

RoHS Compliant Product  
A suffix of "-C" specifies halogen and lead free

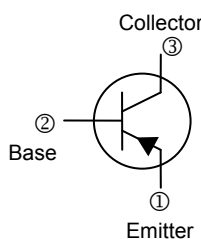
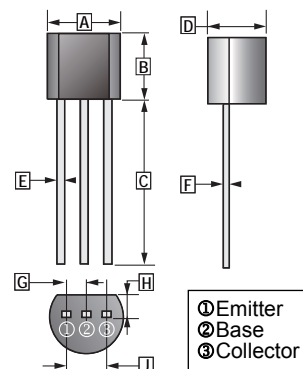
## FEATURES

- Power Dissipation  $P_{CM}$ : 625mW ( $T_a=25^\circ\text{C}$ )
- Collector Current  $I_{CM}$ : -200mA
- Collector – Base Voltage  $V_{(BR)CBO}$ : -40V

## CLASSIFICATION OF $h_{FE}$

| Product-Rank | 2N3906-O | 2N3906-Y |
|--------------|----------|----------|
| Range        | 100~200  | 200~300  |

### TO-92



| REF. | Millimeter |      | REF. | Millimeter |      |
|------|------------|------|------|------------|------|
|      | Min.       | Max. |      | Min.       | Max. |
| A    | 4.40       | 4.70 | F    | 0.30       | 0.51 |
| B    | 4.30       | 4.70 | G    | 1.27 TYP.  |      |
| C    | 12.70      | -    | H    | 1.10       | 1.40 |
| D    | 3.30       | 3.81 | J    | 2.42       | 2.66 |
| E    | 0.36       | 0.56 | K    | 0.36       | 0.76 |

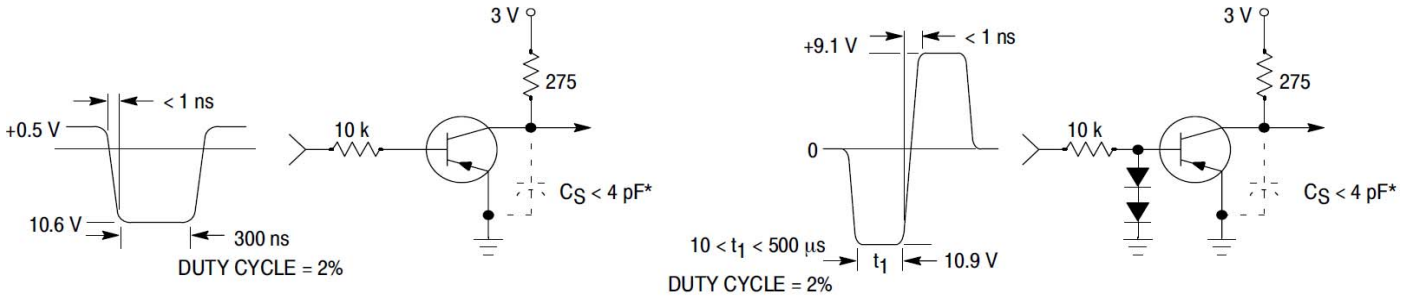
## ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                     | Symbol         | Ratings      | Unit             |
|-------------------------------|----------------|--------------|------------------|
| Collector - Base Voltage      | $V_{CBO}$      | -40          | V                |
| Collector - Emitter Voltage   | $V_{CEO}$      | -40          | V                |
| Emitter - Base Voltage        | $V_{EBO}$      | -5           | V                |
| Collector Current -Continuous | $I_C$          | -0.2         | A                |
| Collector Power Dissipation   | $P_C$          | 625          | mW               |
| Junction, Storage Temperature | $T_J, T_{STG}$ | 150, -55~150 | $^\circ\text{C}$ |

