

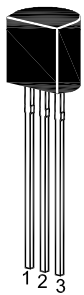
2N2222 / 2N2222A

NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into one group according to its DC current gain.

On special request, these transistors can be manufactured in different pin configurations.



1. Emitter 2. Base 3. Collector
TO-92 Plastic Package

Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage | V_{CBO} | 2N2222 60 | V |
| 2N2222A 75 | | | |
| Collector Emitter Voltage | V_{CEO} | 2N2222 30 | V |
| 2N2222A 40 | | | |
| Emitter Base Voltage | V_{EBO} | 2N2222 5 | V |
| 2N2222A 6 | | | |
| Collector Current | I_C | 600 | mA |
| Power Dissipation | P_{tot} | 625 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

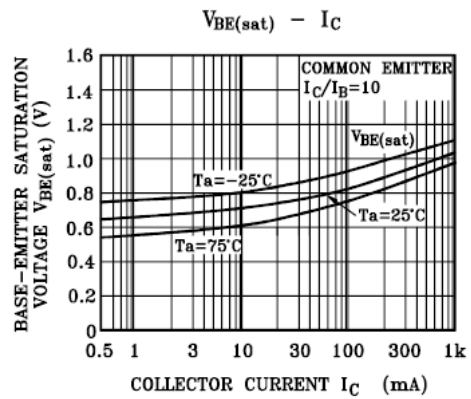
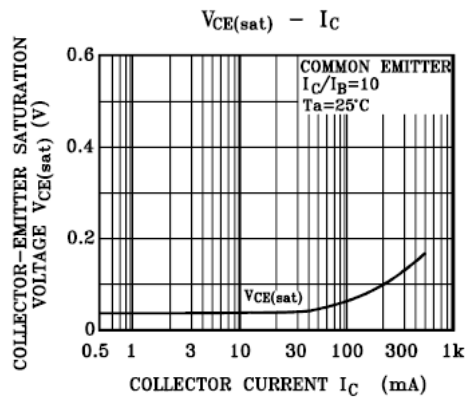
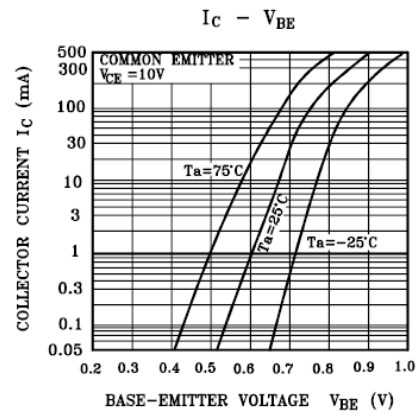
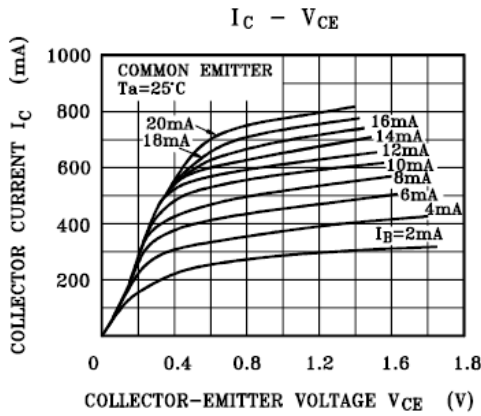
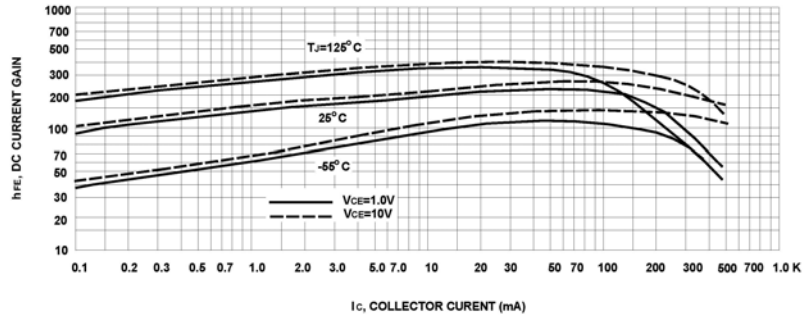
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Characteristics at $T_a = 25\text{ }^\circ\text{C}$

