



TO-220 Plastic-Encapsulated Transistors

2SD2137 TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM}: 2 \text{ W (Tamb=25}^\circ\text{C)}$$

Collector current

$$I_{CM}: 3 \text{ A}$$

Collector-base voltage

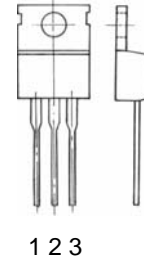
$$V_{(BR)CBO}: 60 \text{ V}$$

Operating and storage junction temperature range

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

TO-220

1. BASE
2. COLLECTOR
3. EMITTER



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

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|---|-----|-----|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=1\text{mA}, I_E=0$ | 60 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=30\text{mA}, I_B=0$ | 60 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=1\text{mA}, I_C=0$ | 6 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=60\text{V}, I_E=0$ | | | 100 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=6\text{V}, I_C=0$ | | | 100 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}=4\text{V}, I_C=1\text{A}$ | 70 | | 320 | |
| | $h_{FE(2)}$ | $V_{CE}=4\text{V}, I_C=3\text{A}$ | 10 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=3\text{A}, I_B=375\text{mA}$ | | | 1.2 | V |
| Base-emitter voltage | V_{BE} | $V_{CE}=4\text{V}, I_C=3\text{A}$ | | | 1.8 | V |
| Transition frequency | f_T | $V_{CE}=5\text{V}, I_C=0.2\text{A}, f=10\text{MHz}$ | | 30 | | MHz |
| Switch time | Turn-on time | t_{on} | | 0.3 | | μs |
| | Storage time | t_{stg} | $V_{CC}=50\text{V}, I_C=1\text{A}, I_{B1}=0.1\text{A}, I_{B2}=-0.1\text{A}$ | 2.5 | | μs |
| | Fall time | t_f | | 0.2 | | μs |

CLASSIFICATION OF $h_{FE(1)}$

| Rank | Q | P | O |
|-------|--------|---------|---------|
| Range | 70-150 | 120-250 | 160-320 |