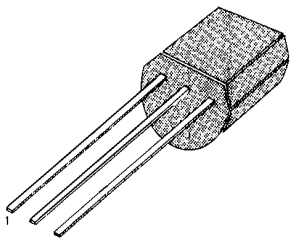
# 2N5088/5089 NPN EPITAXIAL SILICON TRANSISTOR

## AMPLIFIER TRANSISTOR

- Collector-Emitter Voltage: $V_{CEO}$= 2N5088: 30V
  2N5089: 25V
- Collector Dissipation: $P_C$ (max)=625mW

TO-92



1.Emitter 2. Base 3. Collector

## ABSOLUTE MAXIMUM RATINGS ($T_A$=25℃)

| Characteristic | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Collector-Base Voltage | :2N5088 | $V_{CBO}$ | | |
| | 2N5089 | | 30 | V |
| Collector-Emitter Voltage | :2N5088 | $V_{CEO}$ | 30 | V |
| | 2N5089 | | 25 | V |
| Emitter-Base Voltage | | $V_{EBO}$ | 4.5 | V |
| Collector Current | | $I_C$ | 50 | mA |
| Collector Dissipation | | $P_C$ | 625 | mW |
| Junction Temperature | | $T_J$ | 150 | ℃ |
| Storage Temperature | | $T_{STG}$ | -55 ~ 150 | ℃ |

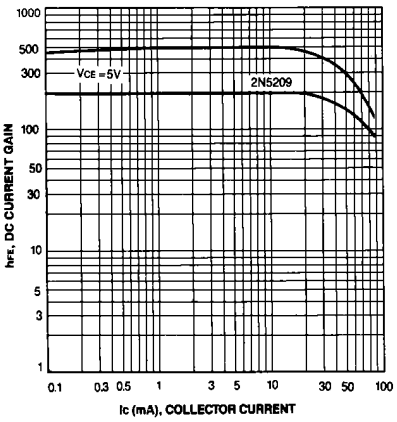
## ELECTRICAL CHARACTERISTICS ($T_A$=25℃)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=100㎂, $I_E$=0 | | | | |
| :2N5088 | | | 35 | | | V |
| :2N5089 | | | 30 | | | V |
| ★Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=1mA, $I_B$=0 | | | | |
| :2N5088 | | | 30 | | | V |
| :2N5089 | | | 25 | | | V |
| Collector Cut-off Current | $I_{CBO}$ | | | | | |
| :2N4403 | | $V_{CB}$=20V, $I_E$=0 | | | 50 | nA |
| :2N4402 | | $V_{CB}$=15V, $I_E$=0 | | | 5 | nA |
| Base Cut-off Current | $I_{EBO}$ | $V_{BE}$=3V, $I_C$=0 | | | 50 | nA |
| | | $V_{BE}$=4.5V, $I_C$=0 | | | 100 | nA |
| ★DC Current Gain | $h_{FE}$ | | | | | |
| :2N5088 | | $V_{CE}$=5V, $I_C$=100㎂ | 300 | | 900 | |
| :2N5089 | | | 400 | | 1,200 | |
| :2N5088 | | $V_{CE}$=5V, $I_C$=1mA | 350 | | | |
| :2N5089 | | | 450 | | | |
| :2N5088 | | ★$V_{CE}$=5V, $I_C$=10mA | 300 | | | |
| :2N5089 | | | 400 | | | |
| Collector-Emitter Saturation Voltage | $V_{CE}$ (sat) | $I_C$=10mA, $I_B$=1mA | | | 0.5 | V |
| ★Base-Emitter Saturation Voltage | $V_{BE}$ (on) | $I_C$=10mA, $V_{CE}$=5V | | | 0.8 | V |
| Current-Base Capacitance | $C_{OB}$ | $V_{CB}$=5V, $I_E$=0 f=100MHz | | | 4 | pF |
| Current Gain Bandwidth Product | $f_T$ | $V_{CE}$=5V, $I_C$=500㎂ | 50 | | | MHz |
| Noise Figure | $N_F$ | $V_{CE}$=5V, $I_C$=100㎂ $R_S$=10㏀ f=10Hz to 15.7KHz | | | | |
| :2N5088 | | | | | 3 | dB |
| :2N5089 | | | | | 2 | dB |

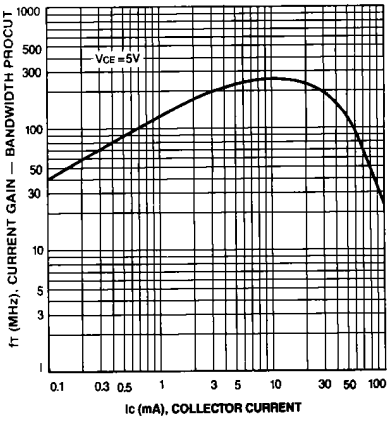
★Pulse Test: Pulse Width ≤ 300㎲, Duty Cycle ≤ 2%

SAMSUNG ELECTRONICS

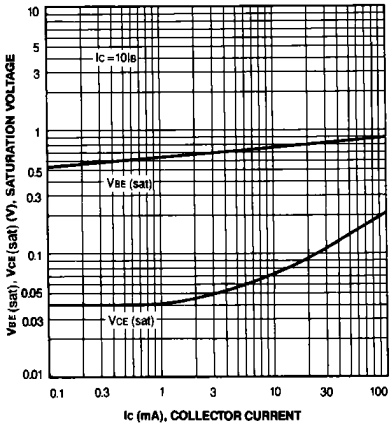
DC CURRENT GAIN



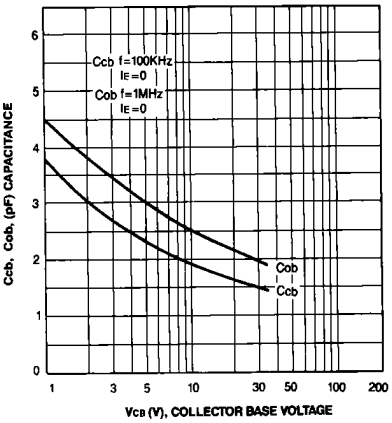

CURRENT GAIN BANDWIDTH PRODUCT




BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE




OUTPUT CAPACITANCE
COLLECTOR-BASE CAPACITANCE




NOISE FIGURE