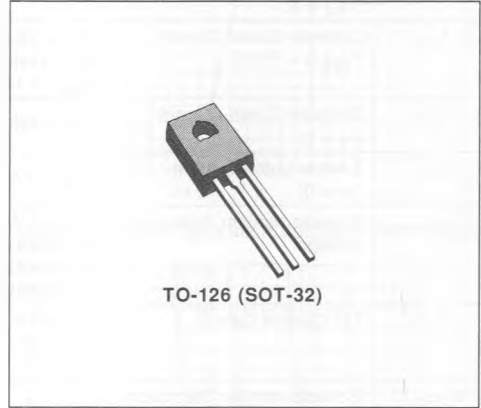


MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

DESCRIPTION

The 2N4921, 2N4922 and 2N4923 are silicon epitaxial planar NPN transistors in Jedge TO-126 plastic package, they are intended for driver circuits, switching and amplifier applications. The complementary PNP types are the 2N4918, 2N4919 and 2N4920 respectively.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | PNP | 2N4918 | 2N4919 | 2N4920 | Unit |
|-----------|---|-----|-------------|--------|--------|------------|
| | | NPN | 2N4921 | 2N4922 | 2N4923 | |
| V_{CEO} | Collector-emitter Voltage ($I_B = 0$) | | 40 | 60 | 80 | V |
| V_{CBO} | Collector-base Voltage ($I_E = 0$) | | 40 | 60 | 80 | V |
| V_{EBO} | Emitter-base Voltage ($I_C = 0$) | | 5 | | | V |
| I_C | Collector Current | | 1 | | | A |
| I_{CM} | Collector Peak Current | | 3 | | | A |
| I_B | Base Current | | 1 | | | A |
| P_{Tot} | Total Power Dissipation at $T_{case} \leq 25^\circ C$ | | 30 | | | W |
| T_{stg} | Storage Temperature | | - 65 to 150 | | | $^\circ C$ |
| T_J | Junction Temperature | | 150 | | | $^\circ C$ |

* For PNP types voltage and current values are negative.

THERMAL DATA

| | | | | |
|------------------|----------------------------------|-----|------|------|
| $R_{th\ j-case}$ | Thermal Resistance Junction-case | Max | 4.16 | °C/W |
|------------------|----------------------------------|-----|------|------|

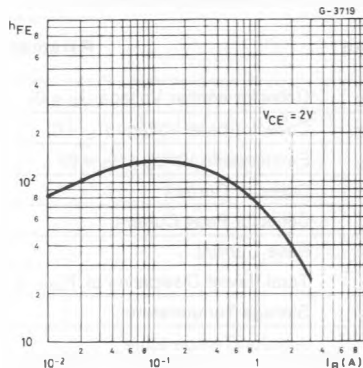
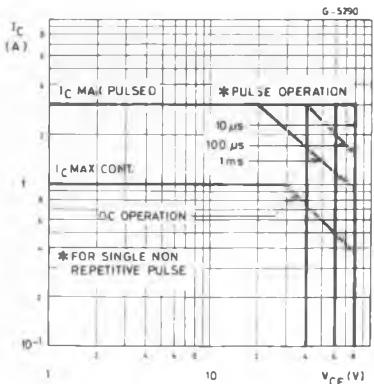
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------|---|---|----------------|------|------------|-------------|
| I_{CEO} | Collector Cutoff Current ($I_{BO} = 0$) | $V_{CE} = \text{Half rated } V_{CE0}$ | | | 0.5 | mA |
| I_{CEX} | Collector Cutoff Current ($V_{BE} = -1.5\text{ V}$) | $V_{CE} = \text{rated } V_{CE0}$ $V_{CE} = \text{rated } V_{CE0}$ $T_{case} = 125\text{ °C}$ | | | 0.1 0.5 | mA |
| I_{CBO} | Collector Cutoff Current ($I_E = 0$) | $V_{CE} = \text{rated } V_{CBO}$ | | | 0.1 | mA |
| I_{EBO} | Emitter Cutoff Current ($I_C = 0$) | $V_{EB} = 5\text{ V}$ | | | 1 | mA |
| $V_{CE0(sus)}^*$ | Collector-emitter Sustaining Voltage | $I_C = 0.1\text{ A}$ for 2N4918 , 2N4921 for 2N4919 , 2N4922 for 2N4920 , 2N4923 | 40 60 80 | | | V V V |
| h_{FE}^* | DC Current Gain | $I_C = 50\text{ mA}$ $V_{CE} = 1\text{ V}$ $I_C = 500\text{ mA}$ $V_{CE} = 1\text{ V}$ $I_C = 1\text{ A}$ $V_{CE} = 1\text{ V}$ | 40 30 10 | | 150 | |
| $V_{CE(sat)}^*$ | Collector-emitter Saturation Voltage | $I_C = 1\text{ A}$ $I_B = 0.1\text{ A}$ | | | 0.6 | V |
| $V_{BE(sat)}^*$ | Base-emitter Saturation Voltage | $I_C = 1\text{ A}$ $I_B = 0.1\text{ A}$ | | | 1.3 | V |
| V_{BE}^* | Base Emitter Voltage | $I_C = 1\text{ A}$ $V_{CE} = 1\text{ V}$ | | | 1.3 | V |
| f_T | Transistion Frequency | $I_C = 250\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ MHz}$ | 3 | | | MHz |
| C_{CBO} | Collector-base Capacitance | $V_{CB} = 10\text{ V}$ $I_E = 0$ $f = 100\text{ KHz}$ | | | 100 | pF |
| h_{FE} | Small Signal Current Gain | $I_C = 250\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ | 25 | | | |

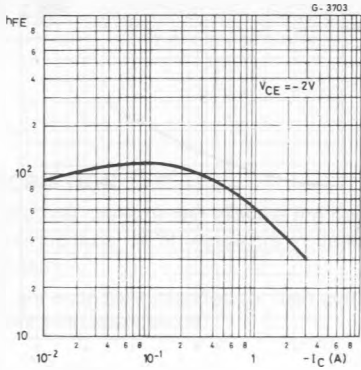
* Pulsed : pulse duration = 300us duty cycle ≤ 2%.
For NPN types voltage and current values are negative.

