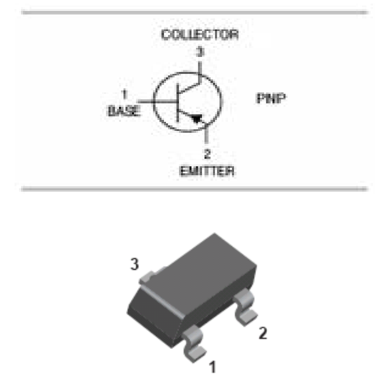
# Silicon Epitaxial Planar Transistor **2SA1037**

## FEATURES

- Excellent $h_{FE}$ Linearity.
- Complments the 2SC2412.

Lead-free



**SOT-23**

## APPLICATIONS

- Ideal for low-voltage operation.

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| 2SA1037 | FQ/FR/FS | SOT-23 |

## 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 | -6 | V |
| $I_C$ | Collector Current -Continuous | -150 | mA |
| $P_C$ | Collector Dissipation | 200 | mW |
| $T_j$,$T_{stg}$ | Junction and Storage Temperature | -55 to +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 | -6 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=-60V,$I_E$=0 | | | -0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=-6V,$I_C$=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 | | | -0.5 | V |
| Transition frequency | $f_T$ | $V_{CE}$=-12V, $I_C$=-2mA<br>f=30MHz | | 140 | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=-12V,$I_E$=0,f=1MHz | | 4.0 | 5.0 | pF |

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

| Rank | Q | R | S |
|---|---|---|---|
| Range | 120-270 | 180-390 | 270-560 |
| Marking | FQ | FR | FS |

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

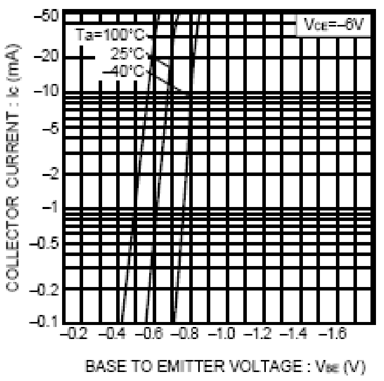


Fig.1 Grounded emitter propagation characteristics

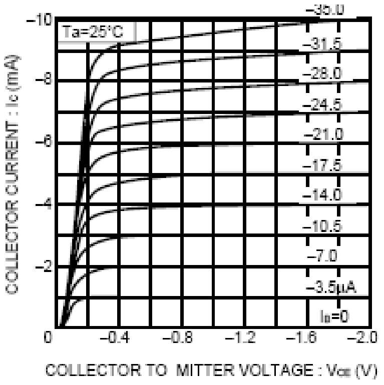


Fig.2 Grounded emitter output characteristics (I)

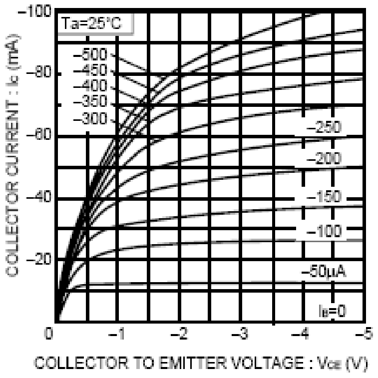


Fig.3 Grounded emitter output characteristics (II)

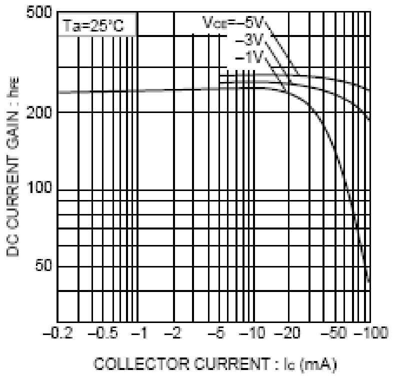


Fig.4 DC current gain vs. collector current (I)

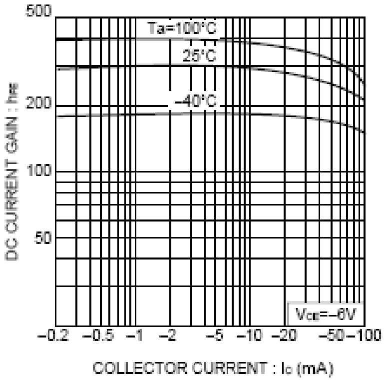


Fig.5 DC current gain vs. collector current (II)

