

Pin Configuration:

- 1. Emitter
- 2. Base
- 3. Collector

Description:

General purpose NPN silicon planar epitaxial transistors, best suited for use in driver stages of audio amplifiers, low noise input stages of tape recorders. Hi-Fi amplifiers, signal processing circuits of television receivers.

Absolute Maximum Ratings

| Parameter | Symbol | Value | Units |
|---|----------------|--------------|----------------------|
| Collector-Emitter Voltage | V_{CEO} | 45 | V |
| Collector-Emitter Voltage | V_{CES} | 50 | |
| Emitter-Base Voltage | V_{EBO} | 6 | |
| Collector Current Continuous | I_C | 100 | mA |
| Power Dissipation at $T_a = 25^\circ\text{C}$ Derate Above 25°C | P_D | 350 | mW |
| Total Device Dissipation at $T_c = 25^\circ\text{C}$ Derate Above 25°C | | 2.8 | mW/ $^\circ\text{C}$ |
| Operating and Storage Junction Temperature Range | T_j, T_{stg} | -55 to + 150 | $^\circ\text{C}$ |

Thermal Resistance

| | | | |
|---------------------|---------------|-----|---------------------------|
| Junction to Ambient | $R_{th(j-a)}$ | 375 | $^\circ\text{C}/\text{W}$ |
| Junction to Case | $R_{th(j-c)}$ | 125 | |

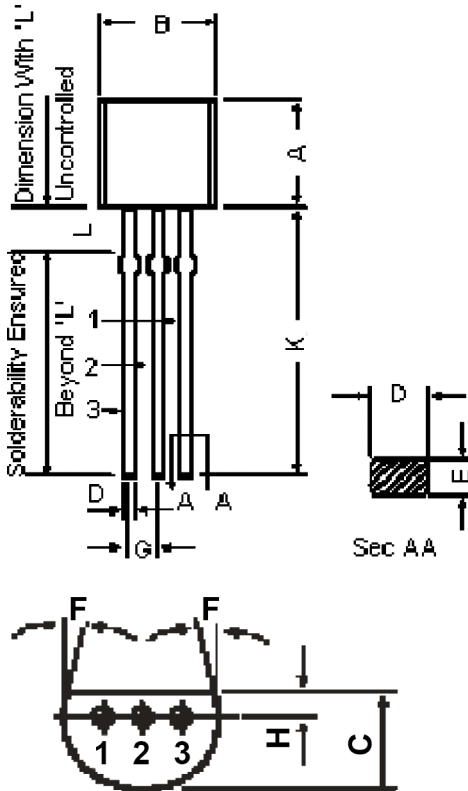
Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Units |
|--------------------------------------|---------------|--|------|---------------------|--------------|---------------------|
| Collector Emitter Voltage | V_{CEO} | $I_C = 2\text{mA}, I_B = 0$ | 45 | - | - | V |
| Emitter Base Voltage | V_{EBO} | $I_E = 100\mu\text{A}, I_C = 0$ | 6 | - | - | |
| Collector Cut off Current | I_{CES} | $V_{CE} = 50\text{V}, V_{BE} = 0$ $V_{CE} = 50\text{V}, V_{BE} = 0,$ $T_a = 125^\circ\text{C}$ | - | - | 15 4 | nA μA |
| DC Current Gain | h_{FE} | $I_C = 2\text{mA}, V_{CE} = 50\text{V}$ | 200 | 290 | 460 | - |
| Collector Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5\text{mA}^*$ | - | 0.07 0.2 | 0.2 0.6 | V |
| Base Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 0.5\text{mA}^*$ | - | 0.6 | 0.83 1.05 | |
| Base Emitter On Voltage | $V_{BE(on)}$ | $I_C = 100\mu\text{A}, V_{CE} = 5\text{V}$ $I_C = 2\text{mA}, V_{CE} = 5\text{V}$ $I_C = 100\text{mA}, V_{CE} = 5\text{V}^*$ | 0.55 | 0.5 0.62 0.83 | 0.7 | |

Dynamic Characteristics

| | | | | | | |
|------------------------------|----------|---|----------|------------|-----|-----|
| Transition Frequency | f_T | $I_C = 0.5\text{mA}, V_{CE} = 3\text{V}$ $f = 100\text{MHz}$ $I_C = 10\text{mA}, V_{CE} = 5\text{V}$ $f = 100\text{MHz}$ | - 150 | 100 200 | - | MHz |
| Collector Output Capacitance | C_{ob} | $V_{CB} = 10\text{V}, I_E = 0$ $f = 1\text{MHz}$ | - | - | 4.5 | pF |
| Emitter Input Capacitance | C_{ib} | $V_{EB} = 0.5\text{V}, I_E = 0$ $f = 1\text{MHz}$ | - | 8 | | |
| Noise Figure | NF | $V_{CE} = 5\text{V}, I_C = 2\text{mA}$ $R_s = 2\text{k}\Omega, f = 1\text{kHz}$ $F = 200\text{Hz}$ | - | 2 | 10 | dB |

*Pulse Condition: Pulse Width 300 μs , Duty Cycle 2%.



| Dimensions | Min. | Max. |
|------------|-------|-------|
| A | 4.32 | 5.33 |
| B | 4.45 | 5.2 |
| C | 3.18 | 4.19 |
| D | 0.41 | 0.55 |
| E | 0.35 | 0.5 |
| F | 5° | |
| G | 1.14 | 1.4 |
| H | 1.14 | 1.53 |
| K | 12.7 | - |
| L | 1.982 | 2.082 |

Dimensions : Millimetres

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Part Number Table

| Description | Part Number |
|------------------------|-------------|
| Transistor, NPN, TO-92 | BC237B |

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