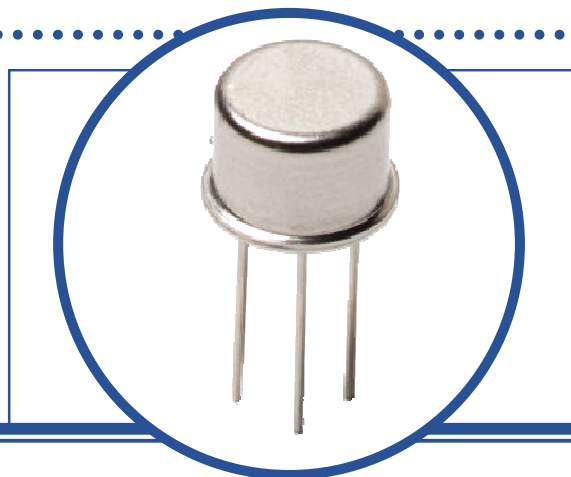


SILICON PLANAR NPN TRANSISTOR

2N3421

- Hermetic TO-39 Metal package.
- Ideally suited for Small Signal General Purpose and Switching Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

| | | |
|-------------------------------|---|------------------|
| V _{CBO} | Collector – Base Voltage | 125V |
| V _{CEO} | Collector – Emitter Voltage | 80V |
| V _{EBO} | Emitter – Base Voltage | 8V |
| I _C | Continuous Collector Current | 3A |
| P _D | Total Power Dissipation at T _A = 25°C Derate Above 25°C | 1.0W 5.7mW/°C |
| I _C ⁽²⁾ | Continuous Collector Current | 5A |
| T _J | Junction Temperature Range | -65 to +200°C |
| T _{stg} | Storage Temperature Range | -65 to +200°C |

THERMAL PROPERTIES

| Symbols | Parameters | Max. | Units |
|------------------|---|------|-------|
| R _{θJA} | Thermal Resistance, Junction To Ambient | 175 | °C/W |
| R _{θJC} | Thermal Resistance, Junction To Case | 18 | °C/W |

Notes

- (1) Pulse Width ≤ 380us, δ ≤ 2%
 (2) t_p ≤ 1ms, duty cycle ≤ 50 percent

SILICON PLANAR NPN TRANSISTOR 2N3421

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

| Symbols | Parameters | Test Conditions | Min. | Typ | Max. | Units |
|---------------------|--------------------------------------|---|----------------------|-----|-------------|---------------|
| $V_{(BR)CEO}^{(1)}$ | Collector-Emitter Breakdown Voltage | $I_C = 50\text{mA}$ $I_B = 0$ | 80 | | | V |
| I_{CEX} | Collector-Emitter Cut-off Current | $V_{CE} = 120\text{V}$ $V_{BE} = -0.5\text{V}$ | | | 0.3 | μA |
| I_{CEO} | Collector-Emitter Cut-Off Current | $V_{CE} = 60\text{V}$ $I_B = 0$ | | | 5.0 | |
| I_{EBO} | Emitter Cut-Off Current | $V_{EB} = 6\text{V}$ $I_C = 0$ $V_{EB} = 8\text{V}$ $I_C = 0$ | | | 0.5 10 | |
| $V_{CE(sat)}^{(1)}$ | Collector-Emitter Saturation Voltage | $I_C = 1\text{A}$ $I_B = 100\text{mA}$ $I_C = 2\text{A}$ $I_B = 200\text{mA}$ | | | 0.25 0.5 | V |
| $V_{BE(sat)}^{(1)}$ | Base-Emitter Saturation Voltage | $I_C = 1\text{A}$ $I_B = 100\text{mA}$ $I_C = 2\text{A}$ $I_B = 200\text{mA}$ | 0.6 0.7 | | 1.2 1.4 | |
| $h_{FE}^{(1)}$ | Forward-current transfer ratio | $I_C = 100\text{mA}$ $V_{CE} = 2\text{V}$ $I_C = 1\text{A}$ $V_{CE} = 2\text{V}$ $I_C = 2\text{A}$ $V_{CE} = 2\text{V}$ $I_C = 5\text{A}$ $V_{CE} = 5\text{V}$ | 40 40 30 15 | | 120 | - |

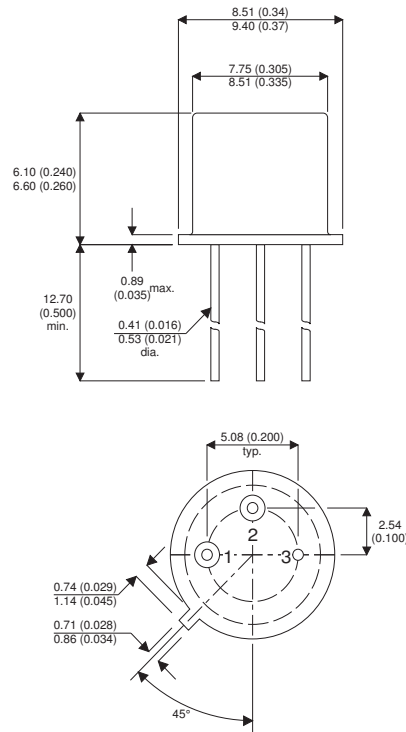
DYNAMIC CHARACTERISTICS

| | | | | | | |
|------------|---|--|-----|------|-----|---------------|
| $ h_{fe} $ | Small signal forward-current transfer ratio | $I_C = 100\text{mA}$ $V_{CE} = 10\text{V}$ $f = 20\text{MHz}$ | 1.0 | | 8 | - |
| t_r | Rise Time | $I_C = 1.0\text{A}$ $I_{B1} = 100\text{mA}$ $I_{B2} = -100\text{mA}$ $V_{BE(off)} = -3.7\text{V}$ $R_L = 20\Omega$ | | 0.22 | | μs |
| t_d | Delay Time | | | 0.08 | | |
| t_s | Storage Time | | | 1.1 | | |
| t_f | Fall Time | | | 0.2 | | |
| t_{off} | Turn Off Time | | | 1.2 | | |
| C_{obo} | Output Capacitance | $V_{CB} = 10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$ | | | 150 | pF |

SILICON PLANAR NPN TRANSISTOR 2N3421

MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AD) METAL PACKAGE Underside View

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector