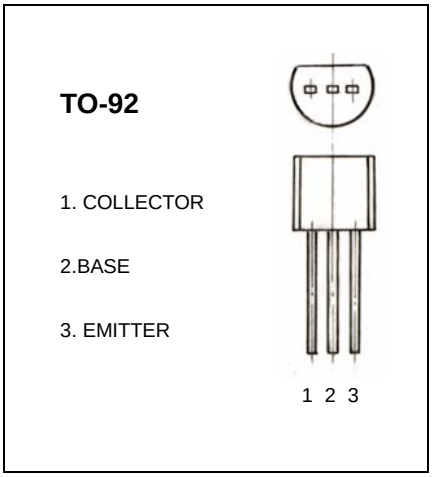
- TDD- DAYA SEMICONDUCTOR

RoHS COMPLIANCE

# TO-92 Plastic-Encapsulate Transistors

## BC337/BC338 TRANSISTOR (NPN)




## FEATURES

**Power dissipation**

### MAXIMUM RATINGS ($T_A$=25℃ 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 | ℃ |
| $T_{stg}$ | Storage Temperature | | -55-150 | ℃ |

### ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

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

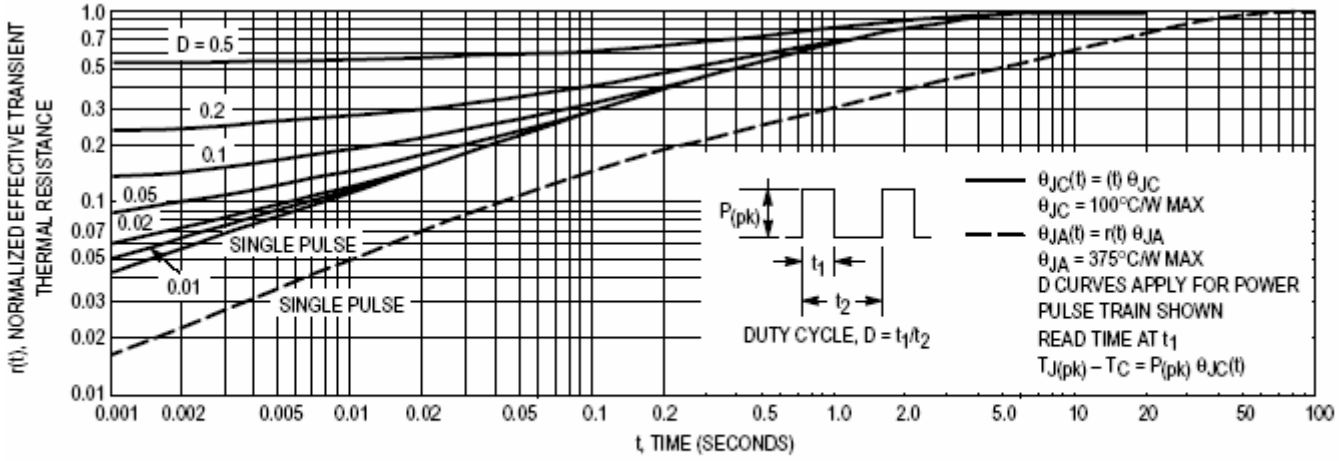