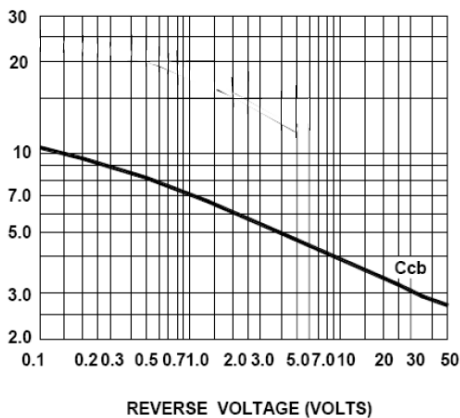
| Parameter | Symbol | Min. | Max. | Unit |
|---|---------------|------|------|------|
| DC Current Gain | | | | |
| at $V_{CE} = 10\text{ V}$, $I_C = 0.1\text{ mA}$ | h_{FE} | 35 | - | - |
| at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$ | h_{FE} | 50 | - | - |
| at $V_{CE} = 10\text{ V}$, $I_C = 10\text{ mA}$ | h_{FE} | 75 | - | - |
| at $V_{CE} = 10\text{ V}$, $I_C = 150\text{ mA}$ | h_{FE} | 100 | 300 | - |
| at $V_{CE} = 10\text{ V}$, $I_C = 500\text{ mA}$ | h_{FE} | 30 | - | - |
| | 2N2222 | | | |
| | 2N2222A | 40 | - | - |
| Collector Base Cutoff Current | | | | |
| at $V_{CB} = 50\text{ V}$ | I_{CBO} | - | 10 | nA |
| at $V_{CB} = 60\text{ V}$ | | - | 10 | |
| Collector Base Breakdown Voltage | | | | |
| at $I_C = 10\text{ }\mu\text{A}$ | $V_{(BR)CBO}$ | 60 | - | V |
| | 2N2222 | 75 | - | |
| | 2N2222A | | | |
| Collector Emitter Breakdown Voltage | | | | |
| at $I_C = 10\text{ mA}$ | $V_{(BR)CEO}$ | 30 | - | V |
| | 2N2222 | 40 | - | |
| | 2N2222A | | | |
| Emitter Base Breakdown Voltage | | | | |
| at $I_E = 10\text{ }\mu\text{A}$ | $V_{(BR)EBO}$ | 5 | - | V |
| | 2N2222 | 6 | - | |
| | 2N2222A | | | |
| Collector Emitter Saturation Voltage | | | | |
| at $I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$ | $V_{CE(sat)}$ | - | 0.4 | V |
| | 2N2222 | - | 0.3 | |
| | 2N2222A | - | 1.6 | |
| at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ | $V_{CE(sat)}$ | - | 1 | |
| | 2N2222 | - | | |
| | 2N2222A | - | | |
| Base Emitter Saturation Voltage | | | | |
| at $I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$ | $V_{BE(sat)}$ | - | 1.3 | V |
| | 2N2222 | 0.6 | 1.2 | |
| | 2N2222A | - | 2.6 | |
| at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ | $V_{BE(sat)}$ | - | 2 | |
| | 2N2222 | - | | |
| | 2N2222A | - | | |
| Gain Bandwidth Product | | | | |
| at $I_C = 20\text{ mA}$, $V_{CE} = 20\text{ V}$, $f = 100\text{ MHz}$ | f_T | 250 | - | MHz |
| Collector Output Capacitance | | | | |
| at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$ | C_{ob} | - | 8 | pF |

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Figure 1. DC Current Gain



Capacitances



Pc - Ta

