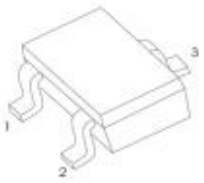
# TRANSISTOR (NPN)

SOT - 523



1. BASE
2. EMITTER
3. COLLECTOR

## FEATURES

Complementary to MMBT5401T

Ideal for medium power amplification and switching

**MARKING: G1**

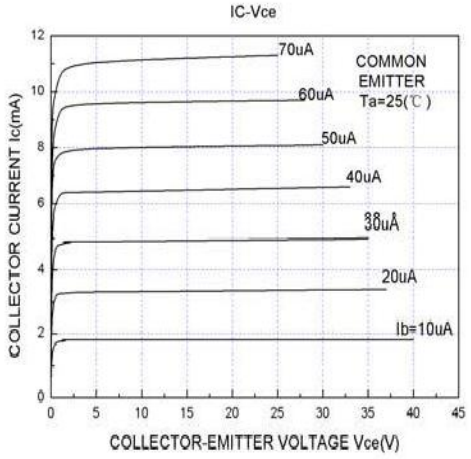
## MAXIMUM RATINGS ($T_A$=25℃ unless otherwise noted)

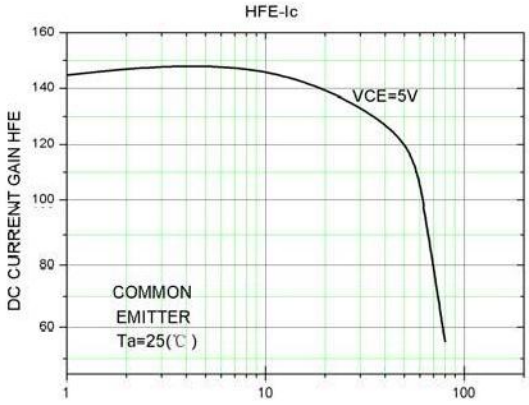
| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 180 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 160 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current -Continuous | 0.6 | A |
| $P_C$ | Collector Power Dissipation | 200 | mW |
| $T_j$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55-150 | ℃ |

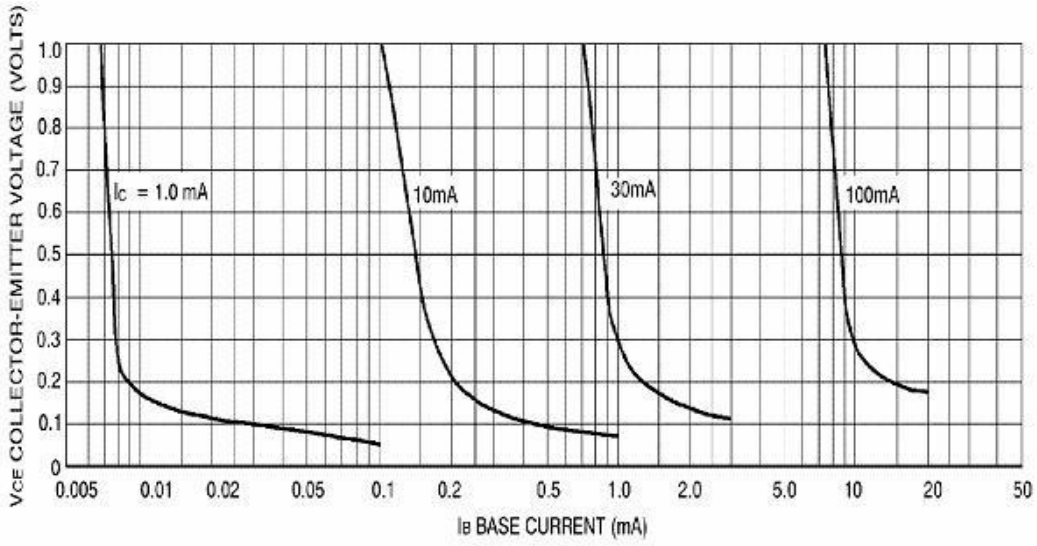
## ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=100μA, $I_E$=0 | 180 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$* | $I_C$= 1mA, $I_B$=0 | 160 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$= 10μA, $I_C$=0 | 6 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$= 120V, $I_E$=0 | | | 50 | nA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$= 4V, $I_C$=0 | | | 50 | nA |
| DC current gain | $h_{FE1}$* | $V_{CE}$=5V, $I_C$=1mA | 80 | | | |
| | $h_{FE2}$* | $V_{CE}$=5V, $I_C$ =10mA | 100 | | 300 | |
| | $h_{FE3}$* | $V_{CE}$=5V, $I_C$=50mA | 50 | | | |
| Collector-emitter saturation voltage | $V_{CEsat}$* | $I_C$=10mA, $I_B$=1mA | | | 0.15 | V |
| | | $I_C$=50mA, $I_B$=5mA | | | 0.2 | |
| Base-emitter saturation voltage | $V_{BEsat}$* | $I_C$=10mA, $I_B$= 1mA | | | 1 | V |
| | | $I_C$=50mA, $I_B$= 5mA | | | 1 | |
| Transition frequency | $f_T$ | $V_{CE}$=10V, $I_C$=10mA, f=100MHz | 100 | | 300 | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=10V, $I_E$=0, f=1MHz | | | 6 | pF |
| Input capacitance | $C_{ib}$ | $V_{BE}$=0.5V, $I_C$=0, f=1MHz | | | 20 | pF |
| Noise figure | NF | $V_{CE}$=5V, $I_c$=0.25mA, f=10Hz to 15.7KHz, Rs=1kΩ | | | 8 | dB |

## Typical Characteristics




Collector Saturation Region