

Silicon NPN Transistor

2N1893

120V / 500mA

DATASHEET

OEM – SEL

Source: SEL Databook 1965



Silizium-Planar-Transistor **2N1893**

Ausführung

npn-Silizium-Planar-Transistor. Metallgehäuse, Kollektor ist mit dem Gehäuse verbunden.

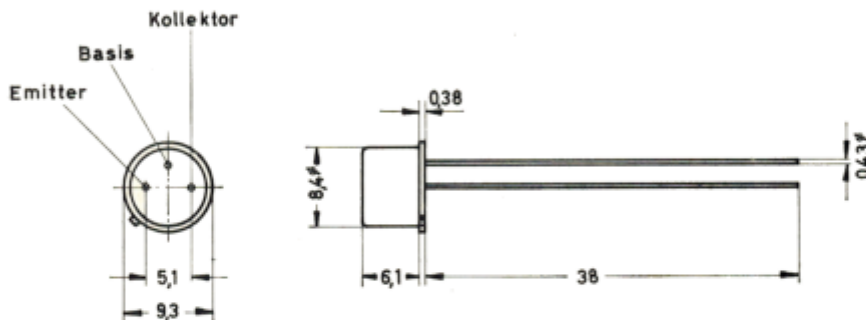
Verwendung

Transistor für kommerzielle Anwendungen bei sehr hohen Spannungen, z.B. Zählgeräte, Nachrichtengeräte mit 60 V Speisespannung (Bundespost).

Abmessungen

(Maße in mm)

Gehäuse TO-5



Grenzdaten

| | | | | |
|----------------------------|-----------------------|-------------|-----|----|
| Verlustleistung | $T_u = 25\text{ °C}$ | P_{tot} | 0,8 | W |
| | $T_G = 25\text{ °C}$ | | 3,0 | W |
| | $T_G = 100\text{ °C}$ | | 1,7 | W |
| Kollektor-Basis-Spannung | $T_u = 25\text{ °C}$ | U_{CBO} | 120 | V |
| Kollektor-Emitter-Spannung | | U_{CEO} | 80 | V |
| | | U_{CER}^* | 100 | V |
| Emitter-Basis-Spannung | | U_{EBO} | 7 | V |
| Kollektorgleichstrom | | I_C | 500 | mA |
| Sperrschichttemperatur | | $+T_j$ | 200 | °C |
| Maximale Lagertemperatur | | $+T_s$ | 300 | °C |
| Minimale Lagertemperatur | | $-T_s$ | 65 | °C |

