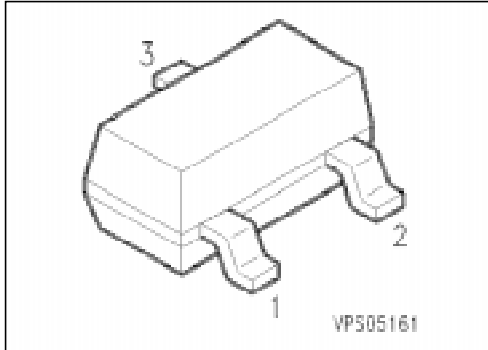
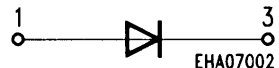


## Silicon Switching Diode

## SMBD 914

- For high-speed switching applications



| Type     | Marking | Ordering Code (tape and reel) | Pin Configuration                                                                  | Package <sup>1)</sup> |
|----------|---------|-------------------------------|------------------------------------------------------------------------------------|-----------------------|
| SMBD 914 | s5D     | Q68000-A625                   |  | SOT-23                |

### Maximum Ratings

| Parameter                                   | Symbol    | Values         | Unit       |
|---------------------------------------------|-----------|----------------|------------|
| Reverse voltage                             | $V_R$     | 70             | V          |
| Peak reverse voltage                        | $V_{RM}$  | 100            |            |
| Forward current                             | $I_F$     | 250            | mA         |
| Surge forward current, $t = 1 \mu s$        | $I_{FS}$  | 4.5            | A          |
| Total power dissipation, $T_s = 54^\circ C$ | $P_{tot}$ | 370            | mW         |
| Junction temperature                        | $T_j$     | 150            | $^\circ C$ |
| Storage temperature range                   | $T_{stg}$ | - 65 ... + 150 |            |

### Thermal Resistance

|                                  |             |            |     |
|----------------------------------|-------------|------------|-----|
| Junction - ambient <sup>2)</sup> | $R_{th JA}$ | $\leq 330$ | K/W |
| Junction - soldering point       | $R_{th JS}$ | $\leq 260$ |     |

<sup>1)</sup> For detailed information see chapter Package Outlines.

<sup>2)</sup> Package mounted on epoxy pcb 40 mm × 40 mm × 1.5 mm/6 cm<sup>2</sup> Cu.

## Electrical Characteristics

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

| Parameter | Symbol | Values |      |      | Unit |
|-----------|--------|--------|------|------|------|
|           |        | min.   | typ. | max. |      |

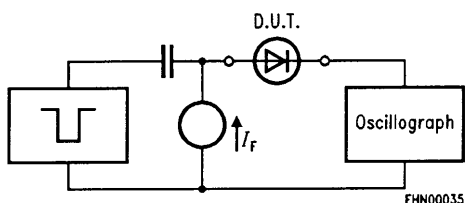
## DC characteristics

|                                                                                                                                                                                   |            |                  |                  |                     |                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------|------------------|---------------------|-------------------------------------------------------|
| Breakdown voltage<br>$I_{(BR)} = 100\text{ }\mu\text{A}$                                                                                                                          | $V_{(BR)}$ | 100              | —                | —                   | V                                                     |
| Forward voltage<br>$I_F = 100\text{ mA}$                                                                                                                                          | $V_F$      | —                | —                | 1                   | V                                                     |
| Reverse current<br>$V_R = 20\text{ V}$<br>$V_R = 75\text{ V}$<br>$V_R = 20\text{ V}; T_A = 150\text{ }^{\circ}\text{C}$<br>$V_R = 75\text{ V}; T_A = 150\text{ }^{\circ}\text{C}$ | $I_R$      | —<br>—<br>—<br>— | —<br>—<br>—<br>— | 25<br>5<br>30<br>50 | nA<br>$\mu\text{A}$<br>$\mu\text{A}$<br>$\mu\text{A}$ |

## AC characteristics

|                                                                                                                                                     |          |   |   |   |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|---|---|----|
| Diode capacitance<br>$V_R = 0, f = 1\text{ MHz}$                                                                                                    | $C_D$    | — | — | 2 | pF |
| Reverse recovery time<br>$I_F = 10\text{ mA}, I_R = 10\text{ mA}$<br>$V_R = 1\text{ V}, R_L = 100\text{ }\Omega$<br>measured at $I_R = 1\text{ mA}$ | $t_{rr}$ | — | — | 4 | ns |

## Test circuit for reverse recovery time

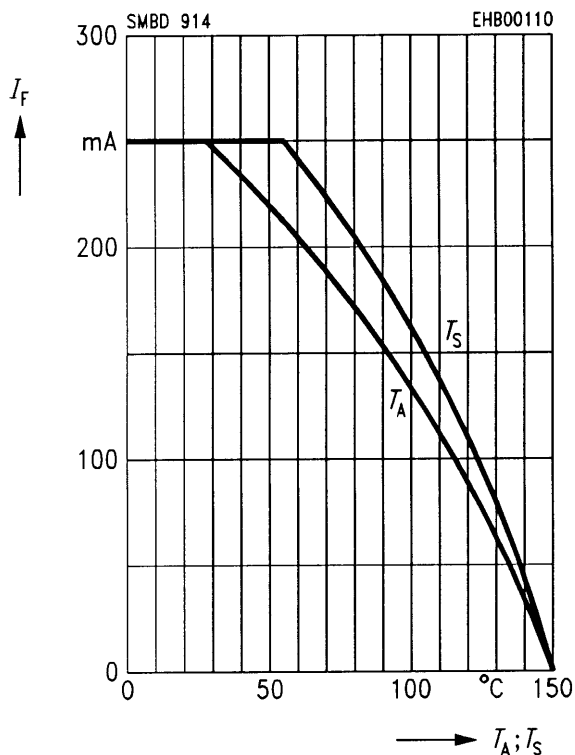


Pulse generator:  $t_p = 100\text{ ns}$ ,  $D = 0.05$   
 $t_r = 0.6\text{ ns}$ ,  $R_i = 50\text{ }\Omega$

