

2N4400
2N4401

SILICON
NPN TRANSISTORS



TO-92 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N4400 and 2N4401 are silicon NPN transistors designed for general purpose amplifier and switching applications. PNP complementary types are 2N4402 and 2N4403.

MARKING: FULL PART NUMBER

MAXIMUM RATINGS: (T_A=25°C)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation
Operating and Storage Junction Temperature

| SYMBOL | | UNITS |
|-----------------------------------|-------------|-------|
| V _{CBO} | 60 | V |
| V _{CEO} | 40 | V |
| V _{EBO} | 6.0 | V |
| I _C | 600 | mA |
| P _D | 625 | mW |
| T _J , T _{stg} | -65 to +150 | °C |

ELECTRICAL CHARACTERISTICS: (T_A=25°C)

| SYMBOL | TEST CONDITIONS | 2N4400 | | 2N4401 | | UNITS |
|----------------------|---|--------|------|--------|------|-------|
| | | MIN | MAX | MIN | MAX | |
| I _{CEV} | V _{CE} =35V, V _{EB} =0.4V | - | 100 | - | 100 | nA |
| BV _{CBO} | I _C =0.1mA | 60 | - | 60 | - | V |
| BV _{CEO} | I _C =1.0mA | 40 | - | 40 | - | V |
| BV _{EBO} | I _E =0.1mA | 6.0 | - | 6.0 | - | V |
| V _{CE(SAT)} | I _C =150mA, I _B =15mA | - | 0.40 | - | 0.40 | V |
| V _{CE(SAT)} | I _C =500mA, I _B =50mA | - | 0.75 | - | 0.75 | V |
| V _{BE(SAT)} | I _C =150mA, I _B =15mA | 0.75 | 0.95 | 0.75 | 0.95 | V |
| V _{BE(SAT)} | I _C =500mA, I _B =50mA | - | 1.2 | - | 1.2 | V |
| h _{FE} | V _{CE} =1.0V, I _C =0.1mA | - | - | 20 | - | |
| h _{FE} | V _{CE} =1.0V, I _C =1.0mA | 20 | - | 40 | - | |
| h _{FE} | V _{CE} =1.0V, I _C =10mA | 40 | - | 80 | - | |
| h _{FE} | V _{CE} =1.0V, I _C =150mA | 50 | 150 | 100 | 300 | |
| h _{FE} | V _{CE} =2.0V, I _C =500mA | 20 | - | 40 | - | |
| h _{fe} | V _{CE} =10V, I _C =1.0mA, f=1.0kHz | 20 | 250 | 40 | 500 | |
| f _T | V _{CE} =10V, I _C =20mA, f=100MHz | 200 | - | 250 | - | MHz |
| C _{ob} | V _{CB} =5.0V, I _E =0, f=100kHz | - | 6.5 | - | 6.5 | pF |
| C _{ib} | V _{BE} =0.5V, I _C =0, f=100kHz | - | 30 | - | 30 | pF |
| t _{on} | V _{CC} =30V, V _{EB(OFF)} =2.0V, I _C =150mA, I _{B1} =15mA | - | 35 | - | 35 | ns |
| t _{off} | V _{CC} =30V, I _C =150mA, I _{B1} =I _{B2} =15mA | - | 255 | - | 255 | ns |

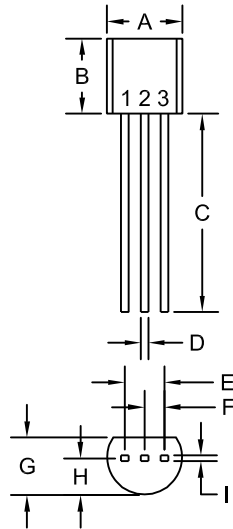
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TO-92 CASE - MECHANICAL OUTLINE



R1

| SYMBOL | INCHES | | MILLIMETERS | |
|---------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A (DIA) | 0.175 | 0.205 | 4.45 | 5.21 |
| B | 0.170 | 0.210 | 4.32 | 5.33 |
| C | 0.500 | - | 12.70 | - |
| D | 0.016 | 0.022 | 0.41 | 0.56 |
| E | 0.100 | | 2.54 | |
| F | 0.050 | | 1.27 | |
| G | 0.125 | 0.165 | 3.18 | 4.19 |
| H | 0.080 | 0.105 | 2.03 | 2.67 |
| I | 0.015 | | 0.38 | |

TO-92 (REV: R1)

LEAD CODE:

- 1) Emitter
- 2) Base
- 3) Collector

MARKING:
FULL PART NUMBER

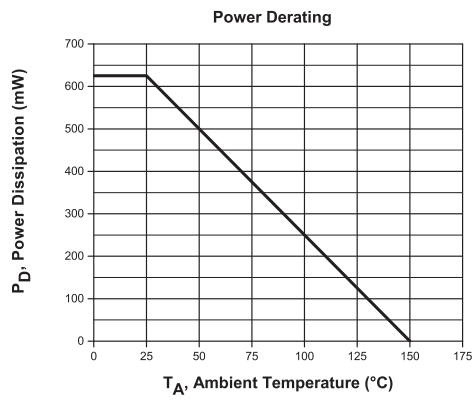
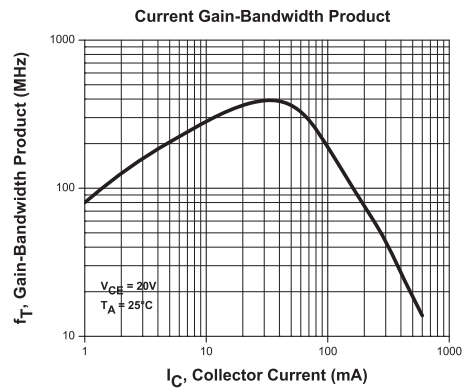
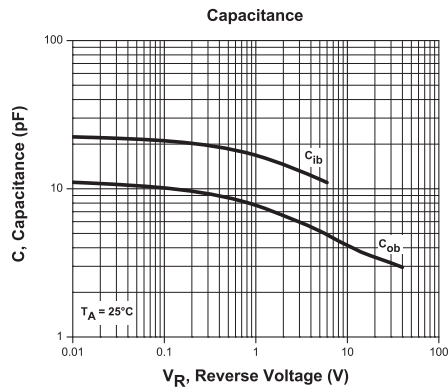
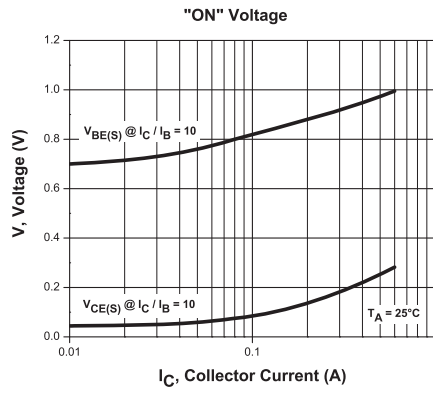
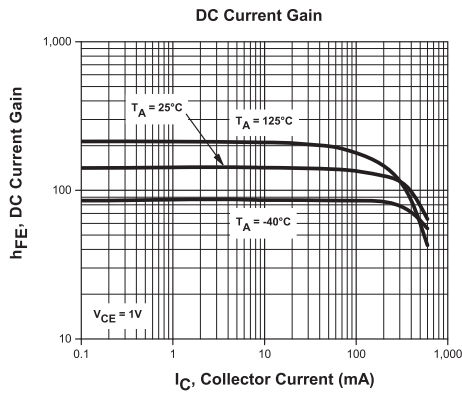
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TYPICAL ELECTRICAL CHARACTERISTICS



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