* $R_{BE} < 10\ \Omega$

2N 1893**Statische Kenndaten bei $T_u = 25\text{ °C}$**

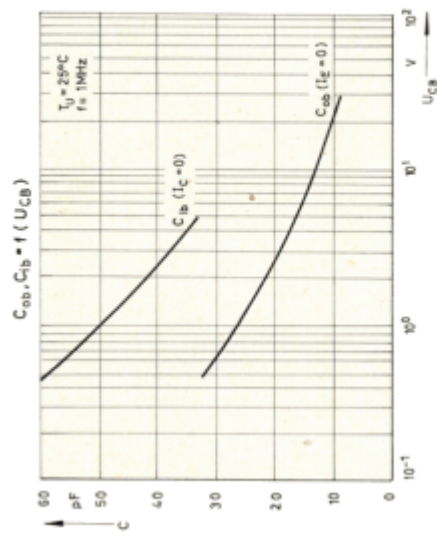
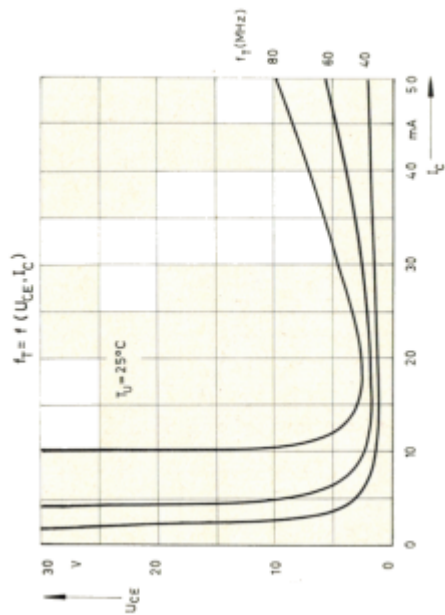
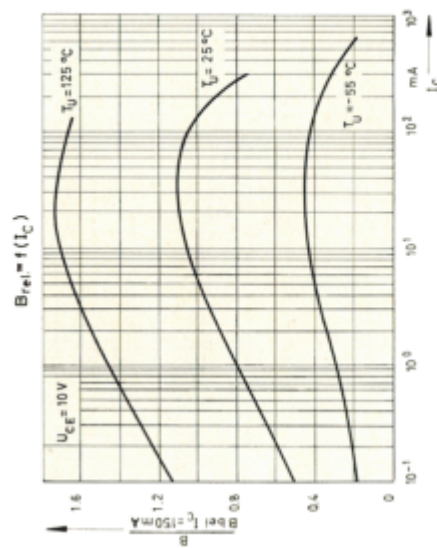
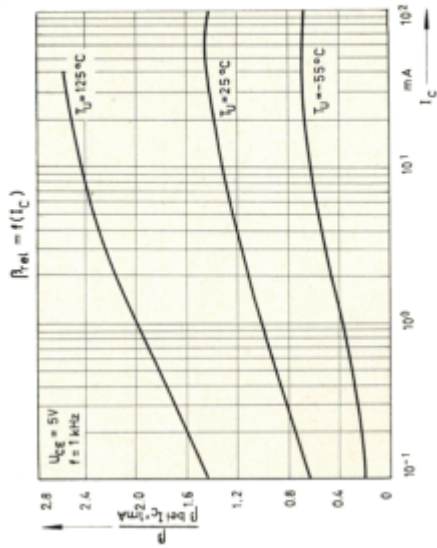
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|------------------------------------|--|--------------------------|--------------|------------------------------|
| Kollektor-Basis- Reststrom | $U_{CB} = 90\text{ V}$ | I_{CBO} | $0,3 < 10$ | nA |
| | | I_{CBO}^* | $1,5 < 15$ | μA |
| Emitter-Basis- Reststrom | $U_{EB} = 5\text{ V}$ | I_{EBO} | < 10 | nA |
| Kollektor-Emitter- Restspannung | $I_C = 150\text{ mA}, I_B = 15\text{ mA}$ $I_C = 50\text{ mA}, I_B = 5\text{ mA}$ | U_{CEsat} | $2 < 5$ | V |
| | | | $0,5 < 1,2$ | V |
| Basis-Emitter- Spannung | $I_C = 150\text{ mA}, I_B = 15\text{ mA}$ $I_C = 50\text{ mA}, I_B = 5\text{ mA}$ | U_{BE} | $0,96 < 1,3$ | V |
| | | | $0,82 < 0,9$ | V |
| Gleichstrom- verstärkung | $U_{CE} = 10\text{ V}$ | $I_C = 100\ \mu\text{A}$ | B | $50 > 20$ |
| | | $I_C = 10\text{ mA}$ | | $80 > 35$ |
| | | $I_C = 150\text{ mA}$ | | $40 < 80 < 120$ |
| | | $I_C = 10\text{ mA}$ | B** | $40 > 20$ |
| Wärmewiderstand | (Sperrschicht-Gehäuse) | R_{thG} | 0,06 | $^{\circ}\text{C}/\text{mW}$ |

* $T_j = +150\text{ °C}$ ** $T_j = -55\text{ °C}$ **Dynamische Kenndaten bei $T_u = 25\text{ °C}$**

