

2SC2240

Low Noise Audio Amplifier Applications

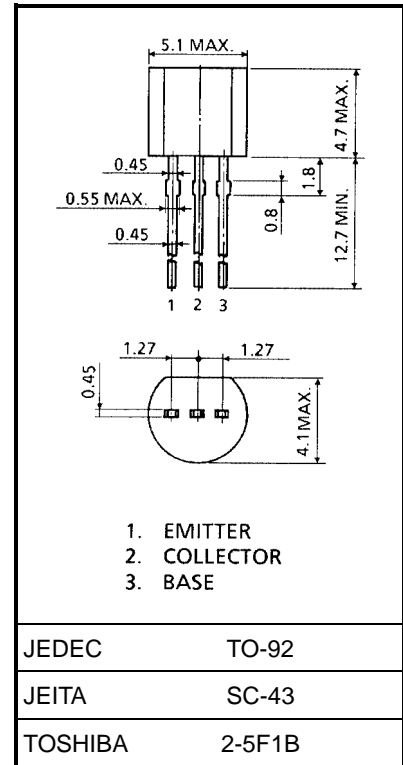
The 2SC2240 is a transistor for low frequency and low noise applications. This device is designed to lower noise figure in the region of low signal source impedance, and to lower the pulse noise. This is recommended for the first stages of Equalizer amplifiers.

- Low noise: $NF = 4\text{dB (typ.)}$ $R_G = 100\ \Omega$, $V_{CE} = 6\ \text{V}$, $I_C = 100\ \mu\text{A}$,
 $f = 1\ \text{kHz}$
 $NF = 0.5\text{dB (typ.)}$ $R_G = 1\ \text{k}\Omega$, $V_{CE} = 6\ \text{V}$, $I_C = 100\ \mu\text{A}$,
 $f = 1\ \text{kHz}$
- Low pulse noise: Low $1/f$ noise
- High DC current gain: $h_{FE} = 200\sim 700$
- High breakdown voltage: $V_{CEO} = 120\ \text{V}$

Maximum Ratings (Ta = 25°C)

| Characteristics | Symbol | Rating | Unit |
|-----------------------------|-----------|---------|------|
| Collector-base voltage | V_{CBO} | 120 | V |
| Collector-emitter voltage | V_{CEO} | 120 | V |
| Emitter-base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 100 | mA |
| Base current | I_B | 20 | mA |
| Collector power dissipation | P_C | 300 | mW |
| Junction temperature | T_j | 125 | °C |
| Storage temperature range | T_{stg} | -55~125 | °C |

