



TO-92 Plastic-Encapsulate Transistors

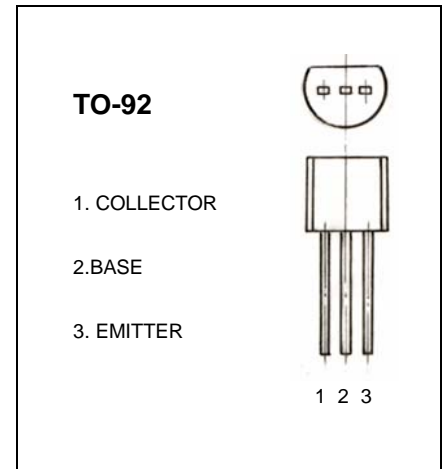
BC337/BC338 TRANSISTOR (NPN)

FEATURES

Power dissipation

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Units |
|-----------|--|---------|--------------------|
| V_{CBO} | Collector-Base Voltage BC337 | 50 | V |
| | BC338 | 30 | |
| V_{CEO} | Collector-Emitter Voltage BC337 | 45 | V |
| | BC338 | 25 | |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current -Continuous | 800 | mA |
| P_D | Total Device Dissipation | 625 | mW |
| T_j | Junction Temperature | 150 | $^{\circ}\text{C}$ |
| T_{stg} | Storage Temperature | -55-150 | $^{\circ}\text{C}$ |



ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---------------|--|-----|-----|-----|---------------|
| Collector-base breakdown voltage BC337 BC338 | V_{CBO} | $I_C=100\mu\text{A}, I_E=0$ | 50 | | | V |
| | | | 30 | | | V |
| Collector-emitter breakdown voltage BC337 BC338 | V_{CEO} | $I_C=10\text{mA}, I_B=0$ | 45 | | | V |
| | | | 25 | | | V |
| Emitter-base breakdown voltage | V_{EBO} | $I_E=10\mu\text{A}, I_C=0$ | 5 | | | V |
| Collector cut-off current BC337 BC338 | I_{CBO} | $V_{CB}=45\text{V}, I_E=0$ $V_{CB}=25\text{V}, I_E=0$ | | | 0.1 | μA |
| | | | | | 0.1 | |
| Collector cut-off current BC337 BC338 | I_{CEO} | $V_{CE}=40\text{V}, I_B=0$ $V_{CE}=20\text{V}, I_B=0$ | | | 0.2 | μA |
| | | | | | 0.2 | |
| Emitter cut-off current BC337/BC338 | I_{EBO} | $V_{EB}=4\text{V}, I_C=0$ | | | 0.1 | μA |
| DC current gain BC337-16/BC338-16 BC337-25/BC338-25 BC337-40/BC338-40 | $h_{FE(1)}$ | $V_{CE}=1\text{V}, I_C=100\text{mA}$ | 100 | | 630 | |
| | | | 100 | | 250 | |
| | | | 160 | | 400 | |
| | | | 250 | | 630 | |
| DC current gain | $h_{FE(2)}$ | $V_{CE}=1\text{V}, I_C=300\text{mA}$ | 60 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | | | 0.7 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | | | 1.2 | V |
| Base-emitter voltage | V_{BE} | $V_{CE}=1\text{V}, I_C=300\text{mA}$ | | | 1.2 | V |
| Transition frequency | f_T | $V_{CE}=5\text{V}, I_C=10\text{mA}$ $f=100\text{MHz}$ | 210 | | | MHz |
| Collector Output Capacitance | C_{ob} | $V_{CB}=10\text{V}, I_E=0$ $f=1\text{MHz}$ | | 15 | | pF |

