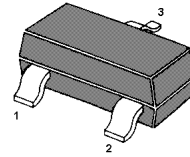


NPN Silicon Epitaxial Planar Transistor

for general purpose applications.

The transistor is subdivided into three groups Q, R and S, according to its DC current gain.



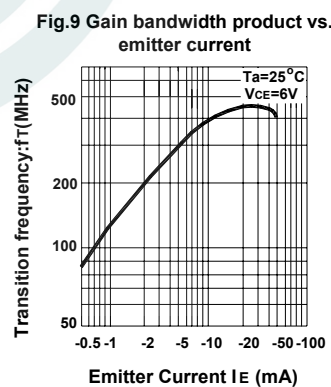
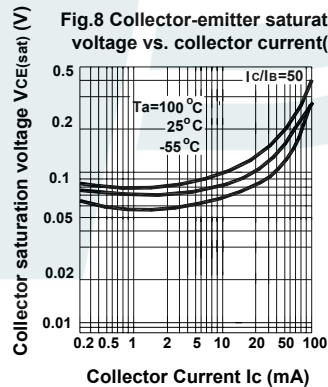
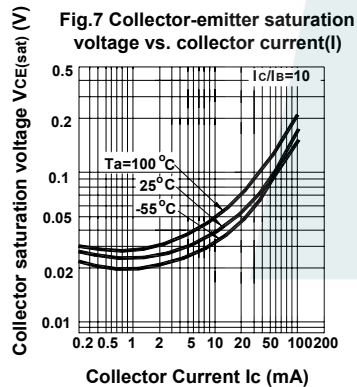
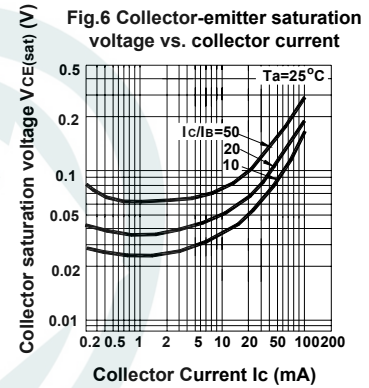
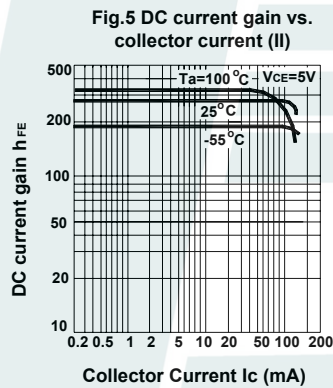
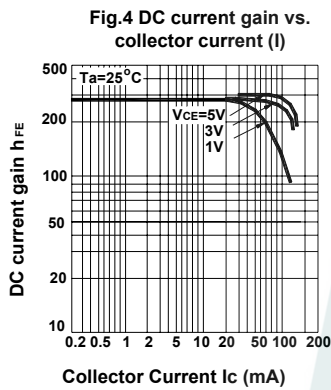
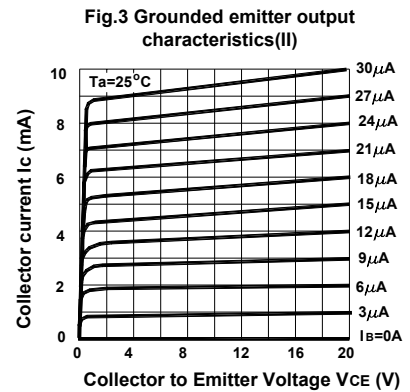
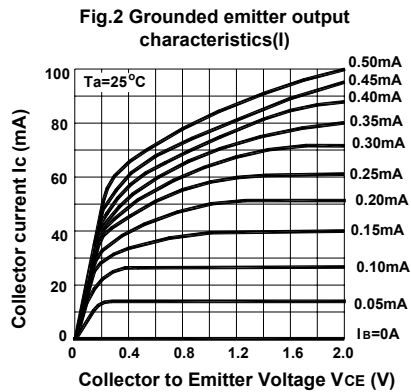
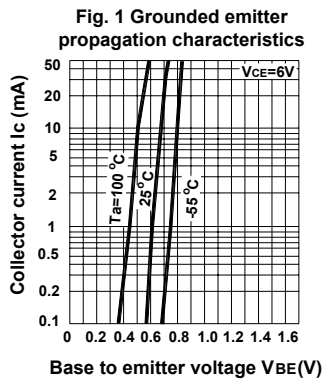
1.BASE 2.EMITTER 3.COLLECTOR
SOT-23 Plastic Package

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

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|-------------|------------------|
| Collector Base Voltage | V_{CBO} | 60 | V |
| Collector Emitter Voltage | V_{CEO} | 50 | V |
| Emitter Base Voltage | V_{EBO} | 7 | V |
| Collector Current | I_C | 150 | mA |
| Power Dissipation | P_{tot} | 200 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{Stg} | -55 to +150 | $^\circ\text{C}$ |

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

| | Symbol | Min. | Typ. | Max. | Unit | |
|--|---------------|----------|------|------|---------------|---|
| DC Current Gain at $V_{CE}=6\text{V}$, $I_C=1\text{mA}$ | Q | h_{FE} | 120 | - | 270 | - |
| | R | h_{FE} | 180 | - | 390 | - |
| | S | h_{FE} | 270 | - | 560 | - |
| Collector Base Breakdown Voltage at $I_C=50\mu\text{A}$ | $V_{(BR)CBO}$ | 60 | - | - | V | |
| Collector Emitter Breakdown Voltage at $I_C=1\text{mA}$ | $V_{(BR)CEO}$ | 50 | - | - | V | |
| Emitter Base Breakdown Voltage at $I_E=50\mu\text{A}$ | $V_{(BR)EBO}$ | 7 | - | - | V | |
| Collector Cutoff Current at $V_{CB}=60\text{V}$ | I_{CBO} | - | - | 0.1 | μA | |
| Emitter Cutoff Current at $V_{EB}=7\text{V}$ | I_{EBO} | - | - | 0.1 | μA | |
| Collector Saturation Voltage at $I_C=50\text{mA}$, $I_B=5\text{mA}$ | $V_{CE(sat)}$ | - | - | 0.4 | V | |
| Gain Bandwidth Product at $V_{CE}=12\text{V}$, $-I_E=2\text{mA}$, $f=100\text{MHz}$ | f_T | - | 180 | - | MHz | |
| Output Capacitance at $V_{CE}=12\text{V}$, $f=1\text{MHz}$ | C_{OB} | - | 2 | 3.5 | pF | |



**Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage**

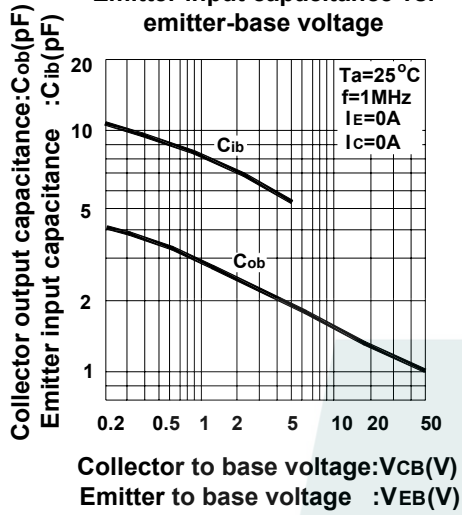


Fig.11 Base-collector time constant vs. emitter current

