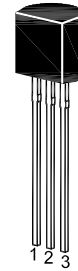


9013

NPN Silicon Epitaxial Planar Transistor

for switching and amplifier applications. Especially suitable for AF-driver stages and low power output stages.

The transistor is subdivided into three groups, G, H and I, according to its DC current gain. As complementary type the PNP transistor 9012 is recommended.



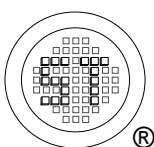
1. Emitter 2. Base 3. Collector
TO-92 Plastic Package

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

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage | V_{CBO} | 40 | V |
| Collector Emitter Voltage | V_{CEO} | 30 | V |
| Emitter Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 500 | mA |
| Power Dissipation | P_{tot} | 625 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Min. | Max. | Unit | |
|--|----------------------|----------|------|------|---|
| DC Current Gain at $V_{CE} = 1\text{ V}$, $I_C = 50\text{ mA}$ at $V_{CE} = 1\text{ V}$, $I_C = 500\text{ mA}$ | Current Gain Group G | h_{FE} | 110 | 183 | - |
| | H | h_{FE} | 177 | 250 | - |
| | I | h_{FE} | 250 | 380 | - |
| | | h_{FE} | 40 | - | - |
| Collector Base Cutoff Current at $V_{CB} = 35\text{ V}$ | I_{CBO} | - | 100 | nA | |
| Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$ | I_{EBO} | - | 100 | nA | |
| Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$ | $V_{(BR)CBO}$ | 40 | - | V | |
| Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$ | $V_{(BR)CEO}$ | 30 | - | V | |
| Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$ | $V_{(BR)EBO}$ | 5 | - | V | |
| Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ | $V_{CE(sat)}$ | - | 0.6 | V | |
| Base Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$ | $V_{BE(sat)}$ | - | 1.2 | V | |
| Base Emitter Voltage at $V_{CE} = 1\text{ V}$, $I_C = 100\text{ mA}$ | V_{BE} | - | 1 | V | |
| Gain Bandwidth Product at $V_{CE} = 6\text{ V}$, $I_C = 20\text{ mA}$ | f_T | 100 | - | MHz | |



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IEC QC 080000
Certificate No. PSC-1874-185-1

Fig. 1 $P_{tot} - T_a$

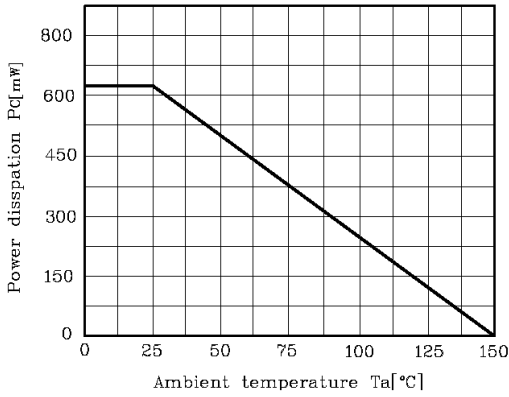


Fig. 2 $I_C - V_{BE}$

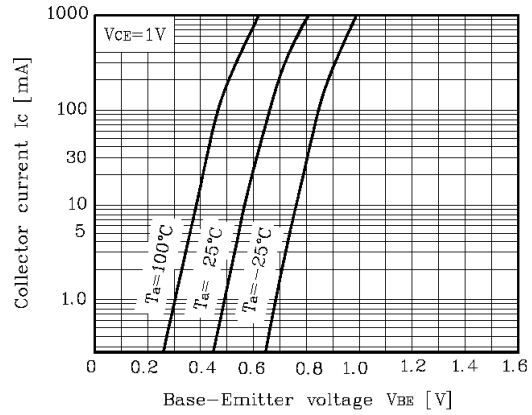


Fig. 3 $I_C - V_{CE}$

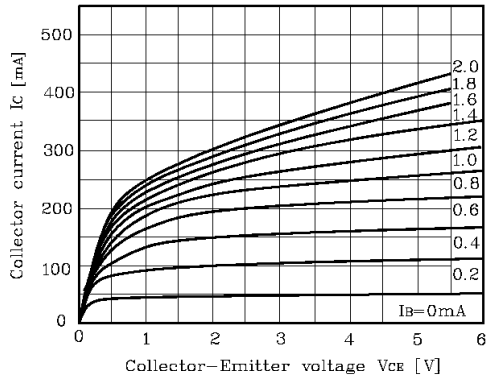


Fig. 4 $V_{CE(SAT)} - I_C$

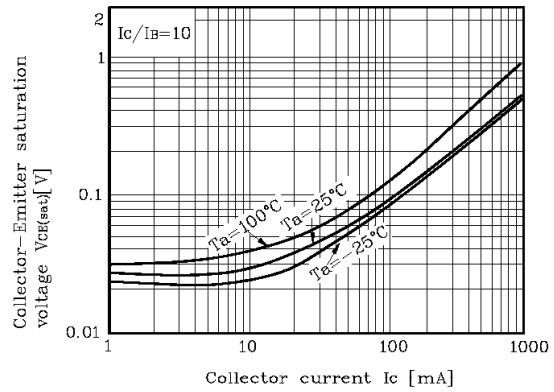
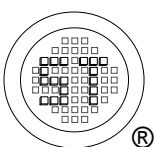
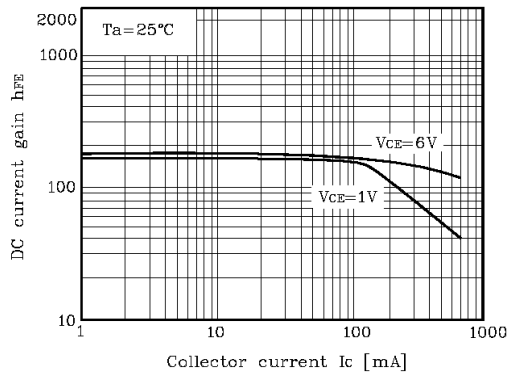


Fig. 5 $h_{FE} - I_C$



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