**Figure 1. Thermal Response**

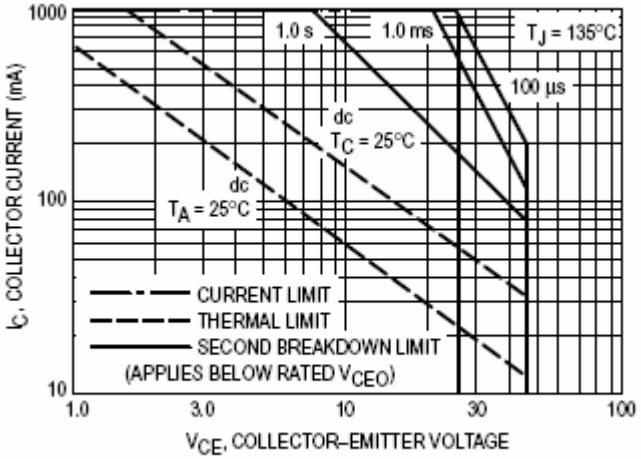



**Figure 2. Active Region — Safe Operating Area**

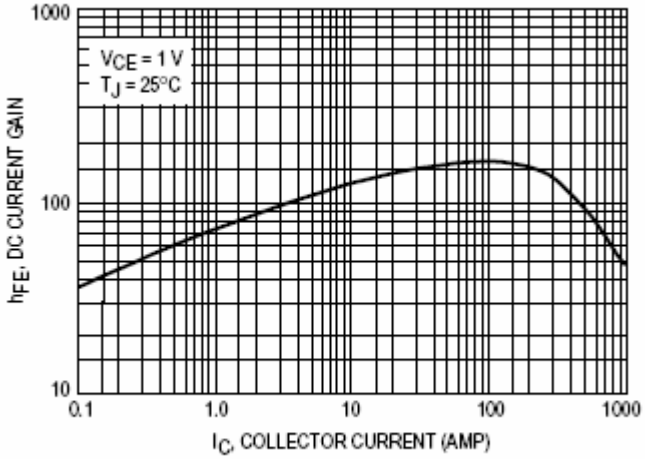



**Figure 3. DC Current Gain**

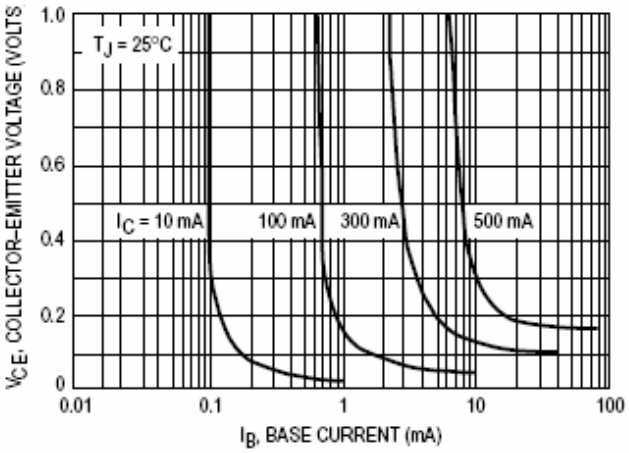



Figure 4. Saturation Region

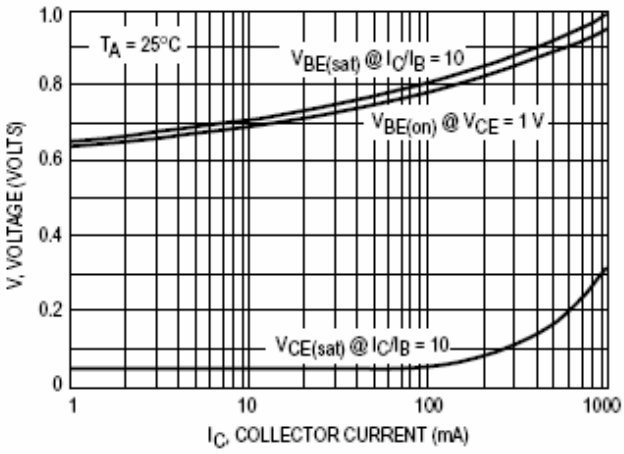



Figure 5. "On" Voltages

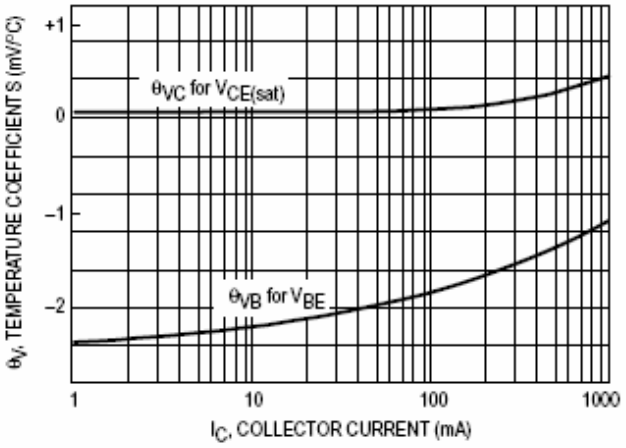



Figure 6. Temperature Coefficients

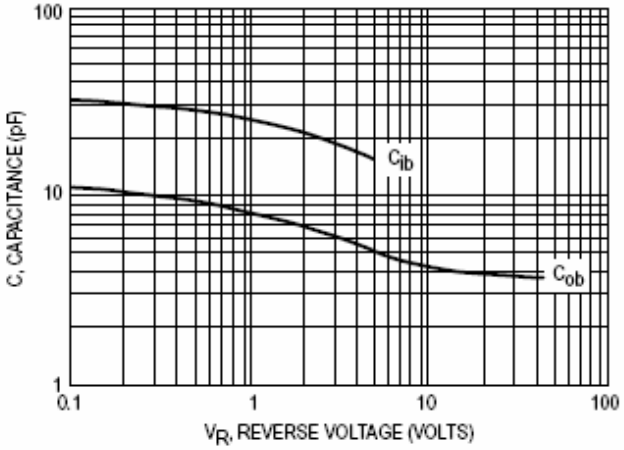



Figure 7. Capacitances