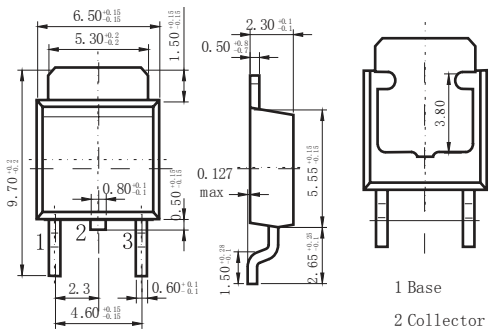
# PNP Transistors

# 2SB930

TO-252

Unit: mm




1 Base
2 Collector
3 Emitter

## ■ Features

- High forward current transfer ratio hFE which has satisfactory linearity
- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Complementary to 2SD1253

## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector - Base Voltage | $V_{CBO}$ | -60 | V |
| Collector - Emitter Voltage | $V_{CEO}$ | -60 | |
| Emitter - Base Voltage | $V_{EBO}$ | -5 | |
| Collector Current - Continuous | $I_C$ | -4 | A |
| Collector current - Pulse | $I_{CP}$ | -8 | |
| Collector Power Dissipation Tc = 25°C | $P_C$ | 40 | W |
| Ta = 25°C | | 1.3 | |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature range | $T_{stg}$ | -55 to 150 | |

## ■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector- base breakdown voltage | $V_{CBO}$ | $I_C$= -100 μA, $I_E$=0 | -60 | | | V |
| Collector- emitter breakdown voltage | $V_{CEO}$ | $I_C$= -30 mA, $I_B$=0 | -60 | | | |
| Emitter - base breakdown voltage | $V_{EBO}$ | $I_E$= -100 μ A, $I_C$=0 | -5 | | | |
| Collector-base cut-off current | $I_{CBO}$ | $V_{CB}$= -60V , $I_E$=0 | | | -0.1 | mA |
| Collector cutoff current | $I_{CES}$ | $V_{CE}$= -60V ,$V_{BE}$=0 | | | -400 | uA |
| Collector cutoff current | $I_{CEO}$ | $V_{CE}$= -30V ,$I_B$=0 | | | -700 | |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$= -5V , $I_C$=0 | | | -0.1 | mA |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=-4 A, $I_B$=-400mA | | | -1.5 | V |
| Base - emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=-4 A, $I_B$=-400mA | | | -1.2 | |
| Base - emitter voltage | $V_{BE}$ | $V_{CE}$= -4 V, $I_C$= -3 A | | | - 2 | |
| DC current gain | $h_{FE(1)}$ | $V_{CE}$= -4 V, $I_C$= -1 A | 70 | | 250 | |
| | $h_{FE(2)}$ | $V_{CE}$= -4 V, $I_C$= -3 A | 15 | | | |
| Turn-on time | $t_{on}$ | $I_C$ = –4A, $I_{B1}$ = – 0.4A, $I_{B2}$ = 0.4A | | 0.2 | | us |
| Storage time | $t_{stg}$ | | | 0.5 | | |
| Fall time | $t_f$ | | | 0.2 | | |
| Transition frequency | $f_T$ | $V_{CE}$= -10V, $I_C$= -100mA,f=1MHz | | 20 | | MHz |

## ■ Classification of $h_{fe(1)}$

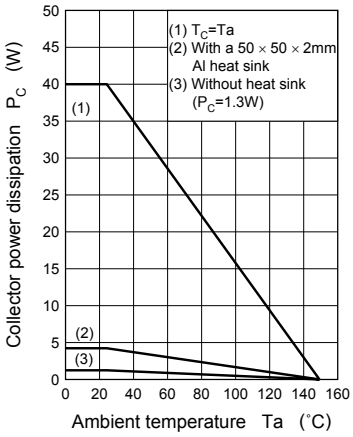
| Type | 2SB930-Q | 2SB930-P |
|---|---|---|
| Range | 70-150 | 120-250 |

# PNP Transistors

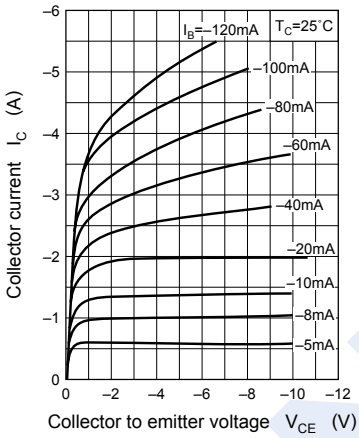
# 2SB930

■ Typical Characterisitics

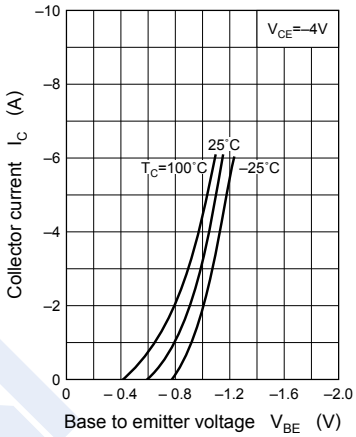
$P_C$ — Ta



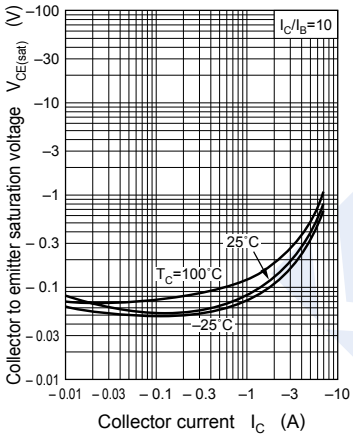

$I_C$ — $V_{CE}$



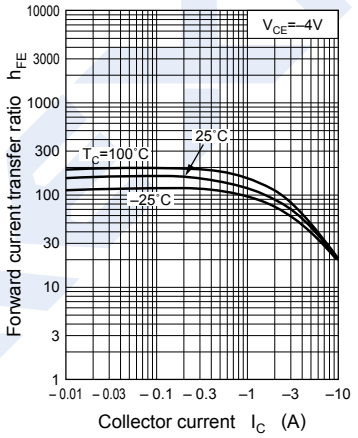

$I_C$ — $V_{BE}$



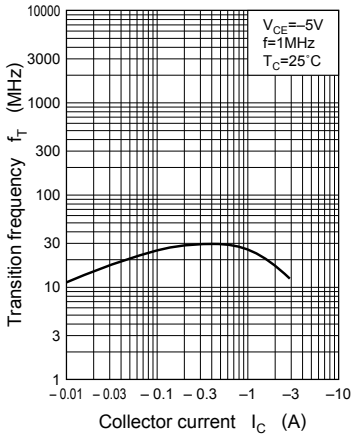

$V_{CE(sat)}$ — $I_C$



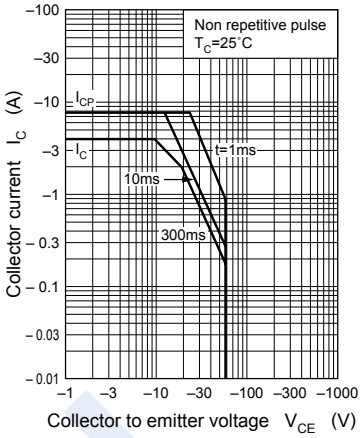

$h_{FE}$ — $I_C$




$f_T$ — $I_C$




Area of safe operation (ASO)




$R_{th(t)}$ — t

