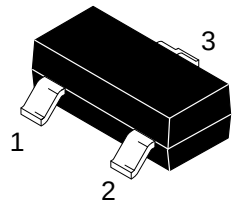
# Silicon Epitaxial Planar Transistor

## FEATURES

Complementary to 2SA1037




**SOT-23 (Top View)**

## APPLICATIONS

NPN Silicon Epitaxial Planar Transistor

## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 60 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 50 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 7 | V |
| $I_C$ | Collector Current -Continuous | 150 | mA |
| $P_C$ | Collector Dissipation | 200 | mW |
| $T_j, T_{stg}$ | Junction and Storage Temperature | -55~150 | ℃ |

## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=50μA,$I_E$=0 | 60 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=1mA,$I_B$=0 | 50 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=50μA,$I_C$=0 | 7 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=60V,$I_E$=0 | | | 0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=7V,$I_C$=0 | | | 0.1 | μA |
| DC current gain | $h_{FE}$ | $V_{CE}$=6V,$I_C$=1mA | 120 | | 560 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=50mA, $I_B$=5mA | | | 0.4 | V |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=12V,$I_E$=0A, f=1MHz | | 2.0 | 3.5 | pF |
| Transition frequency | $f_T$ | $V_{CE}$=12V, $I_E$= -2mA f=100MHz | | 180 | | MHz |

**CLASSIFICATION OF $h_{FE(1)}$**

| Rank | Q | R | S |
|---|---|---|---|
| Range | 120-270 | 180-390 | 270-560 |
| Marking | BQ | BR | BS |

## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

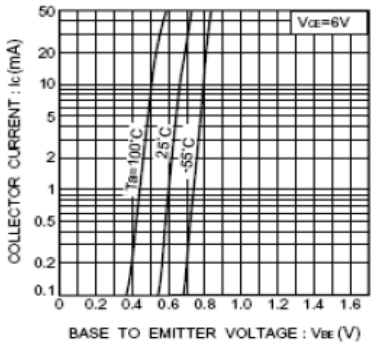



Fig.1 Grounded emitter propagation characteristics

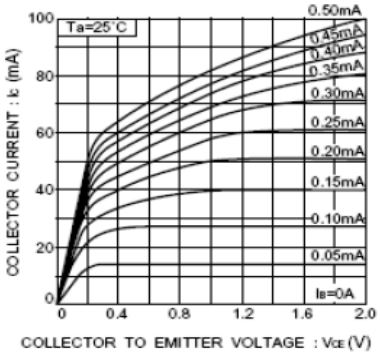



Fig.2 Grounded emitter output characteristics ( I )

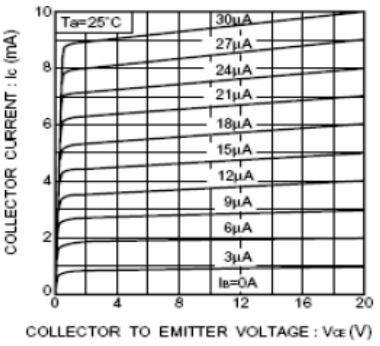



Fig.3 Grounded emitter output characteristics ( II )

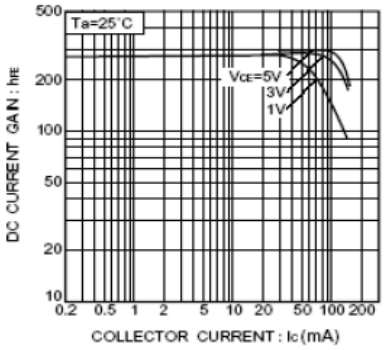



Fig.4 DC current gain vs. collector current ( I )

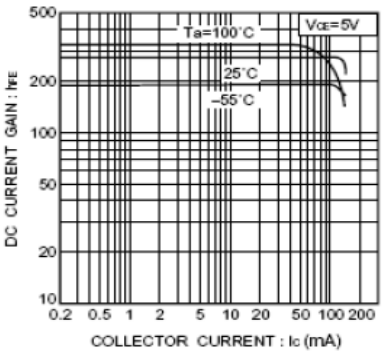



Fig.5 DC current gain vs. collector current ( II )