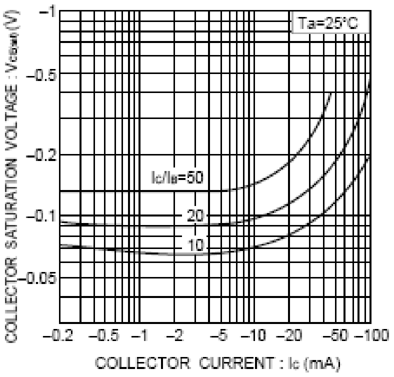


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

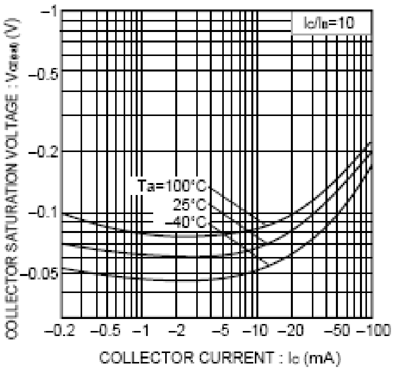


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

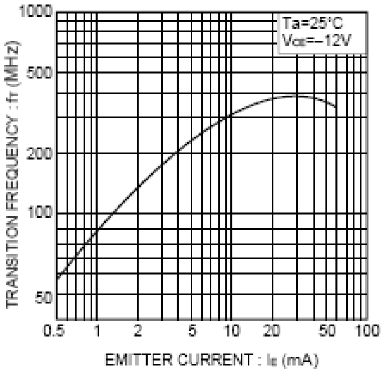


Fig.8 Gain bandwidth product vs. emitter current

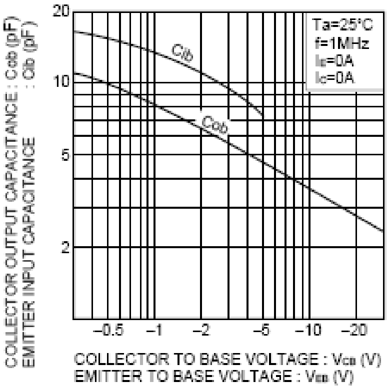
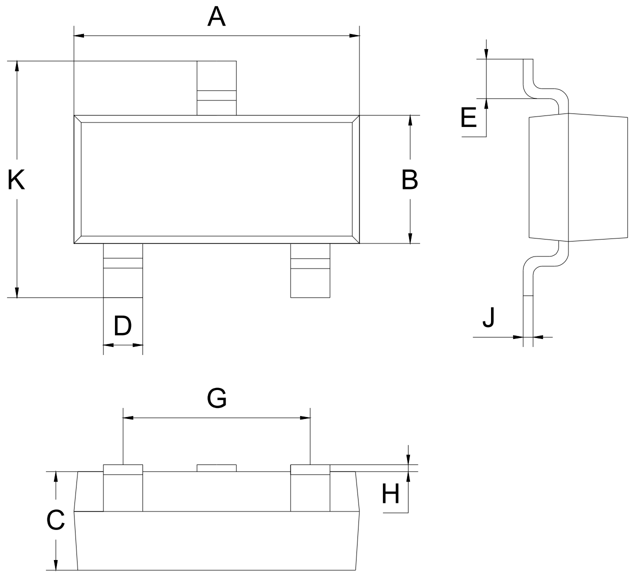


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter inputcapacitance vs. emitter-base voltage

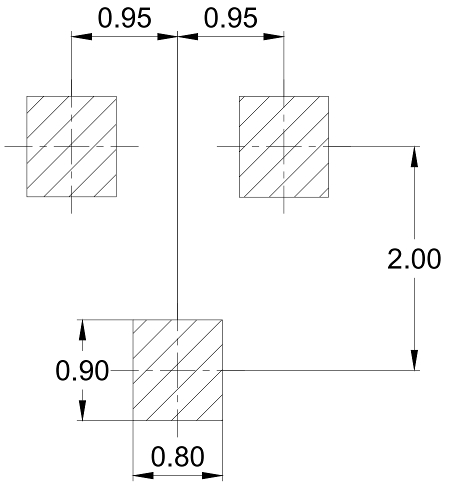
## PACKAGE OUTLINE

Plastic surface mounted package SOT-23



| SOT-23 | | |
|---|---|---|
| Dim | Min | Max |
| A | 2.70 | 3.10 |
| B | 1.10 | 1.50 |
| C | 1.0 Typical | |
| D | 0.4 Typical | |
| E | 0.35 | 0.48 |
| G | 1.80 | 2.00 |
| H | 0.02 | 0.1 |
| J | 0.1 Typical | |
| K | 2.20 | 2.60 |
| All Dimensions in mm | | |

## SOLDERING FOOTPRINT



Unit : mm

## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| 2SA1037 | SOT-23 | 3000/Tape&Reel |