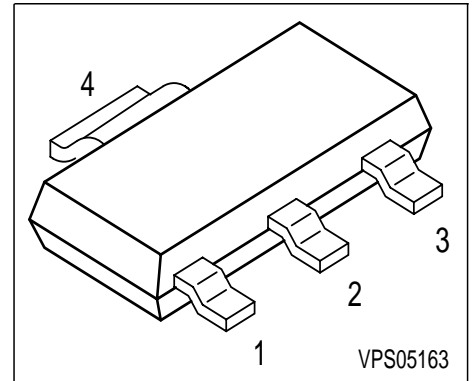


**Silicon Switching Diodes**

- Switching applications
- High breakdown voltage



| Type   | Marking | Pin Configuration |       |          |       | Package |
|--------|---------|-------------------|-------|----------|-------|---------|
| BAS78A | BAS 78A | 1 = A             | 2 = C | 3 = n.c. | 4 = C | SOT223  |
| BAS78B | BAS 78B | 1 = A             | 2 = C | 3 = n.c. | 4 = C | SOT223  |
| BAS78C | BAS 78C | 1 = A             | 2 = C | 3 = n.c. | 4 = C | SOT223  |
| BAS78D | BAS 78D | 1 = A             | 2 = C | 3 = n.c. | 4 = C | SOT223  |

**Maximum Ratings**

| Parameter   | Symbol    | BAS         | BAS | BAS | BAS | Unit             |
|---|-----------|-------------|-----|-----|-----|------------------|
|   |           | 78A         | 78B | 78C | 78D |                  |
| Diode reverse voltage                                       | $V_R$     | 50          | 100 | 200 | 400 | V                |
| Peak reverse voltage  | $V_{RM}$  | 50          | 100 | 200 | 400 |                  |
| Forward current   | $I_F$     | 1           |     |     |     | A                |
| Peak forward current  | $I_{FM}$  | 1           |     |     |     |                  |
| Surge forward current, $t = 1 \mu s$                        | $I_{FS}$  | 10          |     |     |     |                  |
| Total power dissipation, $T_S = 124 \text{ }^\circ\text{C}$ | $P_{tot}$ | 1.2         |     |     |     | W                |
| Junction temperature  | $T_j$     | 150         |     |     |     | $^\circ\text{C}$ |
| Storage temperature   | $T_{stg}$ | -65 ... 150 |     |     |     |                  |

**Thermal Resistance**

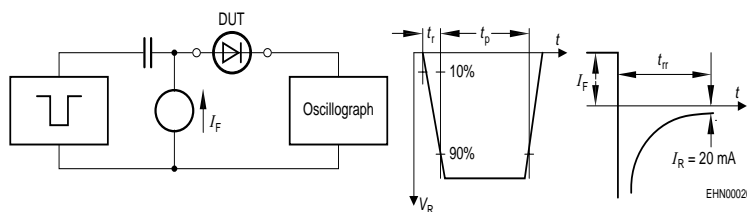
|  |            |           |     |
|--|------------|-----------|-----|
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ | $\leq 22$ | K/W |
|--|------------|-----------|-----|

<sup>1)</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<br>$I_{(BR)} = 100 \mu\text{A}$   | $V_{(BR)}$ |        |      |      | V             |
| <b>BAS78A</b>   |            | 50     | -    | -    |               |
| <b>BAS78B</b>   |            | 100    | -    | -    |               |
| <b>BAS78C</b>   |            | 200    | -    | -    |               |
| <b>BAS78D</b>   |            | 400    | -    | -    |               |
| Forward voltage<br>$I_F = 1 \text{ A}$<br>$I_F = 2 \text{ A}$   | $V_F$      |        |      |      |               |
|   |            | -      | -    | 1.6  |               |
|   |            | -      | -    | 2    |               |
| Reverse current<br>$V_R = V_{Rmax}$   | $I_R$      | -      | -    | 1    | $\mu\text{A}$ |
| Reverse current<br>$V_R = V_{Rmax}, T_A = 150^\circ\text{C}$  | $I_R$      | -      | -    | 50   |               |
| <b>AC characteristics</b>   |            |        |      |      |               |
| Diode capacitance<br>$V_R = 0 \text{ V}, f = 1 \text{ MHz}$   | $C_D$      | -      | 10   | -    | pF            |
| Reverse recovery time<br>$I_F = 200 \text{ mA}, I_R = 200 \text{ mA}, R_L = 100 \Omega$ ,<br>measured at $I_R = 200\text{mA}$ | $t_{rr}$   | -      | 1    | -    | $\mu\text{s}$ |

