

Bipolar Transistor

Low Power



Features:

- PNP Silicon Planar switching Transistors
- General Purpose Transistor



Pin Configuration

1. Emitter
2. Base
3. Collector

Absolute Maximum Ratings

| Description | Symbol | Value | Units |
|--|----------------|-------------|----------------------|
| Collector Emitter Voltage | V_{CEO} | 40 | V |
| Collector Base Voltage | V_{CBO} | 60 | |
| Emitter Base Voltage | V_{EBO} | 5 | |
| Collector Current Continuous | I_C | 600 | mA |
| Power Dissipation at $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 600 | W |
| Power Dissipation at $T_c = 25^\circ\text{C}$ Derate above 25°C | | 3.43 | |
| | | 3 | mW/ $^\circ\text{C}$ |
| | | 17 | |
| Operating and Storage Junction Temperature Range | T_J, T_{STG} | -65 to +200 | $^\circ\text{C}$ |

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

| Description | Symbol | Test Condition | Min. | Max. | Units |
|---------------------------|------------|--|------|-----------|---------------|
| Collector Emitter Voltage | $*V_{CEO}$ | $I_C = 10\text{mA}, I_B = 0$ | 40 | - | V |
| Collector Base Voltage | V_{CBO} | $I_C = 10\mu\text{A}, I_E = 0$ | 60 | - | |
| Emitter Base Voltage | V_{EBO} | $I_E = 10\mu\text{A}, I_C = 0$ | 5 | - | |
| Collector Cut off Current | I_{CEX} | $V_{CE} = 30\text{V}, V_{BE} = 0.5\text{V}$ | - | 50 | nA |
| Collector Cut off Current | I_{CBO} | $V_{CB} = 50\text{V}, I_E = 0$ | - | 20 | nA |
| | | $V_{CB} = 50\text{V}, I_E = 0,$ $T_A = 150^\circ\text{C}$ | - | | μA |
| Base Current | I_B | $V_{CE} = 30\text{V}, V_{BE} = 0.5\text{V}$ | - | 50 | nA |
| DC Current Gain | h_{FE} | $I_C = 0.1\text{mA}, V_{CE} = 10\text{V}$ | - | >35 | - |
| | | $I_C = 1\text{mA}, V_{CE} = 10\text{V}$ | | >50 | |
| | | $I_C = 10\text{mA}, V_{CE} = 10\text{V}$ | | >75 | |
| | | $*I_C = 150\text{mA}, V_{CE} = 10\text{V}$ | | 100 - 300 | |
| | | $*I_C = 500\text{mA}, V_{CE} = 10\text{V}$ | | >30 | |

*Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

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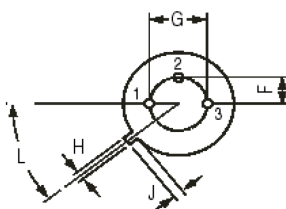
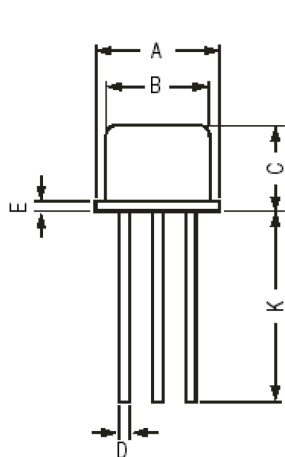


| Description | Symbol | Test Condition | Min. | Max. | Units |
|--------------------------------------|-----------------------|--|------|------------|-------|
| Small Signal Characteristics | | | | | |
| Collector Emitter Saturation Voltage | *V _{CE(SAT)} | I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA | - | 0.4 1.6 | V |
| Base Emitter Saturation Voltage | *V _{BE(SAT)} | I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA | - | 1.3 2.6 | |
| Transition Frequency | **f _T | I _C = 50mA, V _{CE} = 20V f = 100MHz | 200 | - | MHz |
| Output Capacitance | C _{OBO} | V _{CB} = 10V, I _E = 0 f = 100KHz | - | 8 | pF |
| Input Capacitance | C _{IBO} | V _{BE} = 2V, I _C = 0 f = 100KHz | - | 30 | |

*Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤2%

**f_T is defined as the frequency at which /h_{FE}/ extrapolates to unity

| Description | Symbol | Test Condition | Min. | Max. | Units |
|-----------------------|------------------|---|------|------|-------|
| Switching Time | | | | | |
| Delay Time | t _d | I _C = 150mA, I _{B1} = 15mA, V _{CC} = 30V | - | 10 | nS |
| Rise Time | t _r | | - | 40 | |
| Turn on Time | t _{on} | | - | 45 | |
| Storage Time | t _s | I _C = 150mA, I _{B1} = I _{B2} = 15mA, V _{CC} = 6V | - | 80 | |
| Fall Time | t _f | | - | 30 | |
| Turn off Time | t _{off} | | - | 100 | |



| Dim. | A | B | C | D | E | F | G | H | J | K | L |
|------|------|------|------|------|------|------|------|------|------|------|-----|
| Min. | 8.5 | 7.74 | 6.09 | 0.4 | - | 2.41 | 4.82 | 0.71 | 0.73 | 12.7 | 42° |
| Max. | 9.39 | 8.5 | 6.6 | 0.53 | 0.88 | 2.66 | 5.33 | 0.86 | 1.02 | - | 48° |

Dimensions : Millimetres

Part Number Table

| Description | Part Number |
|------------------------|-------------|
| Transistor, PNP, TO-39 | 2N2905 |

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