



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

2N4401

TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

Description

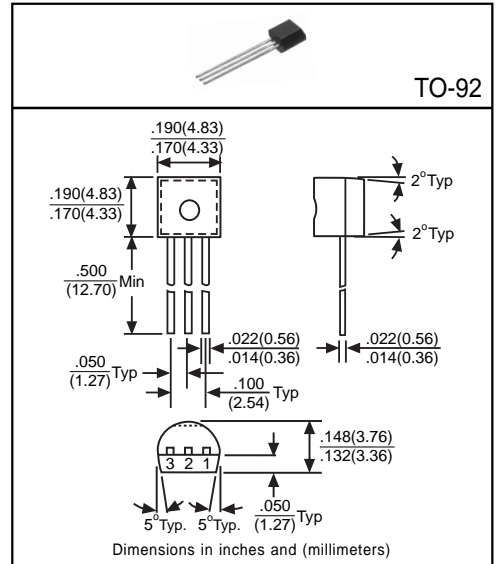
Designed for general purpose switching and amplifier applications.

Pinning

- 1 = Emitter
- 2 = Base
- 3 = Collector

Absolute Maximum Ratings(T_A=25°C)

| Characteristic | Symbol | Rating | Unit |
|---------------------------|------------------|-------------|------|
| Collector-Base Voltage | V _{CB0} | 60 | V |
| Collector-Emitter Voltage | V _{CEO} | 40 | V |
| Emitter-Base Voltage | V _{EBO} | 5 | V |
| Collector Current | I _C | 600 | mA |
| Total Power Dissipation | P _D | 625 | mW |
| Junction Temperature | T _J | +150 | °C |
| Storage Temperature | T _{STG} | -55 to +150 | °C |



Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|-----------------------|------|-----|------|------|--|
| Collector-Base Breakdown Voltage | BV _{CB0} | 60 | - | - | V | I _C =100μA, I _E =0 |
| Collector-Emitter Breakdown Voltage | BV _{CEO} | 40 | - | - | V | I _C =1mA, I _B =0 |
| Emitter-Base Breakdown Voltage | BV _{EBO} | 5 | - | - | V | I _E =10μA, I _C =0 |
| Collector Cutoff Current | I _{CX} | - | - | 0.1 | μA | V _{CE} =35V, V _{BE} =0.4V |
| Collector-Emitter Saturation Voltage ⁽¹⁾ | V _{CE(sat)1} | - | - | 0.4 | V | I _C =150mA, I _B =15mA |
| | V _{CE(sat)2} | - | - | 0.75 | V | I _C =500mA, I _B =50mA |
| Base-Emitter Saturation Voltage ⁽¹⁾ | V _{BE(sat)1} | 0.75 | - | 0.95 | V | I _C =150mA, I _B =15mA |
| | V _{BE(sat)2} | - | - | 1.2 | V | I _C =500mA, I _B =50mA |
| DC Current Gain ⁽¹⁾ | h _{FE1} | 20 | - | - | - | I _C =0.1mA, V _{CE} =1V |
| | h _{FE2} | 40 | - | - | - | I _C =1mA, V _{CE} =1V |
| | h _{FE3} | 80 | - | - | - | I _C =10mA, V _{CE} =1V |
| | h _{FE4} | 100 | - | 300 | - | I _C =150mA, V _{CE} =1V |
| | h _{FE5} | 40 | - | - | - | I _C =500mA, V _{CE} =2V |
| Transition Frequency | f _T | 250 | - | - | MHZ | I _C =20mA, V _{CE} =10V, f=100MHZ |
| Output Capacitance | C _{ob} | - | - | 6.5 | pF | V _{CB} =5V, I _E =0, f=1MHZ |

(1)Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

Classification of h_{FE4}

| Rank | A | B |
|-------|---------|---------|
| Range | 100~210 | 190~300 |