



TO-251 Plastic-Encapsulate Transistors

C 2611

TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM} : 1 \quad W \quad (T_{amb}=25 \quad)$$

Collector current

$$I_{CM} : 0.2 \quad A$$

Collector-base voltage

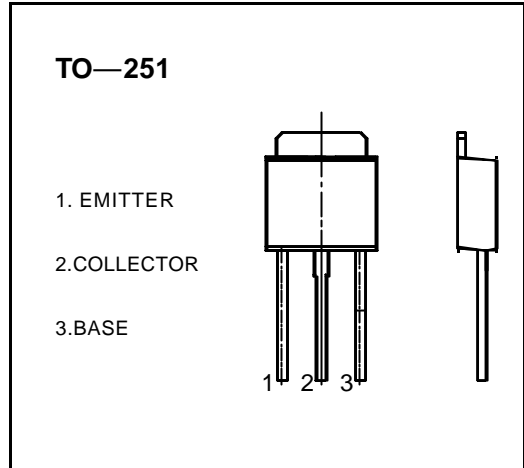
$$V_{(BR)CBO} : 600 \quad V$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -55 \quad \text{to} \quad +150$$

ELECTRICAL CHARACTERISTICS (T_{amb}=25

unless otherwise specified)



| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|-----|---------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C = 100 \mu A, I_E = 0$ | 600 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C = 1 \text{ mA}, I_B = 0$ | 400 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E = 100 \mu A, I_C = 0$ | 7 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB} = 600 \text{ V}, I_E = 0$ | | | 100 | μA |
| Collector cut-off current | I_{CEO} | $V_{CE} = 400 \text{ V}, I_B = 0$ | | | 200 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 7 \text{ V}, I_C = 0$ | | | 100 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE} = 20 \text{ V}, I_C = 20 \text{ mA}$ | 10 | | 40 | |
| | $h_{FE(2)}$ | $V_{CE} = 10 \text{ V}, I_C = 0.25 \text{ mA}$ | 5 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 50 \text{ mA}, I_B = 10 \text{ mA}$ | | | 0.5 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 50 \text{ mA}, I_B = 10 \text{ mA}$ | | | 1.2 | V |
| Transition frequency | f_T | $V_{CE} = 20 \text{ V}, I_C = 20 \text{ mA}$ $f = 1 \text{ MHz}$ | 8 | | | MHz |
| Fall time | t_f | $I_C = 50 \text{ mA},$ $I_{B1} = -I_{B2} = 5 \text{ mA},$ | | | 0.3 | μs |
| Storage time | t_s | $V_{CC} = 45 \text{ V}$ | | | 1.5 | μs |

CLASSIFICATION OF $h_{FE(1)}$

| Rank | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| Range | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 |

