

## PNP Silicon Planar Transistors

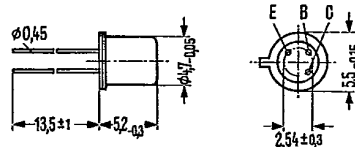
2 N 2906 A

2 N 2907 A

SIEMENS AKTIENGESELLSCHAFT T-37-17

2 N 2906 A and 2 N 2907 A are epitaxial PNP silicon planar transistors in TO 18 case (18 A 3 DIN 41876). The collector is electrically connected to the case. The transistors are particularly suitable for use as high-speed switches.

| Type       | Ordering code |
|------------|---------------|
| 2 N 2906 A | Q62702-F408   |
| 2 N 2907 A | Q62702-S170   |



Approx. weight 0.3 g

Dimensions in mm

## Maximum ratings

|                                                       | 2 N 2906 A  | 2 N 2907 A |
|-------------------------------------------------------|-------------|------------|
| Collector-emitter voltage                             | 60          | V          |
| Collector-base voltage                                | 60          | V          |
| Emitter-base voltage                                  | 5           | V          |
| Collector current                                     | 0.6         | A          |
| Junction temperature                                  | 200         | °C         |
| Storage temperature range                             | -65 to +200 | °C         |
| Total power dissipation ( $T_{amb} = 25\text{ °C}$ )  | 0.4         | W          |
| Total power dissipation ( $T_{case} = 25\text{ °C}$ ) | 1.8         | W          |

## Thermal resistance

|                         |            |       |     |
|-------------------------|------------|-------|-----|
| Junction to ambient air | $R_{thJA}$ | < 438 | K/W |
| Junction to case        | $R_{thJC}$ | < 97  | K/W |

Static characteristics ( $T_{amb} = 25\text{ °C}$ )

|                                                                                            |                | 2 N 2906 A | 2 N 2907 A |               |
|--------------------------------------------------------------------------------------------|----------------|------------|------------|---------------|
| Collector-base breakdown voltage<br>( $-I_C = 10\text{ }\mu\text{A}$ )                     | $-V_{(BR)CBO}$ | > 60       | > 60       | V             |
| Collector-emitter breakdown voltage<br>( $-I_C = 10\text{ mA}$ )                           | $-V_{(BR)CEO}$ | > 60       | > 60       | V             |
| Emitter-base breakdown voltage<br>( $-I_E = 10\text{ }\mu\text{A}$ )                       | $-V_{(BR)EBO}$ | > 5        | > 5        | V             |
| Collector-emitter saturation voltage<br>( $-I_B = 15\text{ mA}$ ; $-I_C = 150\text{ mA}$ ) | $-V_{CEsat}$   | < 0.4      | < 0.4      | V             |
| ( $-I_B = 50\text{ mA}$ ; $-I_C = 500\text{ mA}$ )                                         | $-V_{CEsat}$   | < 1.6      | < 1.6      | V             |
| Base-emitter saturation voltage<br>( $-I_C = 150\text{ mA}$ ; $-I_B = 15\text{ mA}$ )      | $-V_{BEsat}$   | < 1.3      | < 1.3      | V             |
| ( $-I_C = 500\text{ mA}$ ; $-I_B = 50\text{ mA}$ )                                         | $-V_{BEsat}$   | < 2.6      | < 2.6      | V             |
| Collector cutoff current<br>( $-V_{CB} = 50\text{ V}$ )                                    | $-I_{CBO}$     | < 10       | < 10       | nA            |
| ( $-V_{CB} = 50\text{ V}$ ; $T_{amb} = 150\text{ °C}$ )                                    | $-I_{CBO}$     | < 10       | < 10       | $\mu\text{A}$ |
| DC current gain<br>( $-V_{CE} = 10\text{ V}$ ; $-I_C = 100\text{ }\mu\text{A}$ )           | $h_{FE}$       | > 40       | > 75       | —             |
| ( $-V_{CE} = 10\text{ V}$ ; $-I_C = 1\text{ mA}$ )                                         | $h_{FE}$       | > 40       | > 100      | —             |
| ( $-V_{CE} = 10\text{ V}$ ; $-I_C = 10\text{ mA}$ )                                        | $h_{FE}$       | > 40       | > 100      | —             |
| ( $-V_{CE} = 10\text{ V}$ ; $-I_C = 150\text{ mA}$ )                                       | $h_{FE}$       | 40 to 120  | 100 to 300 | —             |
| ( $-V_{CE} = 10\text{ V}$ ; $-I_C = 500\text{ mA}$ )                                       | $h_{FE}$       | > 40       | > 50       | —             |

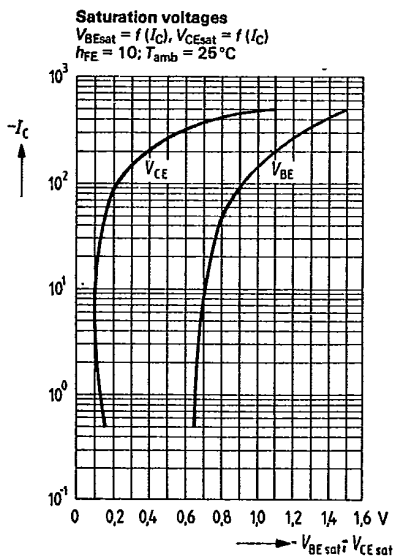
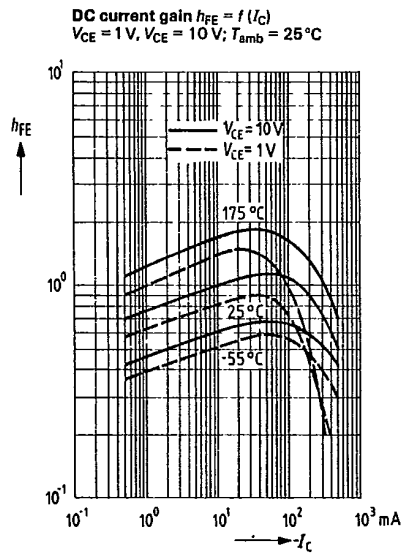
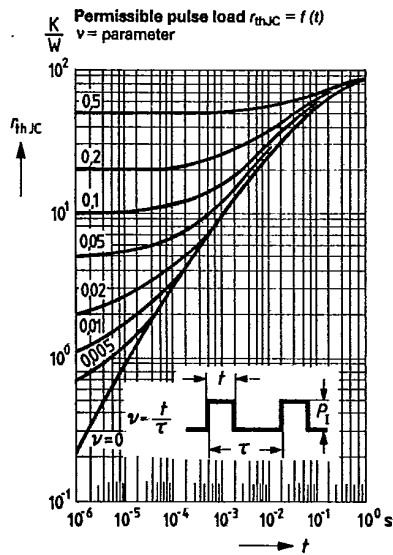
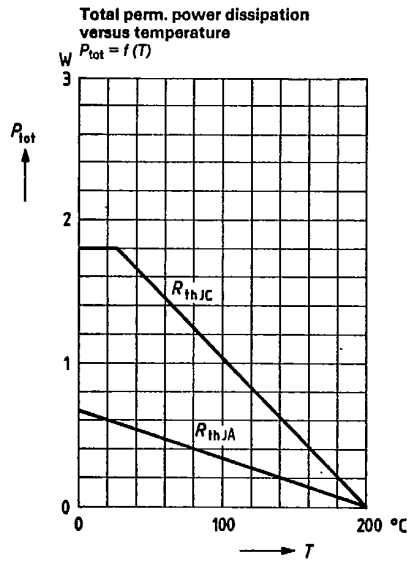
Dynamic characteristics ( $T_{amb} = 25\text{ °C}$ )

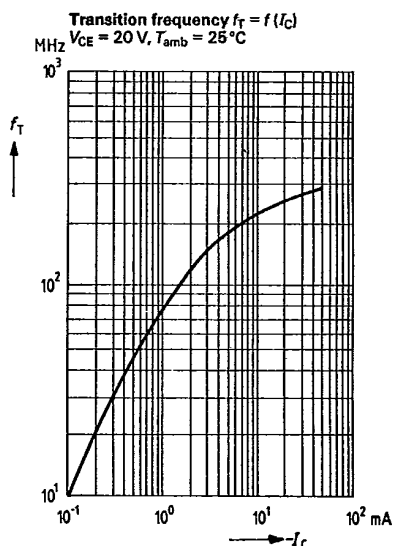
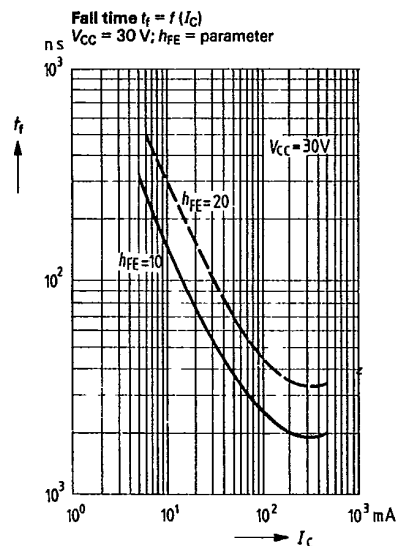
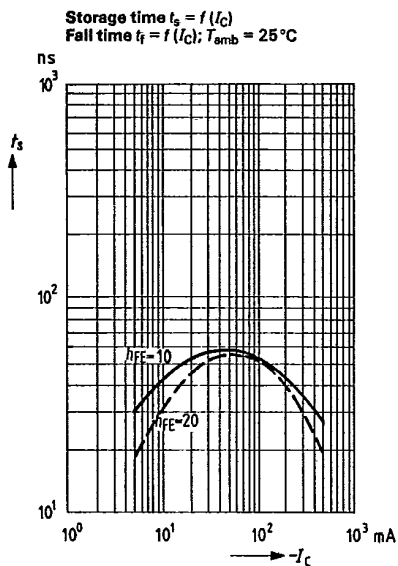
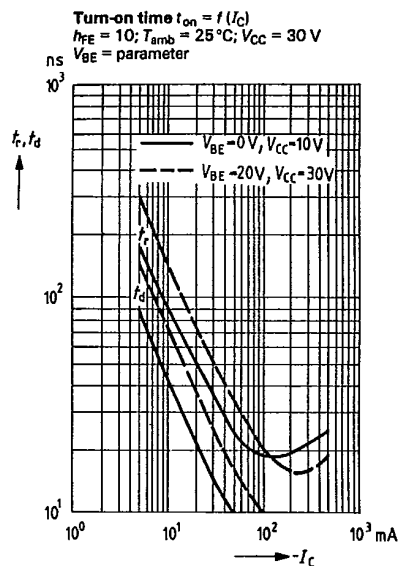
|                                                                                                    |           |       |       |     |
|----------------------------------------------------------------------------------------------------|-----------|-------|-------|-----|
| Collector-base capacitance<br>( $-V_{CB} = 10\text{ V}$ ; $f = 100\text{ kHz}$ )                   | $C_{CBO}$ | < 8   | < 8   | pF  |
| Transition frequency<br>( $-V_{CE} = 20\text{ V}$ ; $-I_C = 50\text{ mA}$ ; $f = 100\text{ MHz}$ ) | $f_T$     | > 200 | > 200 | MHz |

## Switching times:

|                                                                                                             |       |      |      |    |
|-------------------------------------------------------------------------------------------------------------|-------|------|------|----|
| ( $-V_{CC} = 30\text{ V}$ ; $-I_C = 150\text{ mA}$ ;<br>$I_{B1}$ approx. $-I_{B2}$ approx. $15\text{ mA}$ ) |       |      |      |    |
| Delay time                                                                                                  | $t_d$ | < 10 | < 10 | ns |
| Rise time                                                                                                   | $t_r$ | < 40 | < 40 | ns |
| Storage time                                                                                                | $t_s$ | < 80 | < 80 | ns |
| Fall time                                                                                                   | $t_f$ | < 30 | < 30 | ns |

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