



TO-92 Plastic-Encapsulate Transistors

2N4402 TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM}: 0.625 \text{ W (Tamb=25}^\circ\text{C)}$$

Collector current

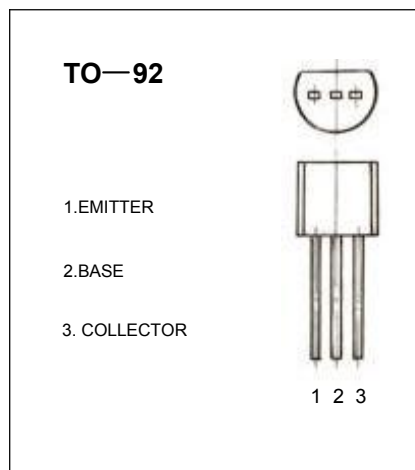
$$I_{CM}: 0.6 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO}: 40 \text{ V}$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -55^\circ\text{C to } +150^\circ\text{C}$$



ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|------|-----|------|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=0.1\text{mA}, I_E=0$ | 40 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, I_B=0$ | 40 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=0.1\text{mA}, I_C=0$ | 6 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=40\text{V}, I_E=0$ | | | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=4\text{V}, I_C=0$ | | | 0.1 | μA |
| DC current gain | $H_{FE(1)}$ | $V_{CE}=1\text{V}, I_C=1\text{mA}$ | 30 | | | |
| DC current gain | $H_{FE(2)}$ | $V_{CE}=1\text{V}, I_C=10\text{mA}$ | 50 | | | |
| DC current gain | $H_{FE(3)}$ | $V_{CE}=2\text{V}, I_C=150\text{mA}$ | 50 | | 150 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=150\text{mA}, I_B=15\text{mA}$ | | | 0.4 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=150\text{mA}, I_B=15\text{mA}$ | 0.75 | | 0.95 | V |
| Transition frequency | f_T | $V_{CE}=10\text{V}, I_C=20\text{mA}$ $f=100\text{MHz}$ | 200 | | | MHz |

CLASSIFICATION OF HFE

| | | | |
|--------------|-------|--------|---------|
| Rank | 1 | 2 | 3 |
| Range | 40-80 | 80-100 | 100-150 |