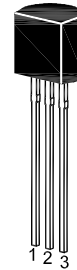


# ST 9012

## PNP 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 NPN transistor 9013 is recommended.



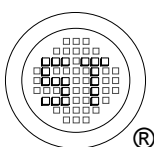
1. Emitter 2. Base 3. Collector  
TO-92 Plastic Package

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



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Dated : 19/03/2009

Fig. 1  $P_{tot} - T_a$

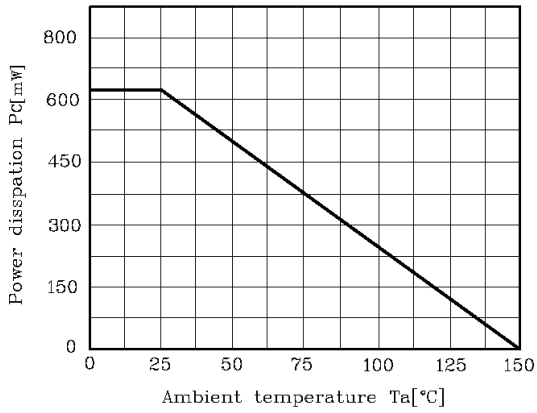


Fig. 2  $I_C - V_{BE}$

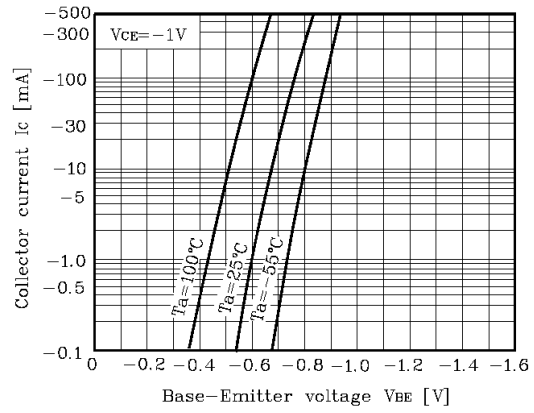


Fig. 3  $I_C - V_{CE}$

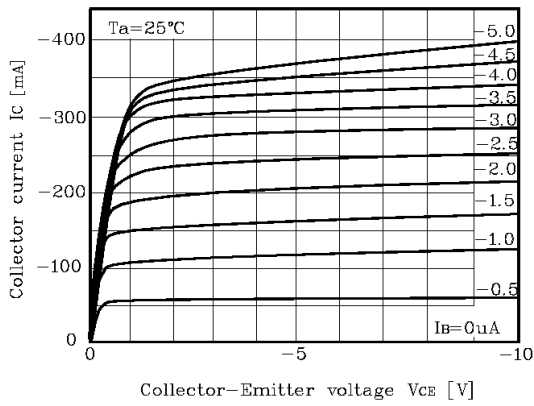


Fig. 4  $V_{CE(sat)} - I_C$

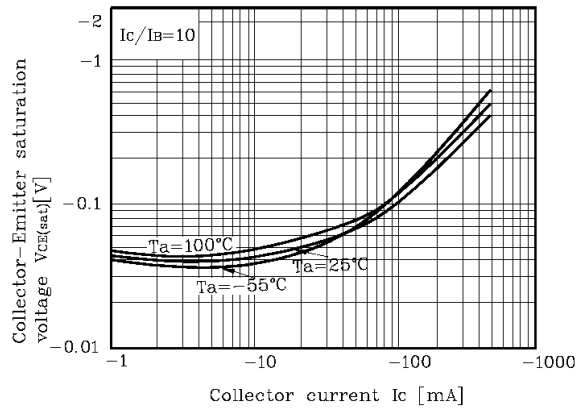


Fig. 5  $h_{FE} - I_C$

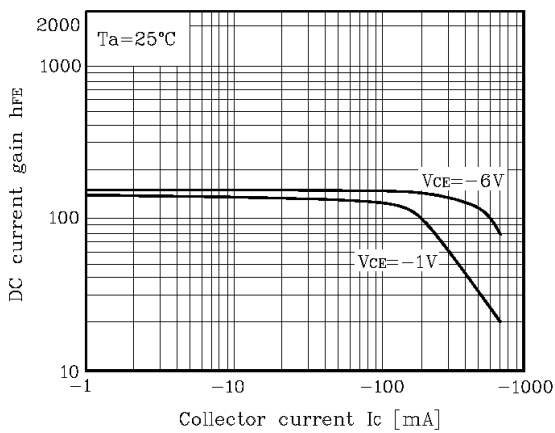


Fig. 6  $h_{FE} - I_C$