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

| Parameter                            | Symbol        | Min. | Typ. | Max.  | Unit          | Test Conditions   |
|--------------------------------------|---------------|------|------|-------|---------------|---|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | -40  | -    | -     | V             | $I_C = -10\mu\text{A}, I_E = 0$                               |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | -40  | -    | -     | V             | $I_C = -1\text{mA}, I_B = 0$                                  |
| Emitter - Base Breakdown Voltage     | $V_{(BR)EBO}$ | -5   | -    | -     | V             | $I_E = -100\mu\text{A}, I_C = 0$                              |
| Collector Cut-Off Current            | $I_{CBO}$     | -    | -    | -0.1  | $\mu\text{A}$ | $V_{CB} = -40\text{V}, I_E = 0$                               |
| Collector Cut-Off Current            | $I_{CEX}$     | -    | -    | -50   | nA            | $V_{CE} = -30\text{V}, V_{BE(off)} = -3\text{V}$              |
| Emitter Cut-Off Current              | $I_{EBO}$     | -    | -    | -0.1  | $\mu\text{A}$ | $V_{EB} = -5\text{V}, I_C = 0$                                |
| DC Current Gain                      | $h_{FE}$      | 100  | -    | 300   |               | $V_{CE} = -1\text{V}, I_C = -10\text{mA}$                     |
|                                      |               | 60   | -    | -     |               | $V_{CE} = -1\text{V}, I_C = -50\text{mA}$                     |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | -    | -    | -0.4  | V             | $I_C = -50\text{mA}, I_B = -5\text{mA}$                       |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | -    | -    | -0.95 | V             | $I_C = -50\text{mA}, I_B = -5\text{mA}$                       |
| Transition Frequency                 | $f_T$         | 250  | -    | -     | MHZ           | $V_{CE} = -20\text{V}, I_C = -10\text{mA}, f = 100\text{MHZ}$ |