Typical Characteristics

C2611

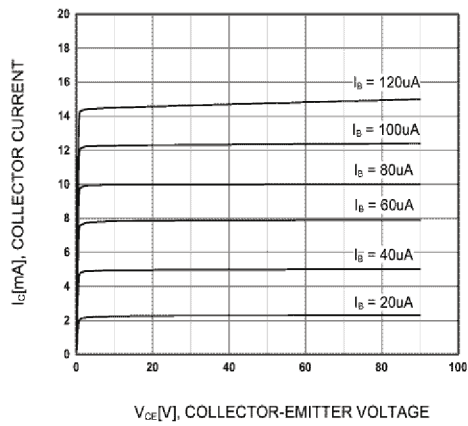


Figure 1. Static Characteristic

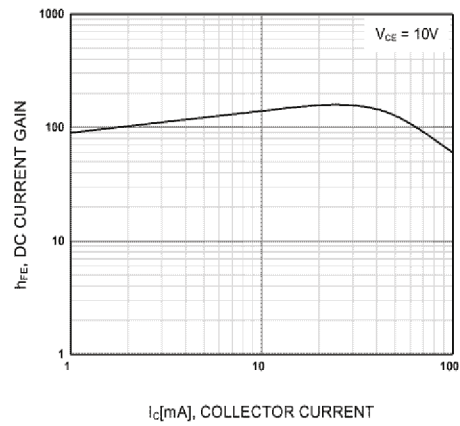


Figure 2. DC current Gain

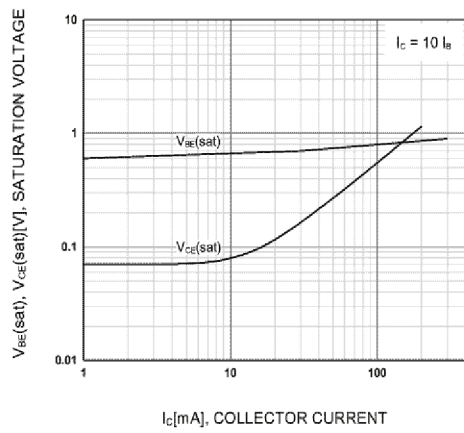


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

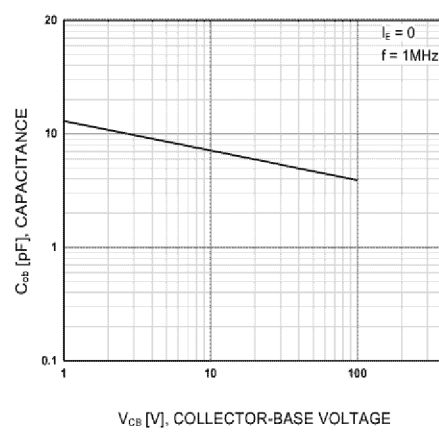
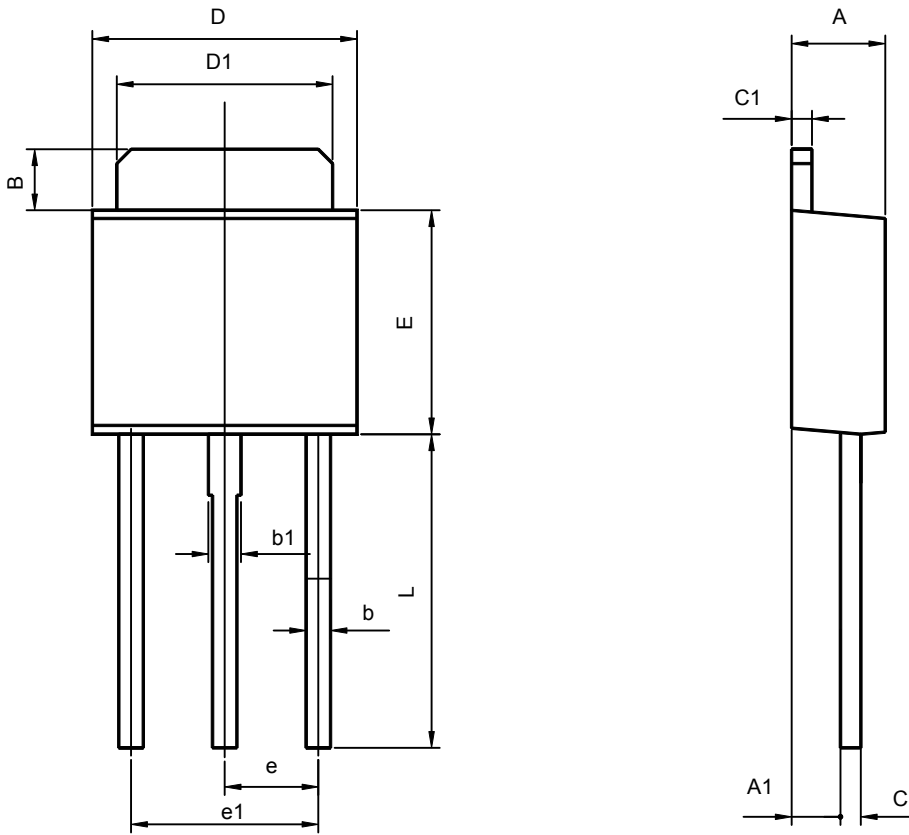


Figure 4. Collector Output Capacitance

TO-251 PACKAGE OUTLINE DIMENSIONS



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 2.200 | 2.400 | 0.087 | 0.094 |
| A1 | 1.020 | 1.270 | 0.040 | 0.050 |
| B | 1.350 | 1.650 | 0.053 | 0.065 |
| b | 0.500 | 0.700 | 0.020 | 0.028 |
| b1 | 0.700 | 0.900 | 0.028 | 0.035 |
| c | 0.430 | 0.580 | 0.017 | 0.023 |
| c1 | 0.430 | 0.580 | 0.017 | 0.023 |
| D | 6.350 | 6.650 | 0.250 | 0.262 |
| D1 | 5.200 | 5.400 | 0.205 | 0.213 |
| E | 5.400 | 5.700 | 0.213 | 0.224 |
| e | 2.300TYP | | 0.091TYP | |
| e1 | 4.500 | 4.700 | 0.177 | 0.185 |
| L | 7.500 | 7.900 | 0.295 | 0.311 |