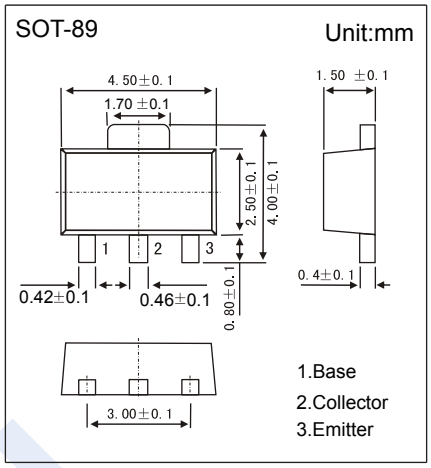
# NPN Transistors

# 2SD968A




## ■ Features

- Collector Current Capability $I_C$=500mA
- Collector Emitter Voltage $V_{CEO}$=120V
- Complementary to 2SB789A

## ■ Absolute Maximum Ratings Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector - Base Voltage | $V_{CBO}$ | 120 | V |
| Collector - Emitter Voltage | $V_{CEO}$ | 120 | |
| Emitter - Base Voltage | $V_{EBO}$ | 5 | |
| Collector Current - Continuous | $I_C$ | 0.5 | A |
| Collector Current - Pulse | $I_{CP}$ | 1 | |
| Collector Power Dissipation | $P_C$ | 1 | W |
| 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 | 120 | | | V |
| Collector- emitter breakdown voltage | $V_{CEO}$ | $I_C$= 1 mA, $I_B$= 0 | 120 | | | |
| Emitter - base breakdown voltage | $V_{EBO}$ | $I_E$= 100 μ A, $I_C$= 0 | 5 | | | |
| Collector-base cut-off current | $I_{CBO}$ | $V_{CB}$= 120 V , $I_E$= 0 | | | 0.1 | uA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$= 5V , $I_C$=0 | | | 0.1 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=500mA, $I_B$=50mA | | | 0.6 | V |
| Base - emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=500mA, $I_B$=50mA | | | 1.2 | |
| DC current gain | $h_{FE}$ | $V_{CE}$= 10V, $I_C$=150mA | 90 | | 220 | |
| | | $V_{CE}$= 5V, $I_C$=500mA | 50 | | | |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$= 10V, $I_E$=0,f=1MHz | | | 20 | pF |
| Transition frequency | $f_T$ | $V_{CB}$= 10V, $I_E$=-50mA,f=200MHz | | 120 | | MHz |

## ■ Classification of hfe(1)

| Type | 2SD968A-Q | 2SD968A-R |
|---|---|---|
| Range | 90-155 | 130-220 |
| Marking | VQ | VR |

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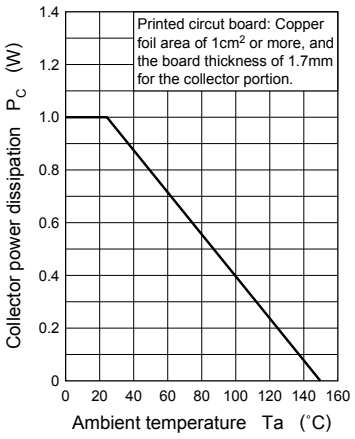
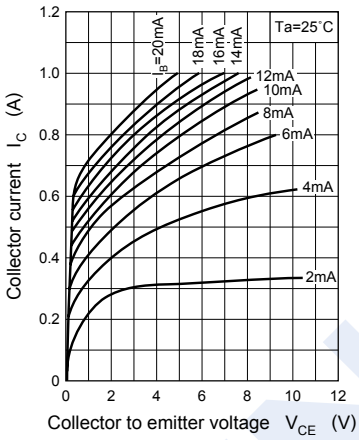
# 2SD968A

■ Typical Characterisitics

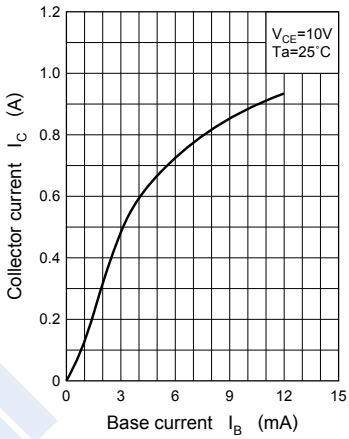
$P_C$ — Ta



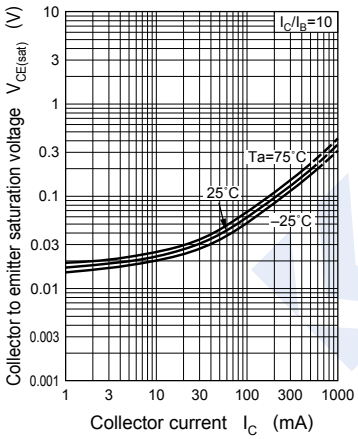

$I_C$ — $V_{CE}$



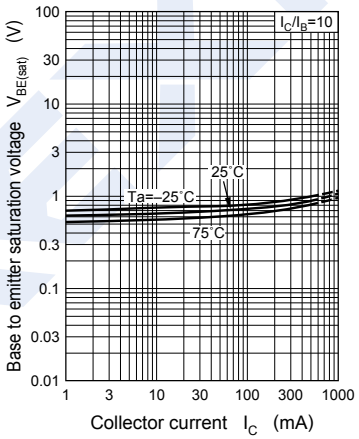

$I_C$ — $I_B$



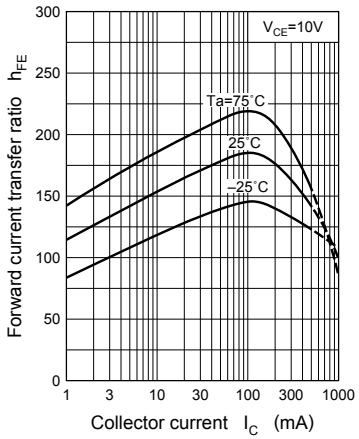

$V_{CE(sat)}$ — $I_C$



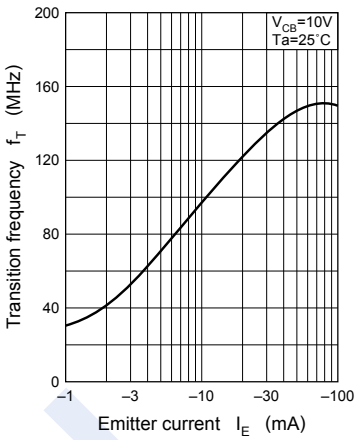

$V_{BE(sat)}$ — $I_C$




$h_{FE}$ — $I_C$




$f_T$ — $I_E$




$C_{ob}$ — $V_{CB}$