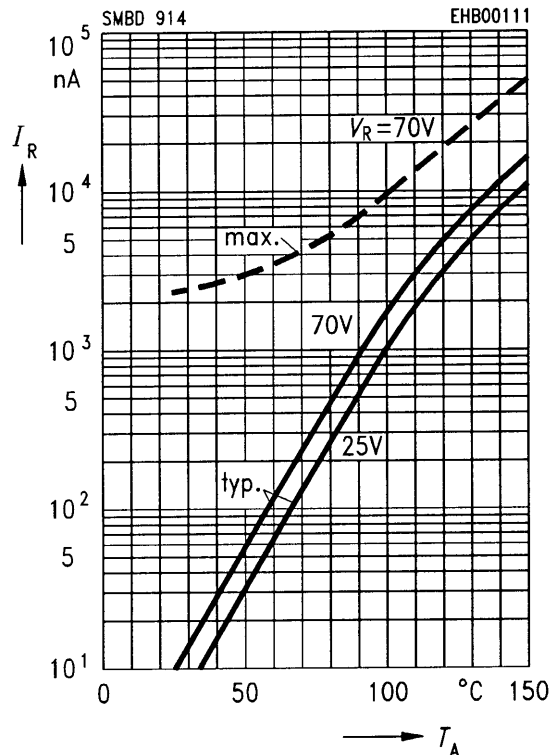
Oscilloscope:  $R = 50\text{ }\Omega$   
 $t_r = 0.35\text{ ns}$   
 $C \leq 1\text{ pF}$

## Forward current $I_F = f(T_A^*; T_S)$

\* Package mounted on epoxy

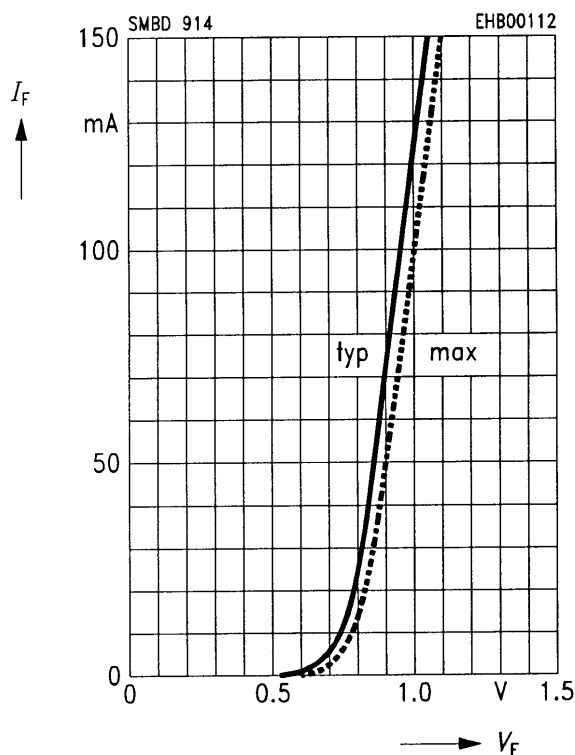


## Reverse current $I_R = f(T_A)$



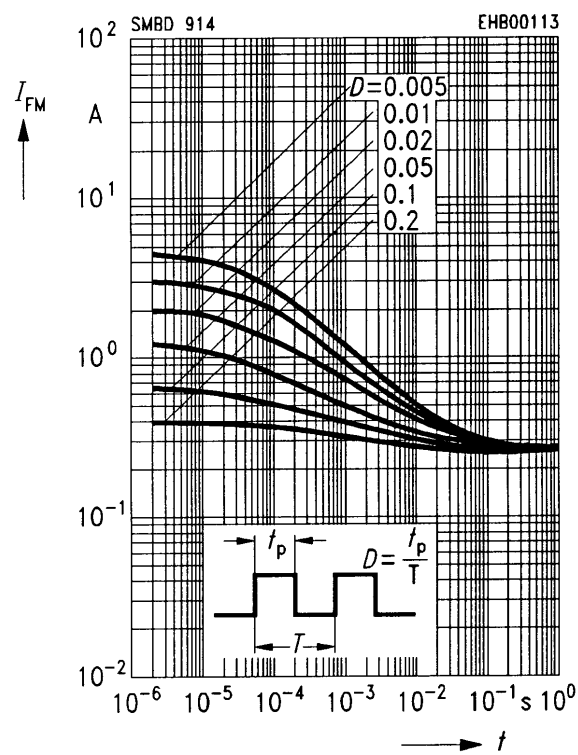
## Forward current $I_F = f(V_F)$

$T_A = 25\text{ °C}$



## Peak forward current $I_{FM} = f(t)$

$T_A = 25\text{ °C}$



Forward voltage  $V_F = f(T_A)$

