

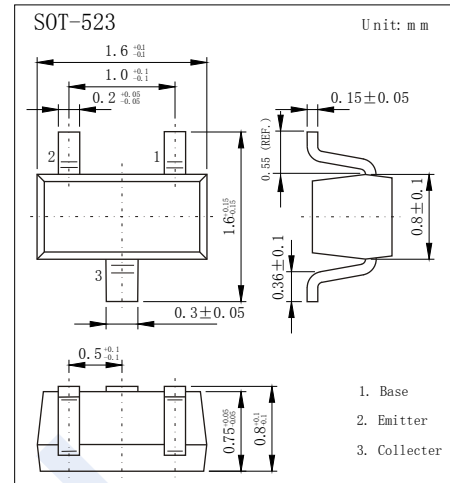
## PNP Transistors

## 2SA2018

## ■ Features

- A collector current is large.
- Low  $V_{CE(sat)}$ .

$V_{CE(sat)} \leq -250\text{mV}$  at  $I_C = -200\text{mA}$  /  $I_B = -10\text{mA}$

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

| Parameter                      | Symbol    | Rating     | Unit             |
|--------------------------------|-----------|------------|------------------|
| Collector - Base Voltage       | $V_{CBO}$ | -15        | V                |
| Collector - Emitter Voltage    | $V_{CEO}$ | -12        |                  |
| Emitter - Base Voltage         | $V_{EBO}$ | -6         |                  |
| Collector Current - Continuous | $I_C$     | -500       | mA               |
| Collector Current - Pulse      | $I_{CP}$  | -1         | A                |
| Collector Power Dissipation    | $P_C$     | 150        | mW               |
| Junction Temperature           | $T_J$     | 150        | $^\circ\text{C}$ |
| Storage Temperature range      | $T_{stg}$ | -55 to 150 |                  |

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

| Parameter                            | Symbol        | Test Conditions                                                    | Min | Typ | Max   | Unit          |
|--------------------------------------|---------------|--------------------------------------------------------------------|-----|-----|-------|---------------|
| Collector- base breakdown voltage    | $V_{CBO}$     | $I_C = -100\ \mu\text{A}$ , $I_E = 0$                              | -15 |     |       | V             |
| Collector- emitter breakdown voltage | $V_{CEO}$     | $I_C = -1\ \text{mA}$ , $I_B = 0$                                  | -12 |     |       |               |
| Emitter - base breakdown voltage     | $V_{EBO}$     | $I_E = -100\ \mu\text{A}$ , $I_C = 0$                              | -6  |     |       |               |
| Collector-base cut-off current       | $I_{CBO}$     | $V_{CB} = -15\text{V}$ , $I_E = 0$                                 |     |     | -0.1  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -6\text{V}$ , $I_C = 0$                                  |     |     | -0.1  |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -200\text{mA}$ , $I_B = -10\text{mA}$                       |     |     | -0.25 | V             |
| Base - emitter saturation voltage    | $V_{BE(sat)}$ | $I_C = -200\text{mA}$ , $I_B = -10\text{mA}$                       |     |     | -1.2  |               |
| DC current gain                      | $h_{FE}$      | $V_{CE} = -2\text{V}$ , $I_C = -10\text{mA}$                       | 270 |     | 680   |               |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$             |     | 6.5 |       | pF            |
| Transition frequency                 | $f_T$         | $V_{CE} = -2\text{V}$ , $I_C = -10\text{mA}$ , $f = 100\text{MHz}$ |     | 260 |       | MHz           |

## ■ Marking

|         |    |
|---------|----|
| Marking | BW |
|---------|----|

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## ■ Typical Characteristics

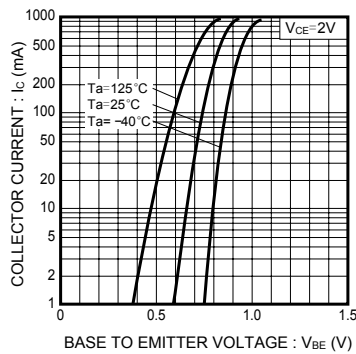


Fig.1 Grounded Emitter Propagation Characteristics

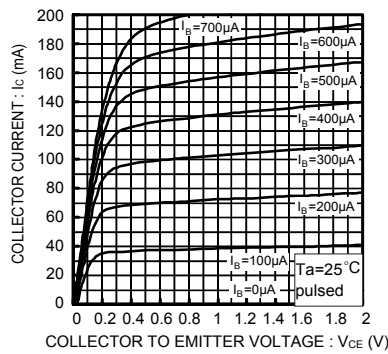


Fig.2 Typical Output Characteristics

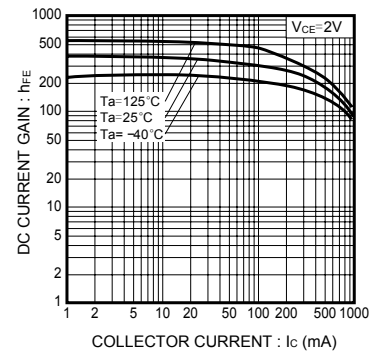


Fig.3 DC Current Gain vs. Collector Current

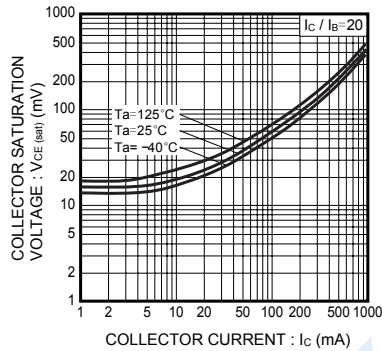


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (1)

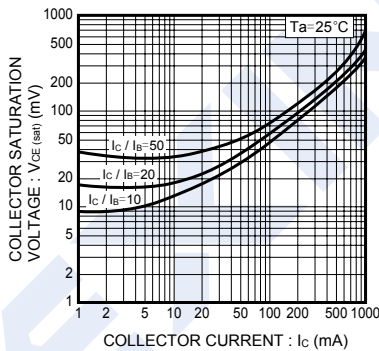


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (2)

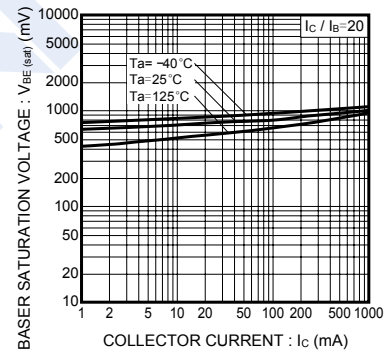


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

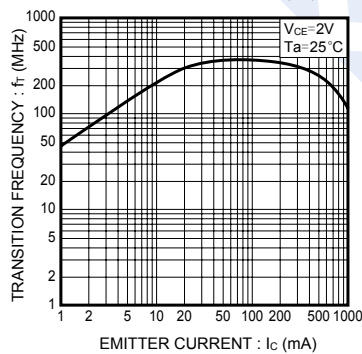
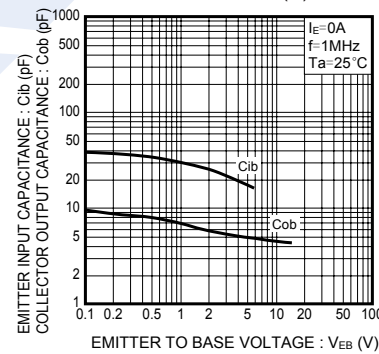


Fig.7 Gain Bandwidth Product vs. Emitter Current

Fig.8 Collector Output Capacitance vs. Collector-Base Voltage  
Emitter Input Capacitance vs. Emitter-Base Voltage