Unit: mm

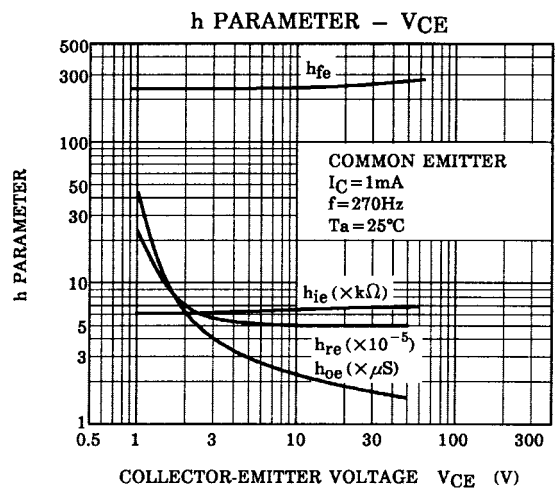
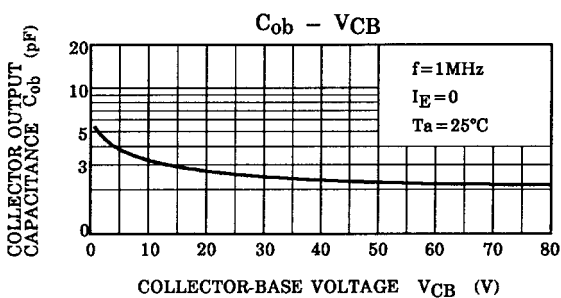
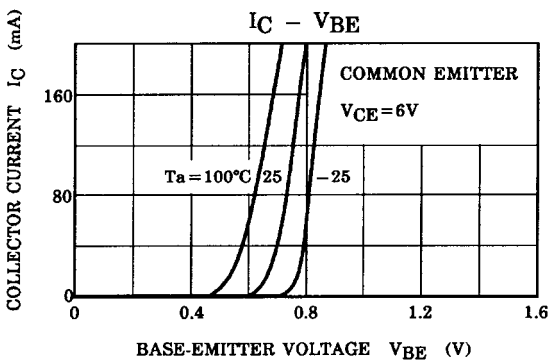
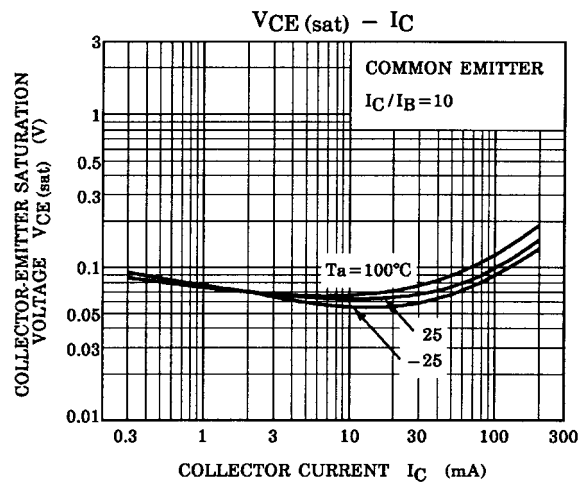
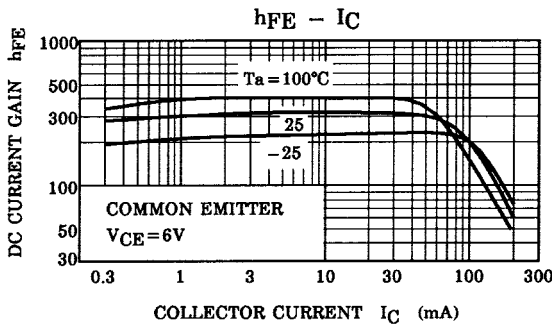
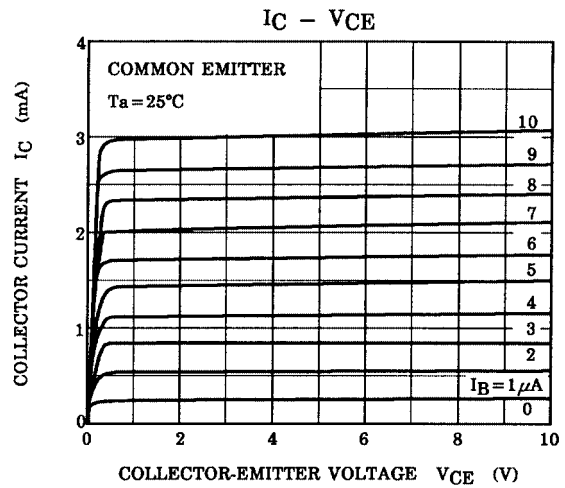
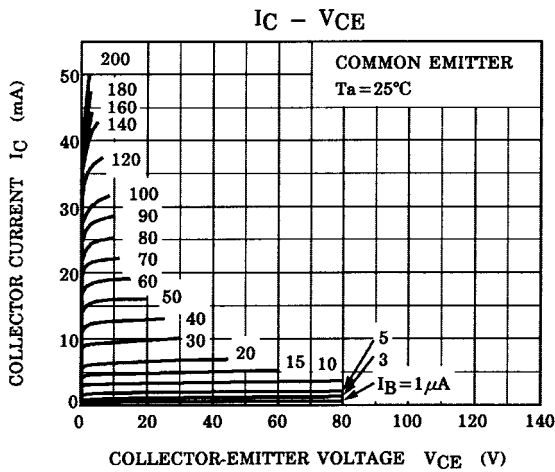


