NEC

# SILICON TRANSISTOR
# 2SC1623

## AUDIO FREQUENCY GENERAL PURPOSE AMPLIFIER
## NPN SILICON EPITAXIAL TRANSISTOR
## MINI MOLD

### FEATURES

- High DC Current Gain: $h_{FE}$ = 200 TYP.
  ($V_{CE}$ = 6.0 V, $I_C$ = 1.0 mA)
- High Voltage: $V_{CEO}$ = 50 V

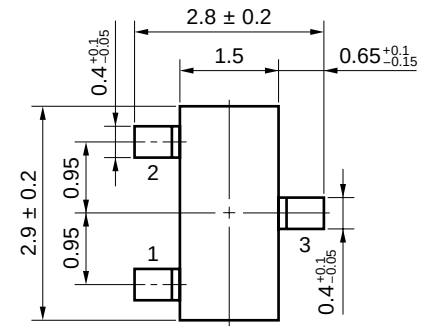
### ABSOLUTE MAXIMUM RATINGS

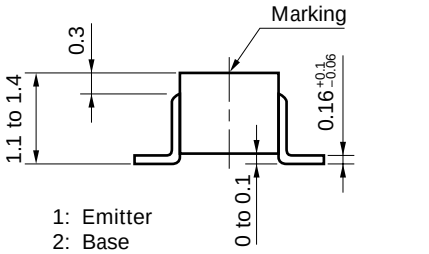
Maximum Voltages and Current (TA = 25 ˚C)

| | | | |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | 60 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | 50 | V |
| Emitter to Base Voltage | $V_{EBO}$ | 5.0 | V |
| Collector Current (DC) | $I_C$ | 100 | mA |
| Maximum Power Dissipation | | | |
| Total Power Dissipation | | | |
| at 25 ˚C Ambient Temperature | $P_T$ | 200 | mW |
| Maximum Temperatures | | | |
| Junction Temperature | $T_j$ | 150 | ˚C |
| Storage Temperature Range | $T_{stg}$ | –55 to +150 | ˚C |

### PACKAGE DIMENSIONS

in millimeters




1: Emitter
2: Base
3: Collector

### ELECTRICAL CHARACTERISTICS ($T_A$ = 25 ˚C)

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Collector Cutoff Current | $I_{CBO}$ | | | 0.1 | μA | $V_{CB}$ = 60 V, $I_E$ = 0 |
| Emitter Cutoff Current | $I_{EBO}$ | | | 0.1 | μA | $V_{EB}$ = 5.0 V, $I_C$ = 0 |
| DC Current Gain | $h_{FE}$ | 90 | 200 | 600 | | $V_{CE}$ = 6.0 V, $I_C$ = 1.0 mA* |
| Collector Saturation Voltage | $V_{CE(sat)}$ | | 0.15 | 0.3 | V | $I_C$ = 100 mA, $I_B$ = 10 mA* |
| Base to Saturation Voltage | $V_{BE(sat)}$ | | 0.86 | 1.0 | V | $I_C$ = 100 mA, $I_B$ = 10 mA* |
| Base Emitter Voltage | $V_{BE}$ | 0.55 | 0.62 | 0.65 | V | $V_{CE}$ = 6.0 V, $I_C$ = 1.0 mA* |
| Gain Bandwidth Product | $f_T$ | | 250 | | MHz | $V_{CE}$ = 6.0 V, $I_E$ = –10 mA |
| Output Capacitance | $C_{ob}$ | | 3.0 | | pF | $V_{CB}$ = 6.0 V, $I_E$ = 0, f = 1.0 MHz |

* Pulsed: PW ≤ 350 μs, Duty Cycle ≤ 2 %

### $h_{FE}$ Classification

| Marking | L4 | L5 | L6 | L7 |
|---|---|---|---|---|
| $h_{FE}$ | 90 to 180 | 135 to 270 | 200 to 400 | 300 to 600 |