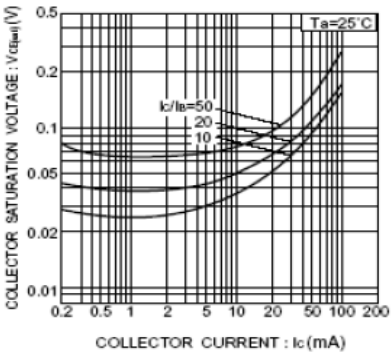



Fig. 6 Collector-emitter saturation voltage vs. collector current

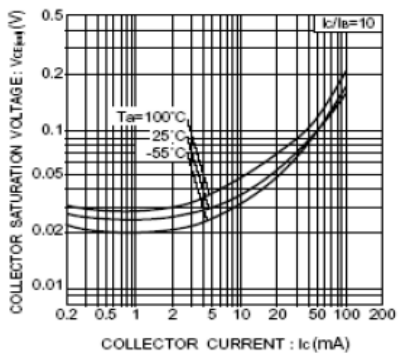



Fig.7 Collector-emitter saturation voltage vs. collector current ( I )

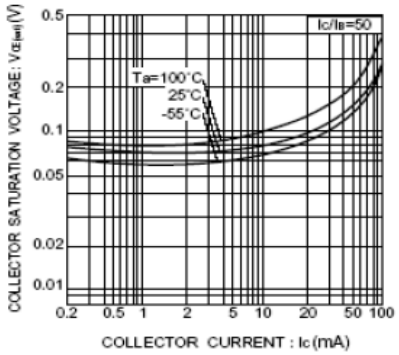



Fig.8 Collector-emitter saturation voltage vs. collector current (II)

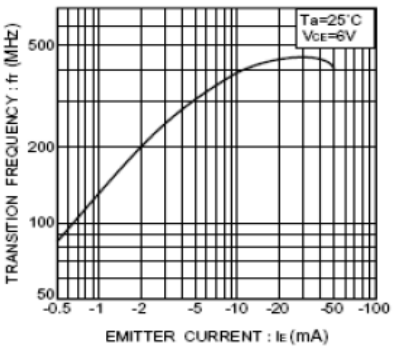
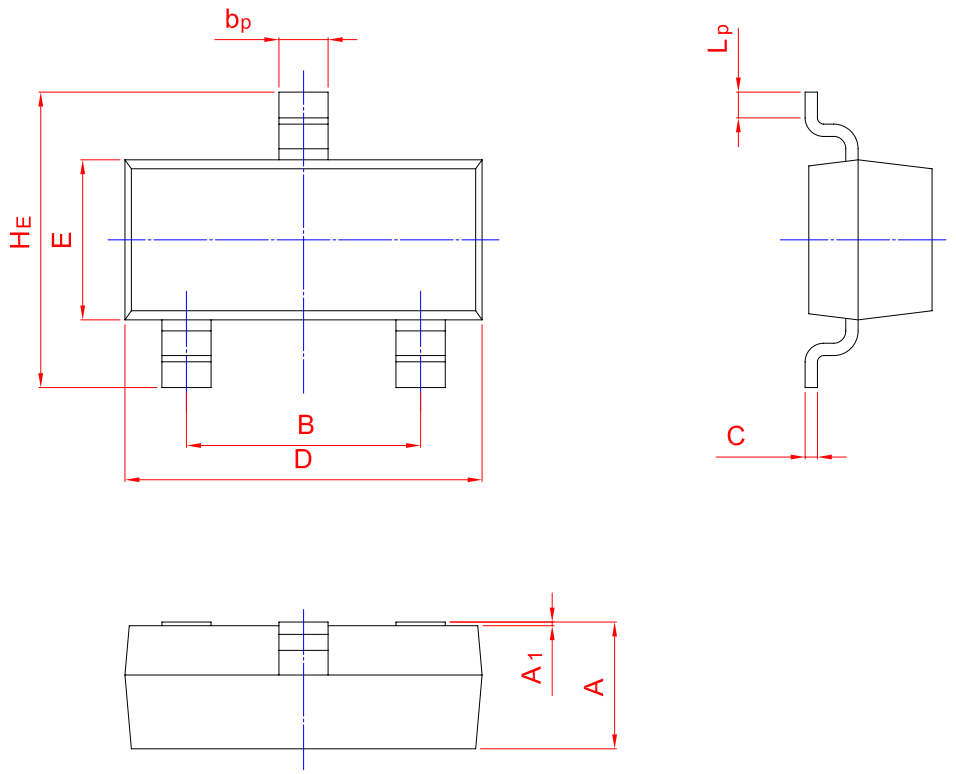



Fig.9 Gain bandwidth product vs. emitter current

## PACKAGE OUTLINE

**Plastic surface mounted package; 3 leads** **SOT-23**




| UNIT | A | B | bp | C | D | E | HE | A1 | Lp |
|---|---|---|---|---|---|---|---|---|---|
| mm | 1.40<br>0.95 | 2.04<br>1.78 | 0.50<br>0.35 | 0.19<br>0.08 | 3.10<br>2.70 | 1.65<br>1.20 | 3.00<br>2.20 | 0.100<br>0.013 | 0.50<br>0.20 |