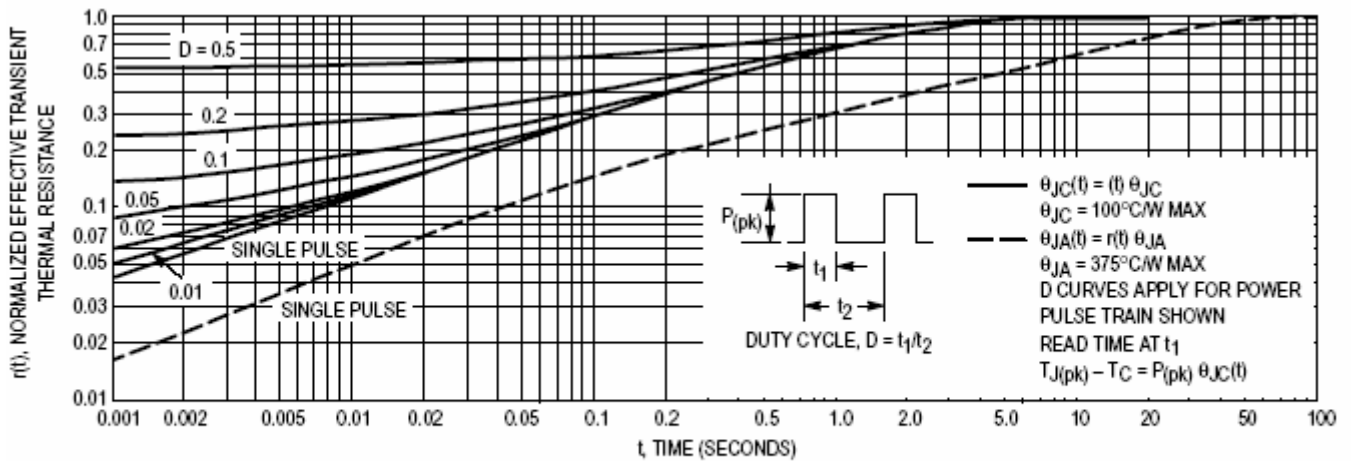


Figure 1. Thermal Response

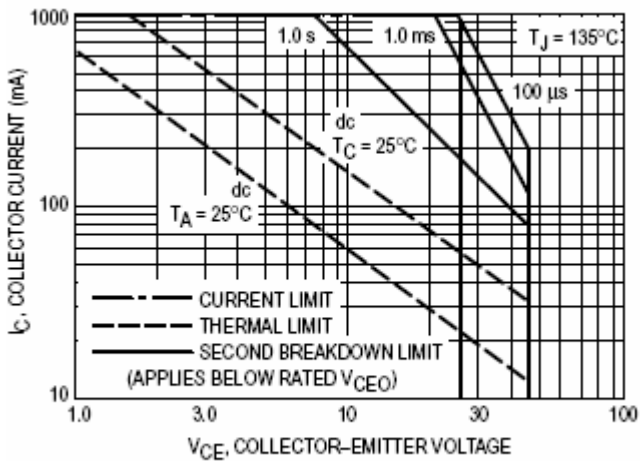


Figure 2. Active Region — Safe Operating Area

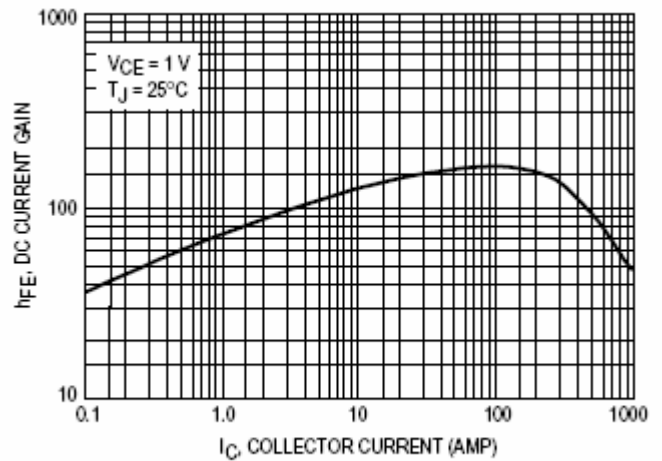


Figure 3. DC Current Gain

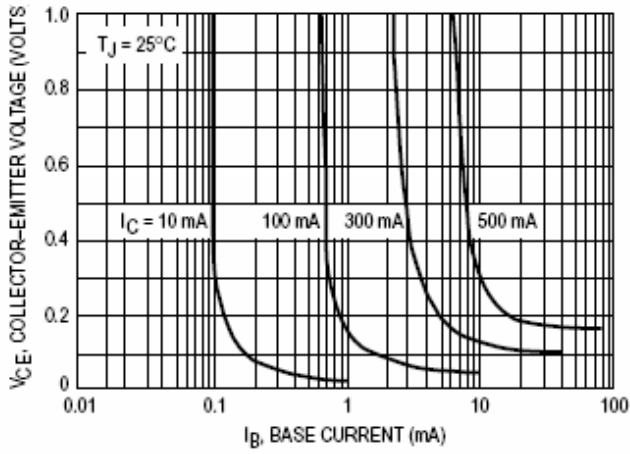


