

# Low Power Transistor



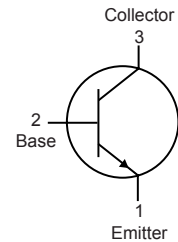
RoHS  
Compliant



## Description:

Plastic, PNP, Silicon Power Transistor in A TO-18 PK Designed for low power audio amplifier and low current, high speed switching.

PNP



## Absolute Maximum Ratings

| Parameter   | Symbol         | Rating       | Unit                     |
|---|----------------|--------------|--------------------------|
| Collector-Emitter Voltage   | $V_{CEO}$      | 80           | V                        |
| Collector-Base Voltage  | $V_{CBO}$      | 100          |                          |
| Emitter-Base Voltage  | $V_{EBO}$      | 7            |                          |
| Continuous Collector Current  | $I_C$          | 3            | A                        |
| Total Device Dissipation at $T_c = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$          | 1.5<br>0.012 | W<br>W/ $^\circ\text{C}$ |
| Operating and Storage<br>Junction Temperature Range                                     | $T_j, T_{stg}$ | -65 to +150  | $^\circ\text{C}$         |

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

| Parameter | Symbol | Test Conditions | Min. | Max. | Unit |
|-----------|--------|-----------------|------|------|------|
|-----------|--------|-----------------|------|------|------|

### OFF Characteristics

|                                       |               |                             |    |     |               |
|---------------------------------------|---------------|-----------------------------|----|-----|---------------|
| Collector - Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=10\text{mA}, I_B=0$    | 80 | -   | V             |
| Collector Cut-Off Current             | $I_{CBO}$     | $V_{CB}=100\text{V}, I_B=0$ | -  | 0.1 | $\mu\text{A}$ |
| Emitter Cut-Off Current               | $I_{EBO}$     | $V_{EB}=7\text{V}, I_C=0$   | -  | 0.1 |               |

### ON Characteristics

|  |               |                                      |    |     |   |
|--|---------------|--------------------------------------|----|-----|---|
| DC Current Gain                        | $h_{FE}$      | $V_{CE}=1\text{V}, I_C=100\text{mA}$ | 50 | 250 | - |
|  |               | $V_{CE}=1\text{V}, I_C=500\text{mA}$ | 30 | -   | - |
|  |               | $V_{CE}=1\text{V}, I_C=1.5\text{A}$  | 12 | -   | - |
| Collector - Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$  | -  | 0.3 | V |
|  |               | $I_C=1.5\text{A}, I_B=150\text{mA}$  | -  | 0.9 |   |
|  |               |                                      | -  | 1.7 |   |
| Base - Emitter Saturation Voltage      | $V_{CE(sat)}$ | $I_C=1.5\text{A}, I_B=150\text{mA}$  | -  | 1.5 |   |
|  |               | $I_C=3\text{A}, I_B=600\text{mA}$    | -  | 2   |   |
| Base-Emitter On Voltage                | $V_{BE(on)}$  | $I_C=500\text{mA}, V_{CE}=1\text{V}$ | -  | 1.2 |   |

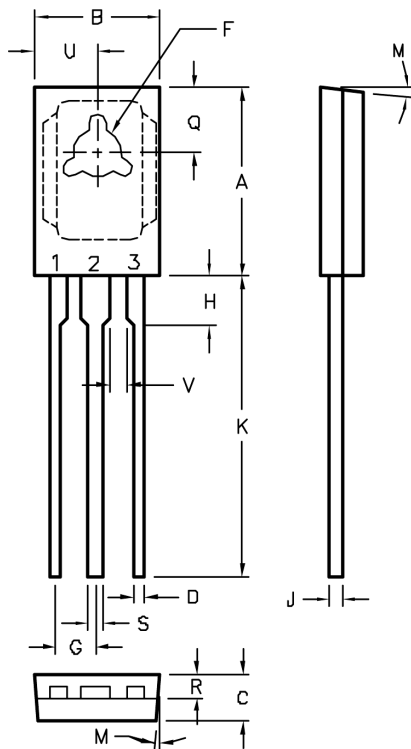
# Low Power Transistor



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

| Parameter                               | Symbol    | Test Conditions                                       | Min. | Max. | Unit |
|---|-----------|---|------|------|------|
| <b>Small-Signal Characteristics</b>     |           |   |      |      |      |
| Current Gain-Bandwidth Product (Note 1) | $f_T$     | $V_{CE}=10\text{V}, I_C=100\text{mA}, f=10\text{MHz}$ | 50   | -    | MHz  |
| Output Capacitance                      | $C_{obo}$ | $V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$           | -    | 60   | pF   |

Note 1.  $f_T = |h_{fe}| \cdot f_{test}$



| Dimensions | Min.       | Max.  |
|------------|------------|-------|
| A          | 10.8       | 11.05 |
| B          | 7.49       | 7.75  |
| C          | 2.41       | 2.67  |
| D          | 0.51       | 0.66  |
| F          | 2.92       | 3.18  |
| G          | 2.31       | 2.46  |
| H          | 1.27       | 2.41  |
| J          | 0.38       | 0.64  |
| K          | 15.11      | 16.64 |
| M          | 3° Typical |       |
| Q          | 3.76       | 4.01  |
| R          | 1.14       | 1.4   |
| S          | 0.64       | 0.89  |
| U          | 3.68       | 3.94  |
| V          | 1.02       | -     |

Dimensions : Millimetres

### Pin Configuration:

1. Emitter
2. Base
3. Collector

### Part Number Table

| Description                     | Part Number |
|---------------------------------|-------------|
| Transistor, PNP, 3A, 80V, TO-18 | MJE172      |

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