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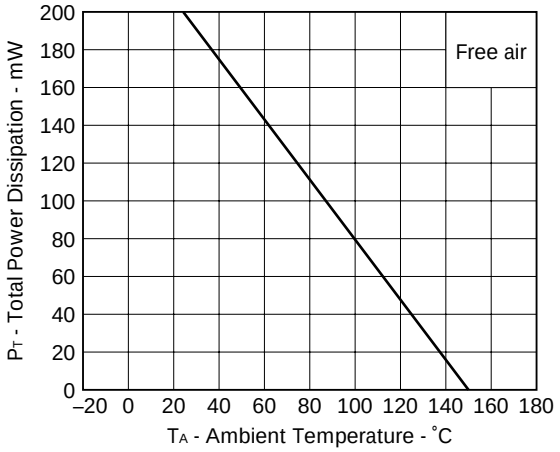
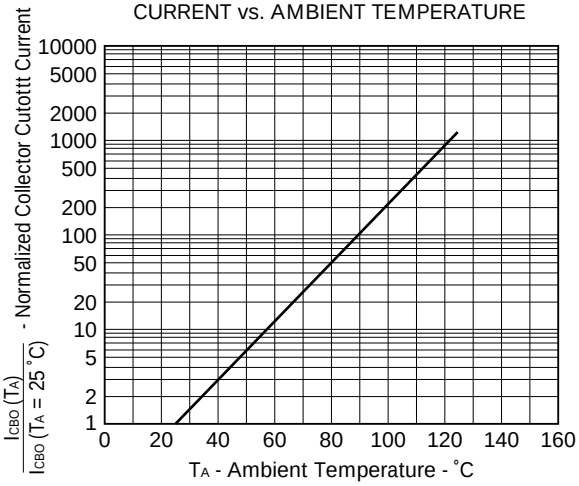
## TYPICAL CHARACTERISTICS ($T_A$ = 25 °C)

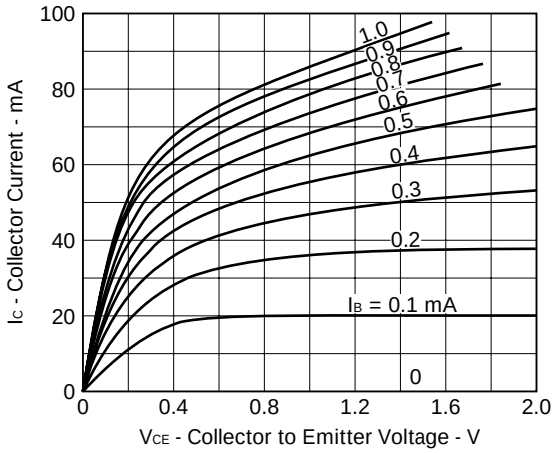
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