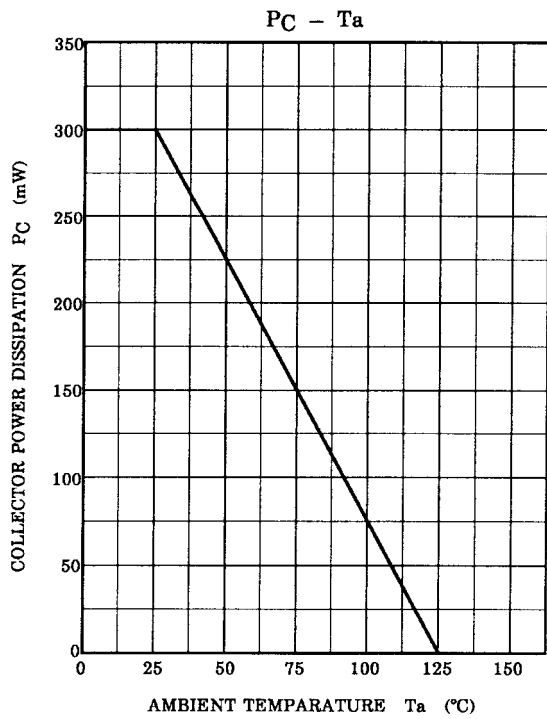
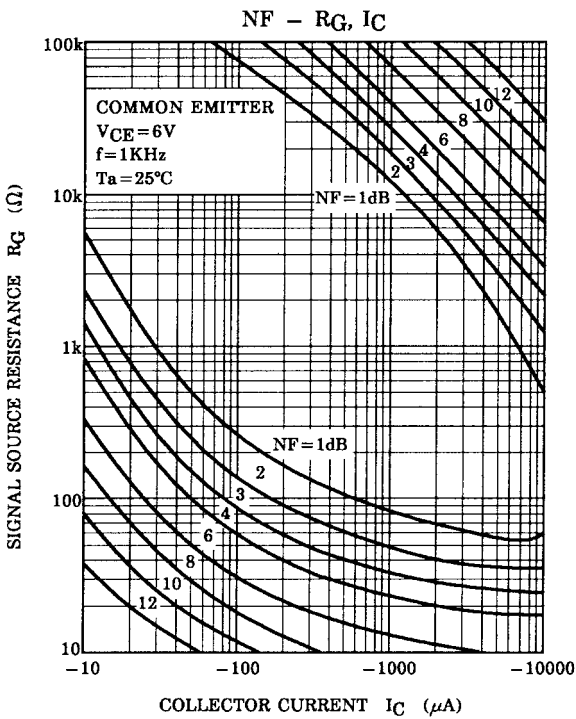
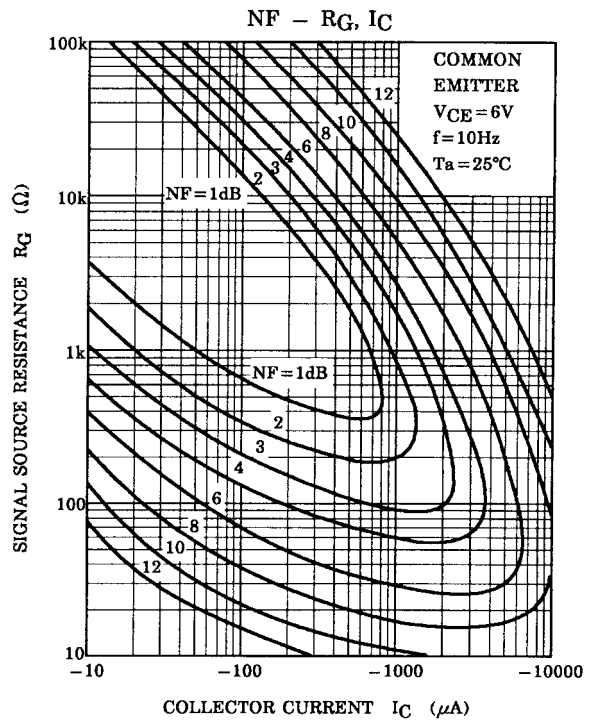
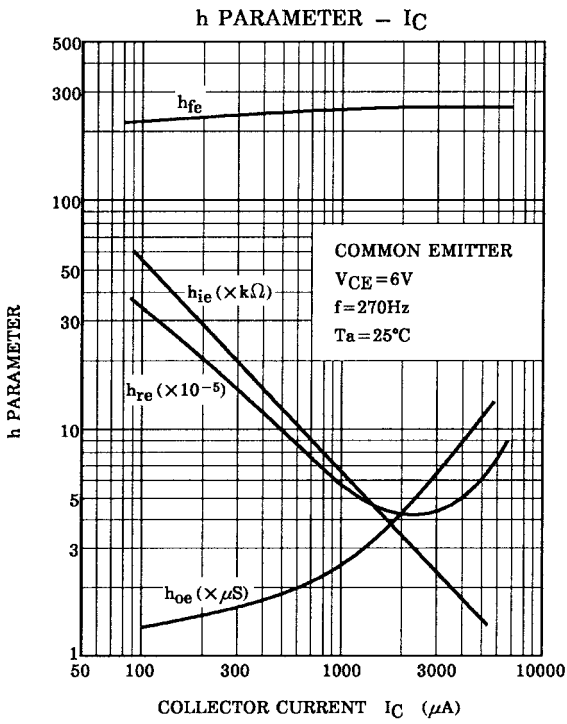
Weight: 0.21 g (typ.)

Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|--------------------|---|-----|------|-----|---------------|
| Collector cut-off current | I_{CBO} | $V_{CB} = 120\text{ V}, I_E = 0$ | — | — | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 5\text{ V}, I_C = 0$ | — | — | 0.1 | μA |
| Collector-emitter breakdown voltage | $V_{(BR) CEO}$ | $I_C = 1\text{ mA}, I_B = 0$ | 120 | — | — | V |
| DC current gain | h_{FE} (Note) | $V_{CE} = 6\text{ V}, I_C = 2\text{ mA}$ | 200 | — | 700 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 10\text{ mA}, I_B = 1\text{ mA}$ | — | — | 0.3 | V |
| Base-emitter voltage | V_{BE} | $V_{CE} = 6\text{ V}, I_C = 2\text{ mA}$ | — | 0.65 | — | V |
| Transition frequency | f_T | $V_{CE} = 6\text{ V}, I_C = 1\text{ mA}$ | — | 100 | — | MHz |
| Collector output capacitance | C_{ob} | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | — | 3.0 | — | pF |
| Noise figure | NF | $V_{CE} = 6\text{ V}, I_C = 0.1\text{ mA}, f = 10\text{ Hz}, R_G = 10\text{ k}\Omega$ | — | — | 6 | dB |
| | | $V_{CE} = 6\text{ V}, I_C = 0.1\text{ mA}, f = 1\text{ kHz}, R_G = 10\text{ k}\Omega$ | — | — | 2 | |
| | | $V_{CE} = 6\text{ V}, I_C = 0.1\text{ mA}, f = 1\text{ kHz}, R_G = 100\ \Omega$ | — | 4 | — | |

Note: h_{FE} classification GR: 200~400, BL: 350~700





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