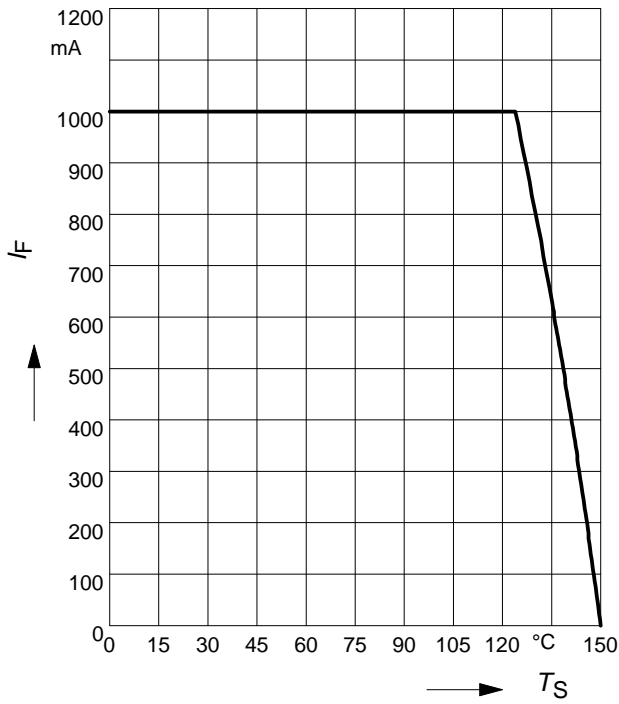
**Test circuit for reverse recovery time**



Pulse generator:  $t_p = 10\mu\text{s}$ ,  $D = 0.05$ ,  
 $t_f = 0.6\text{ns}$ ,  $R_i = 50\Omega$

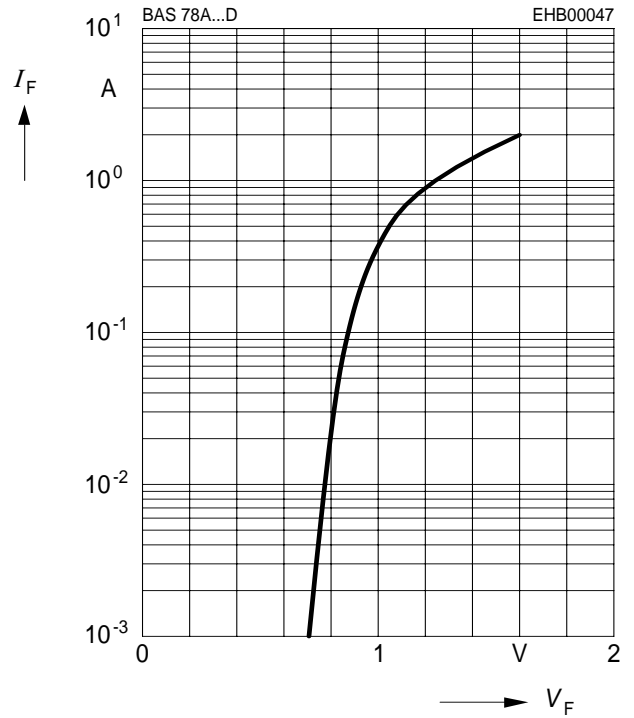
Oscilloscope:  $R = 50\Omega$ ,  $t_f = 0.35\text{ns}$ ,  
 $C \leq 1\text{pF}$

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



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

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



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

$V_R = V_{Rmax}$