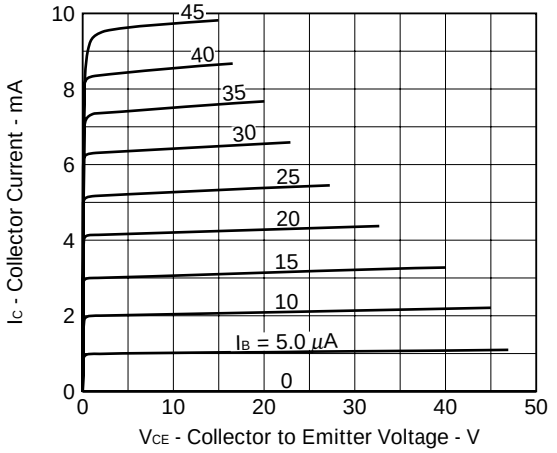

NORMALIZED COLLECTOR CUTOFF
CURRENT vs. AMBIENT TEMPERATURE



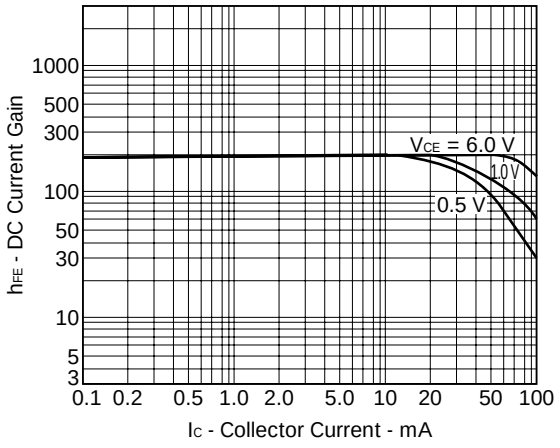

COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



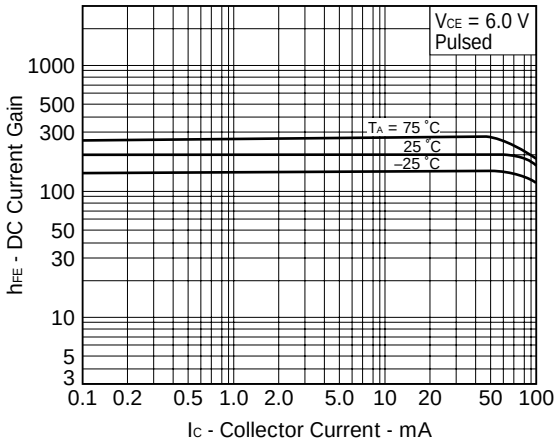

COLLECTOR CURRENT vs.
COLLECTOR TO EMITTER VOLTAGE



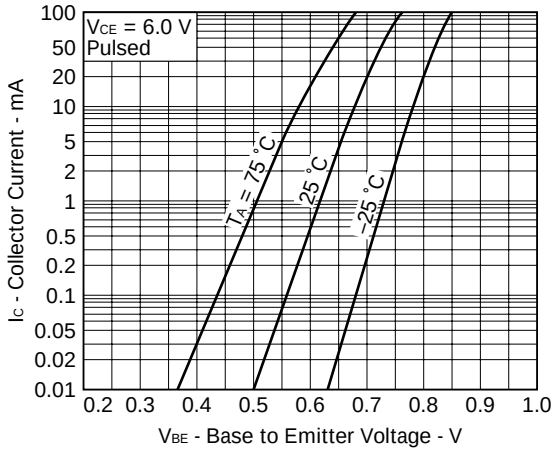

DC CURRENT GAIN vs.
COLLECTOR CURRENT



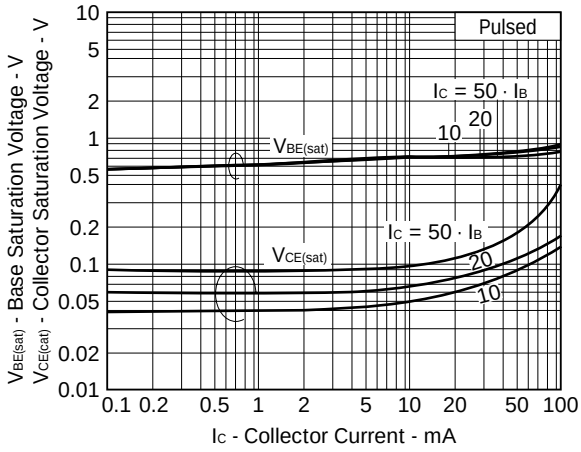

DC CURRENT GAIN vs.
COLLECTOR CURRENT



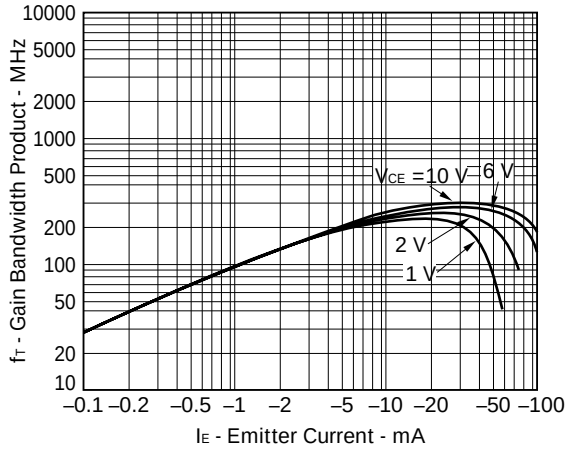
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