Figure 4. Saturation Region

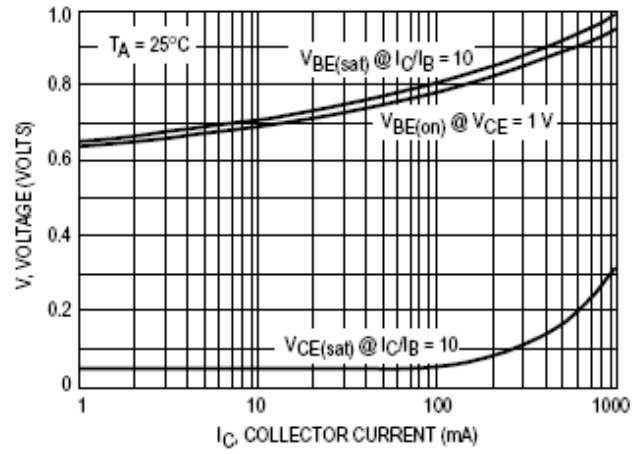


Figure 5. "On" Voltages

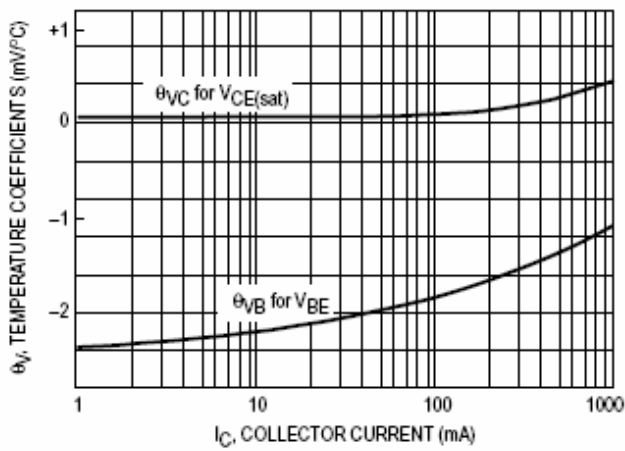


Figure 6. Temperature Coefficients

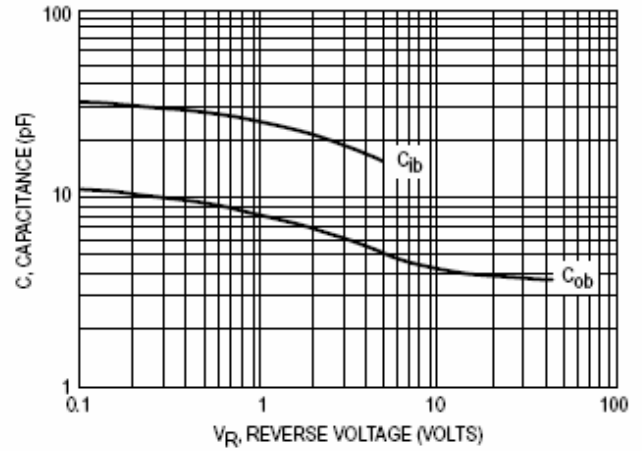


Figure 7. Capacitances