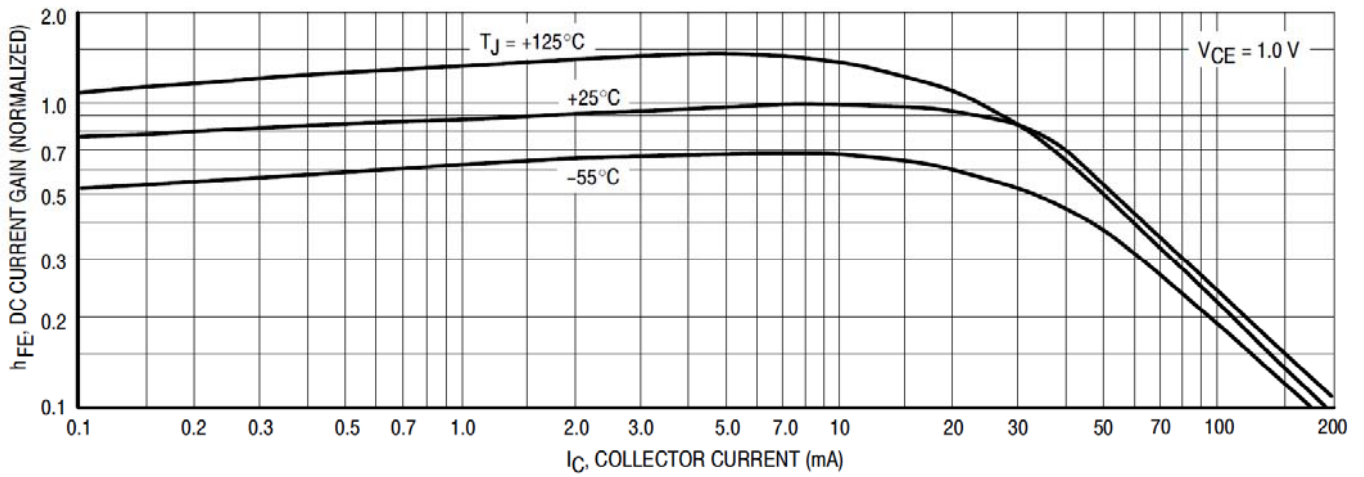
**CHARACTERISTIC CURVES**



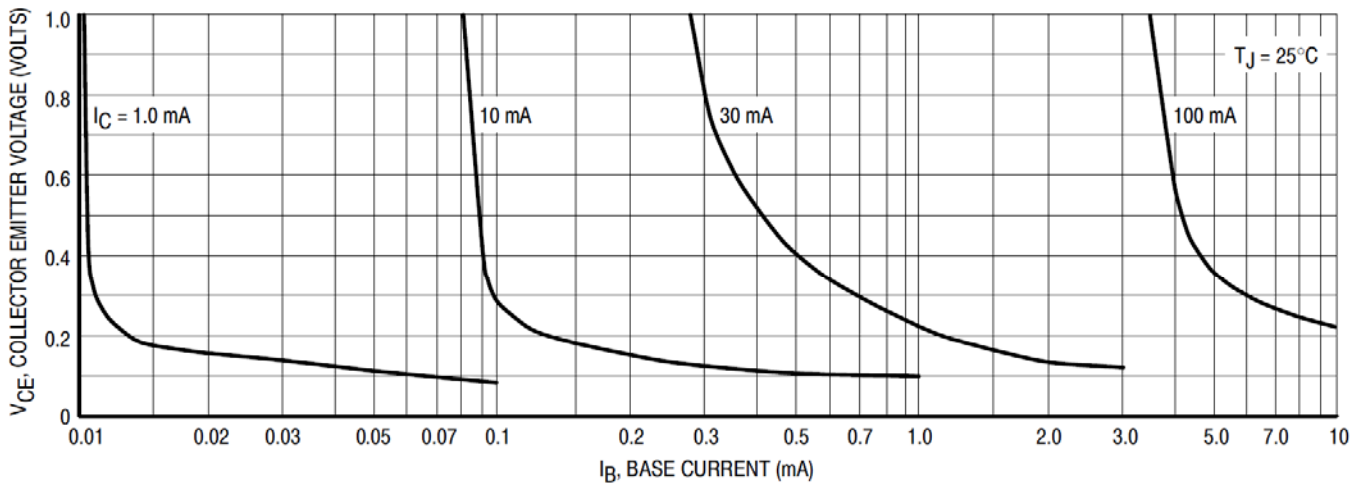
\* Total shunt capacitance of test jig and connectors

**Delay and Rise Time  
Equivalent Test Circuit**

**Storage and Fall Time  
Equivalent Test Circuit**

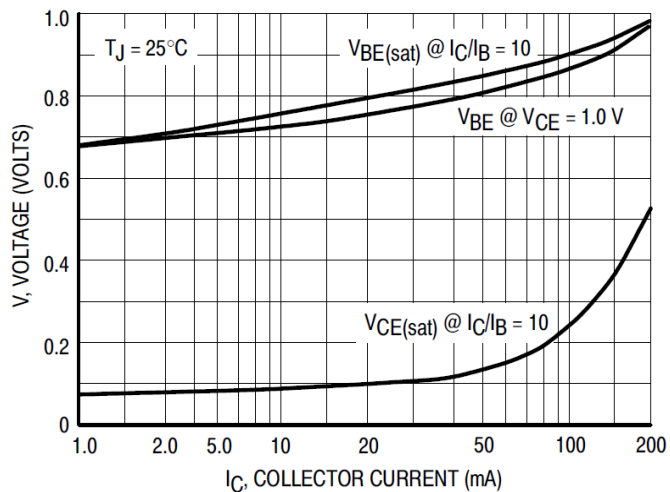


**DC Current Gain**

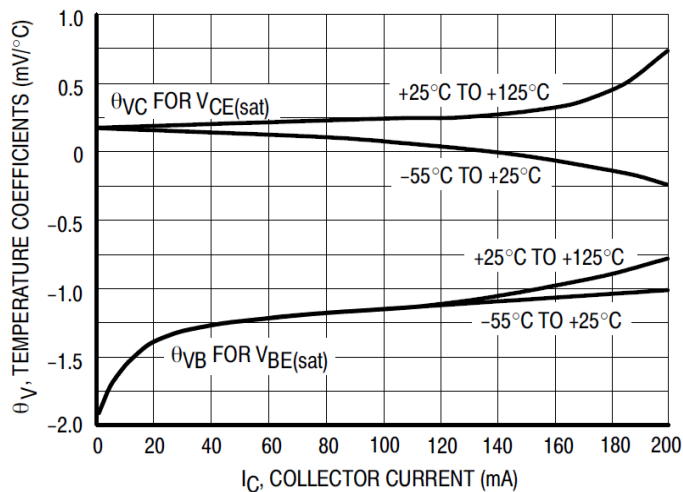


**Collector Saturation Region**

**CHARACTERISTIC CURVES**



**"ON" Voltages**



**Temperature Coefficients**