

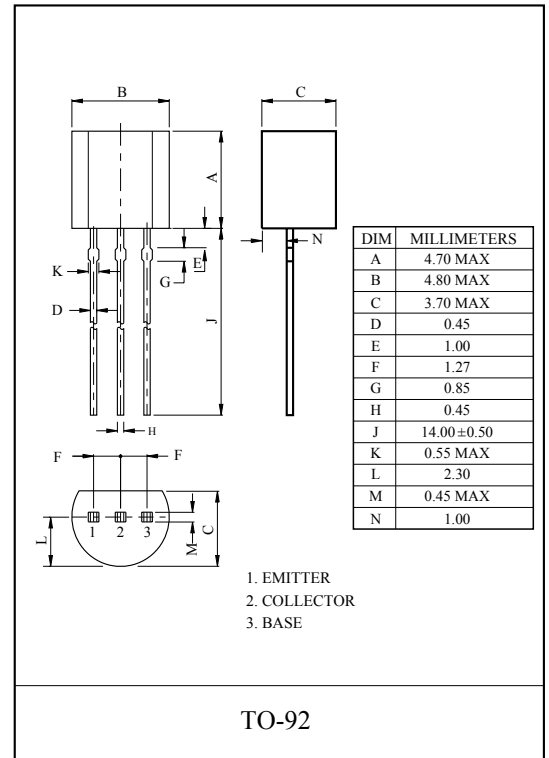
GENERAL PURPOSE APPLICATION.  
HIGH VOLTAGE APPLICATION.

#### FEATURES

- High Collector Breakdwon Voltage  
:  $V_{CBO} = -160V$ ,  $V_{CEO} = -150V$
- Low Leakage Current.  
:  $I_{CBO} = -50nA(\text{Max.}) @ V_{CB} = -120V$
- Low Saturation Voltage  
:  $V_{CE(\text{sat})} = -0.5V(\text{Max.}) @ I_C = -50mA, I_B = -5mA$
- Low Noise :  $NF = 8dB(\text{Max.})$

#### MAXIMUM RATING (Ta=25°C)

| CHARACTERISTIC                           | SYMBOL    | RATING    | UNIT |
|--|-----------|-----------|------|
| Collector-Base Voltage                   | $V_{CBO}$ | -160      | V    |
| Collector-Emitter Voltage                | $V_{CEO}$ | -150      | V    |
| Emitter-Base Voltage                     | $V_{EBO}$ | -5        | V    |
| Collector Current                        | $I_C$     | -600      | mA   |
| Base Current                             | $I_B$     | -100      | mA   |
| Collector Power Dissipation<br>(Ta=25°C) | $P_C$     | 625       | mW   |
| Collector Power Dissipation<br>(Tc=25°C) | $P_C$     | 1.5       | W    |
| Junction Temperature                     | $T_j$     | 150       | °C   |
| Storage Temperature Range                | $T_{stg}$ | -55 ~ 150 | °C   |



# 2N5401C

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTIC                         | SYMBOL                 | TEST CONDITION  | MIN. | TYP. | MAX. | UNIT |
|--|------------------------|---|------|------|------|------|
| Collector Cut-off Current              | I <sub>CBO</sub>       | V <sub>CB</sub> =-120V, I <sub>E</sub> =0   | -    | -    | -50  | nA   |
|  |                        | V <sub>CB</sub> =-120V, I <sub>E</sub> =0, Ta=100°C                                   | -    | -    | -50  | μA   |
| Emitter Cut-off Current                | I <sub>EBO</sub>       | V <sub>EB</sub> =-3V, I <sub>C</sub> =0   | -    | -    | -50  | nA   |
| Collector-Base Breakdown Voltage       | V <sub>(BR)CBO</sub>   | I <sub>C</sub> =-0.1mA, I <sub>E</sub> =0   | -160 | -    | -    | V    |
| Collector-Emitter Breakdown Voltage *  | V <sub>(BR)CEO</sub>   | I <sub>C</sub> =-1mA, I <sub>B</sub> =0   | -150 | -    | -    | V    |
| Emitter-Base Breakdown Voltage         | V <sub>(BR)EBO</sub>   | I <sub>E</sub> =-10μA, I <sub>C</sub> =0  | -5   | -    | -    | V    |
| DC Current Gain *                      | h <sub>FE</sub> (1)    | V <sub>CE</sub> =-5V, I <sub>C</sub> =-1mA  | 50   | -    | -    |      |
|  |                        | V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA   | 60   | -    | 240  |      |
|  |                        | V <sub>CE</sub> =-5V, I <sub>C</sub> =-50mA   | 50   | -    | -    |      |
| Collector-Emitter Saturation Voltage * | V <sub>CE(sat)</sub> 1 | I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA   | -    | -    | -0.2 | V    |
|  |                        | I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA   | -    | -    | -0.5 |      |
| Base-Emitter Saturation Voltage *      | V <sub>BE(sat)</sub> 1 | I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA   | -    | -    | -1.0 | V    |
|  |                        | I <sub>C</sub> =-50mA, I <sub>B</sub> =-5mA   | -    | -    | -1.0 |      |
| Transition Frequency                   | f <sub>T</sub>         | V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA, f=100MHz                                | 100  | -    | 300  | MHz  |
| Collector Output Capacitance           | C <sub>ob</sub>        | V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz                                      | -    | -    | 6    | pF   |
| Small-Signal Current Gain              | h <sub>fe</sub>        | V <sub>CE</sub> =-10V, I <sub>C</sub> =-1mA, f=1kHz                                   | 40   | -    | 200  |      |
| Noise Figure                           | NF                     | V <sub>CE</sub> =-5V, I <sub>C</sub> =-250μA<br>R <sub>g</sub> =1kΩ, f=10Hz ~ 15.7kHz | -    | -    | 8    | dB   |

\* Pulse Test : Pulse Width ≤ 300μS, Duty Cycle ≤ 2%.