Safe Operating Areas.

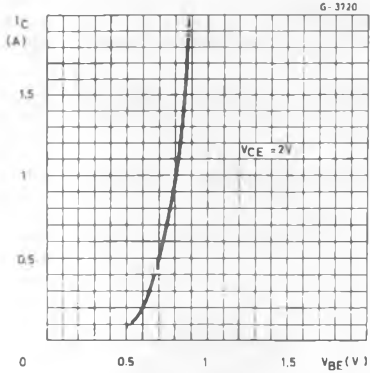
DC Current Gain (NPN types).



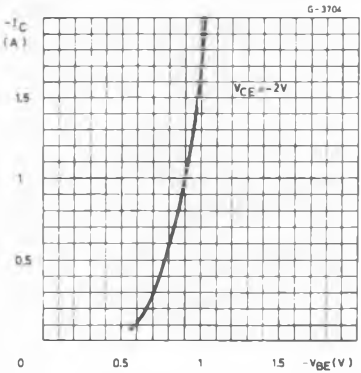
DC Current Gain (PNP types).



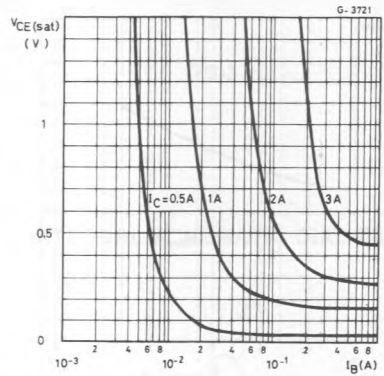
DC Transconductance (NPN types).



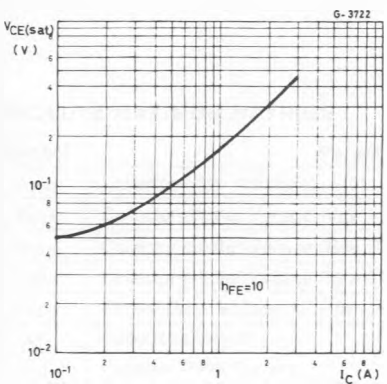
DC Transconductance (PNP types).



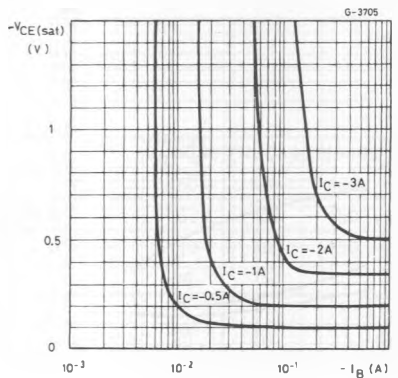
Collector-emitter Saturation Voltage (NPN types).



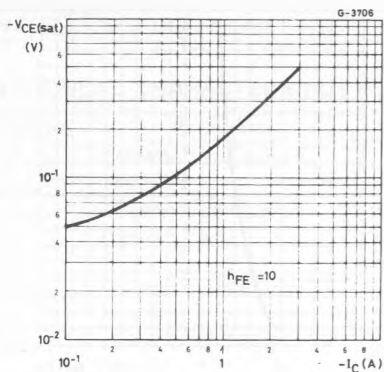
Collector-emitter Saturation Voltage (NPN types).



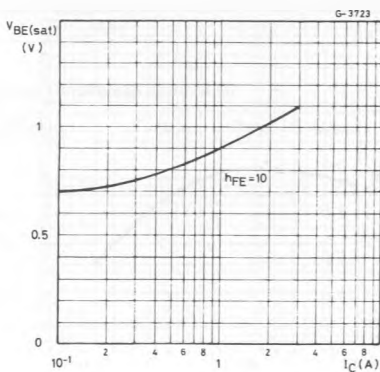
Collector-emitter Saturation Voltage (PNP types).



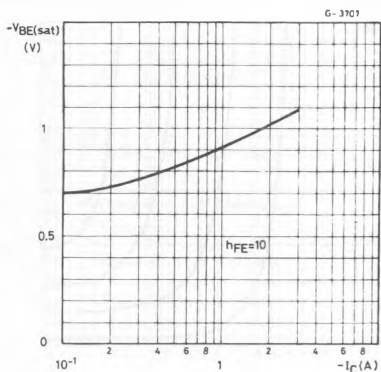
Collector-emitter Saturation Voltage (PNP types).



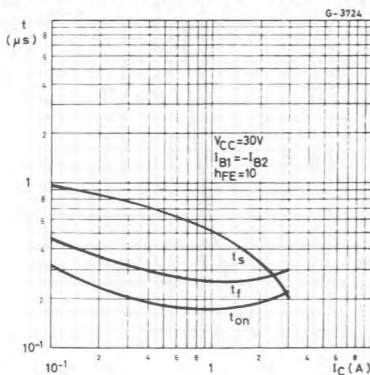
Base-emitter Saturation Voltage (NPN types).



Base-emitter Saturation Voltage (PNP types).



Saturated Switching Characteristics (NPN types).



Saturated Switching Characteristics (PNP types).