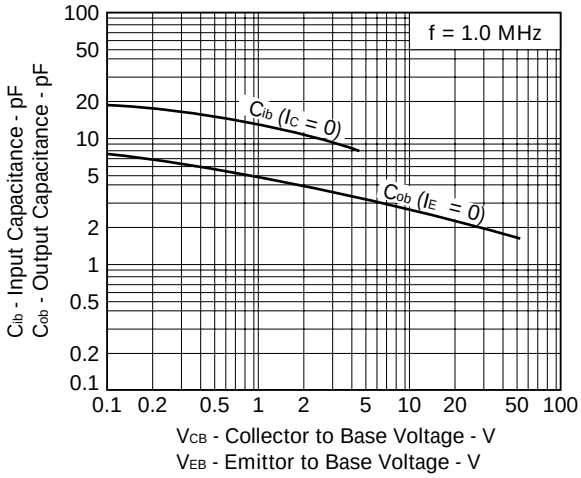

COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



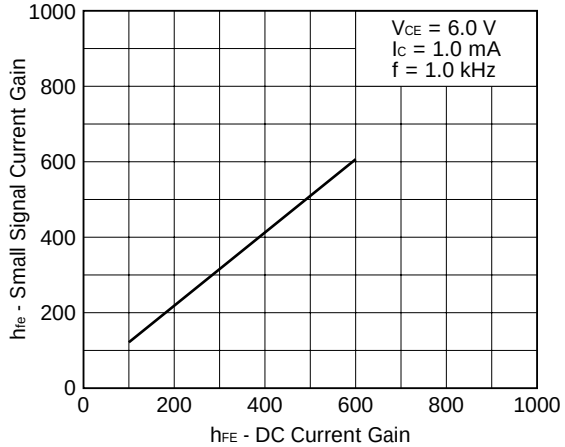

GAIN BANDWIDTH PRODUCT vs.
EMITTER CURRENT



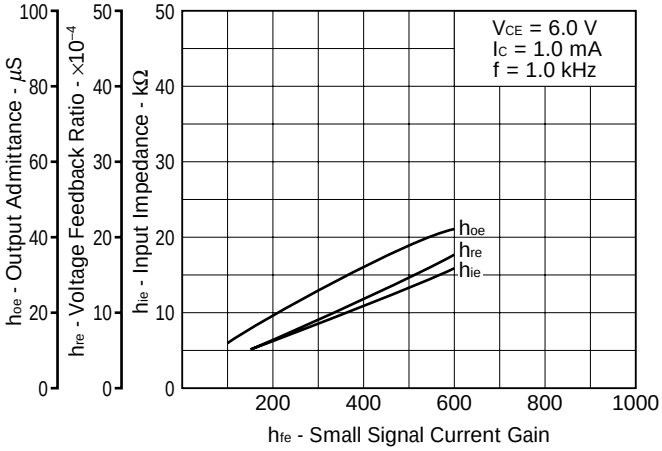

INPUT AND OUTPUT CAPACITANCE
vs. REVERSE VOLTAGE



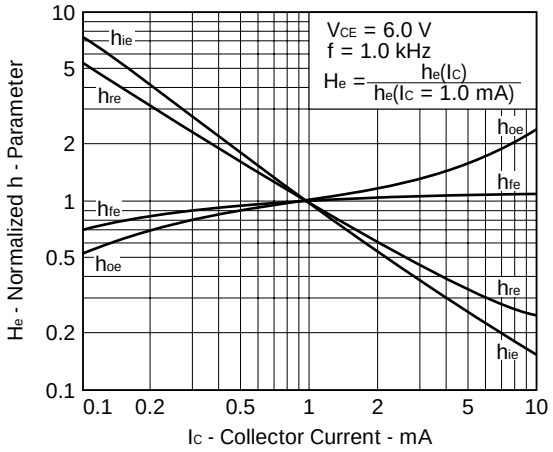

SMALL SIGNAL CURRENT GAIN vs.
DC CURRENT GAIN



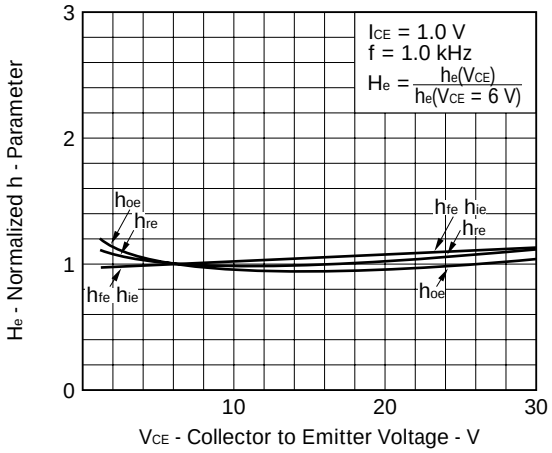

INPUT IMPEDANCE VOLTAGE FEEDBACK
RATIO AND OUTPUT ADMITTANCE vs.
SMALL SIGNAL CURRENT GAIN



NORMALIZED h-PARAMETER vs.
COLLECTOR CURRENT




NORMALIZED h-PARAMETER vs.
COLLECTOR TO EMITTER VOLTAGE



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