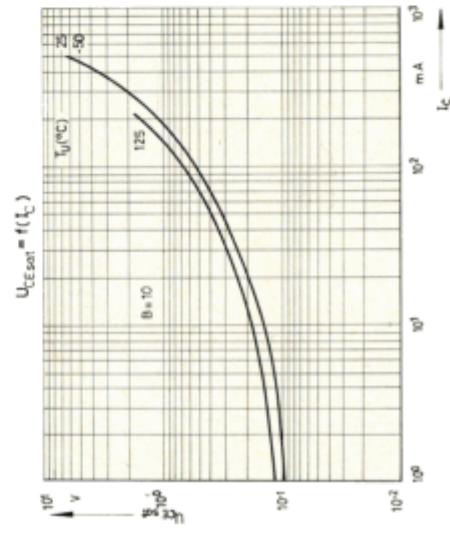
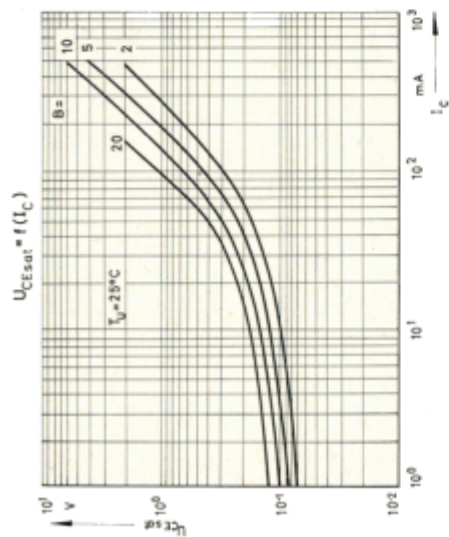
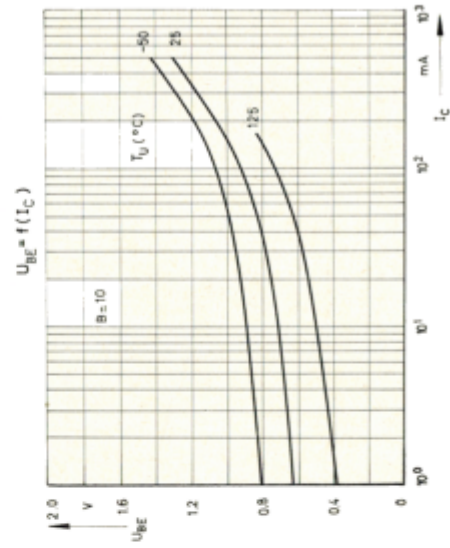
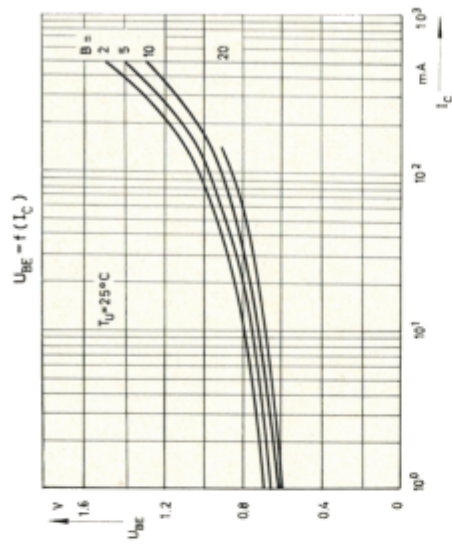
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|-----------------------|---|----------------------|------------------|------------------------|
| Emitterschaltung | | | | |
| Stromverstärkung | $U_{CE} = 10\text{ V},$ $f = 1\text{ kHz}$ | $I_C = 5\text{ mA}$ | h_{21e}, β | > 45 |
| Grenzfrequenz | $U_{CE} = 10\text{ V},$ | $I_C = 50\text{ mA}$ | f_T | $70 > 50$ MHz |
| Basisschaltung | | | | |
| Eingangswiderstand | $U_{CE} = 5\text{ V},$ $f = 1\text{ kHz}$ | $I_C = 1\text{ mA}$ | h_{11b} | $20 \dots 30$ Ω |
| Spannungs-Rückwirkung | | | h_{12b} | $< 1,25 \cdot 10^{-4}$ |
| Ausgangsleitwert | | | h_{22b} | $< 0,5$ μS |
| Ausgangskapazität | $U_{CB} = 10\text{ V}$ | | C_{ob} | < 15 pF |



2N1893



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