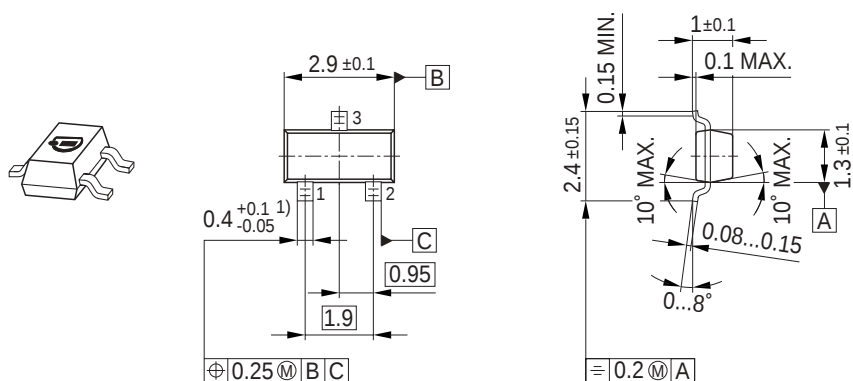


Permissible Pulse Load

$$I_{Fmax}/I_{FDC} = f(t_p)$$

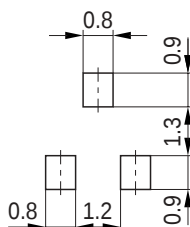


## Package Outline

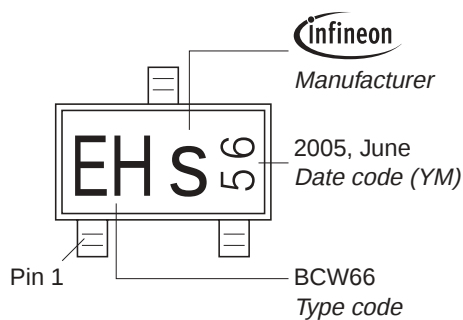


1) Lead width can be 0.6 max. in dambar area

## Foot Print

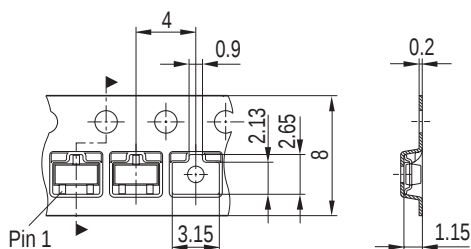


## Marking Layout (Example)



## Standard Packing

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



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