Elektronische Bauelemente

# 2N3906

**-0.2A, -40V**

**PNP General Purpose Transistor**

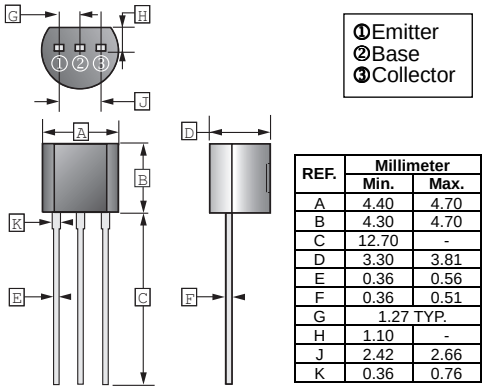
RoHS Compliant Product

A suffix of "-C" specifies halogen and lead free

## FEATURES

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

**TO-92**

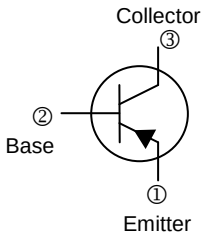



①Emitter
②Base
③Collector

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

## CLASSIFICATION OF $h_{FE(1)}$

| Product-Rank | 2N3906-O | 2N3906-Y | 2N3906-G |
|---|---|---|---|
| Range | 100~200 | 200~300 | 300~400 |



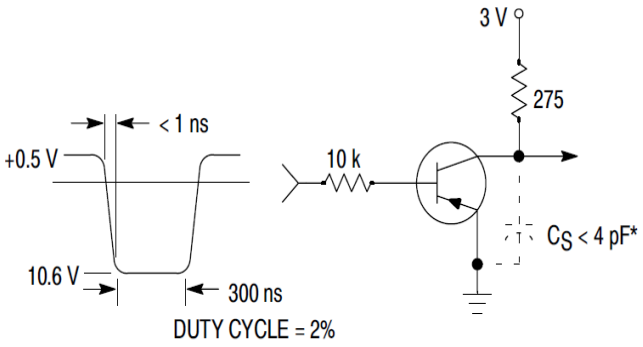

## ABSOLUTE MAXIMUM RATINGS ($T_a$ = 25°C unless otherwise specified)

| 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 |
| Cpllector Power Dissipation | $P_C$ | 625 | mW |
| Junction, Storage Temperature | $T_J$, $T_{STG}$ | +150, -55 ~ +150 | °C |

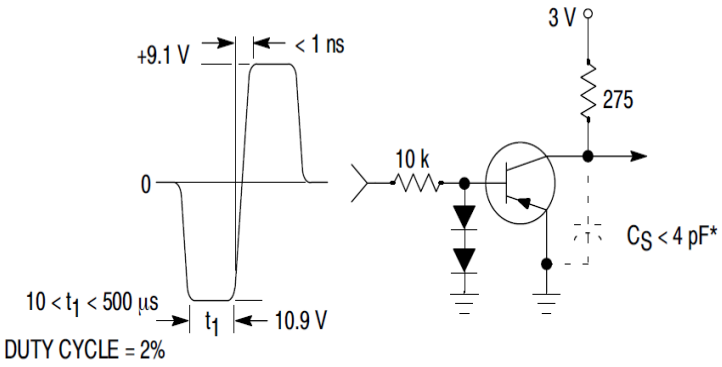
## ELECTRICAL CHARACTERISTICS ($T_a$ = 25℃ unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -40 | - | - | V | $I_C$=-10μA, $I_E$=0 |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -40 | - | - | V | $I_C$=-1mA, $I_B$=0 |
| Emitter - Base Breakdown Voltage | $V_{(BR)EBO}$ | -5 | - | - | V | $I_E$=-100μA, $I_C$=0 |
| Collector Cut-Off Current | $I_{CBO}$ | - | - | -0.1 | μA | $V_{CB}$=-40V, $I_E$=0 |
| Collector Cut-Off Current | $I_{CEX}$ | | | -50 | nA | $V_{CE}$=-30V, $V_{BE(off)}$=-3V |
| Emitter Cut-Off Current | $I_{EBO}$ | - | - | -0.1 | μA | $V_{EB}$ =-5V, $I_C$=0 |
| DC Current Gain | $h_{FE(1)}$ | 100 | - | 400 | | $V_{CE}$=-1V, $I_C$=-10mA |
| | $h_{FE(2)}$ | 60 | - | - | | $V_{CE}$=-1V, $I_C$=-50mA |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | - | - | -0.4 | V | $I_C$=-50mA, $I_B$=-5mA |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | - | - | -0.95 | V | $I_C$=-50mA, $I_B$=-5mA |
| Transition Frequency | $f_T$ | 250 | - | - | MHz | $V_{CE}$=-20V, $I_C$=-10mA, f=100MHz |

## CHARACTERISTIC CURVES

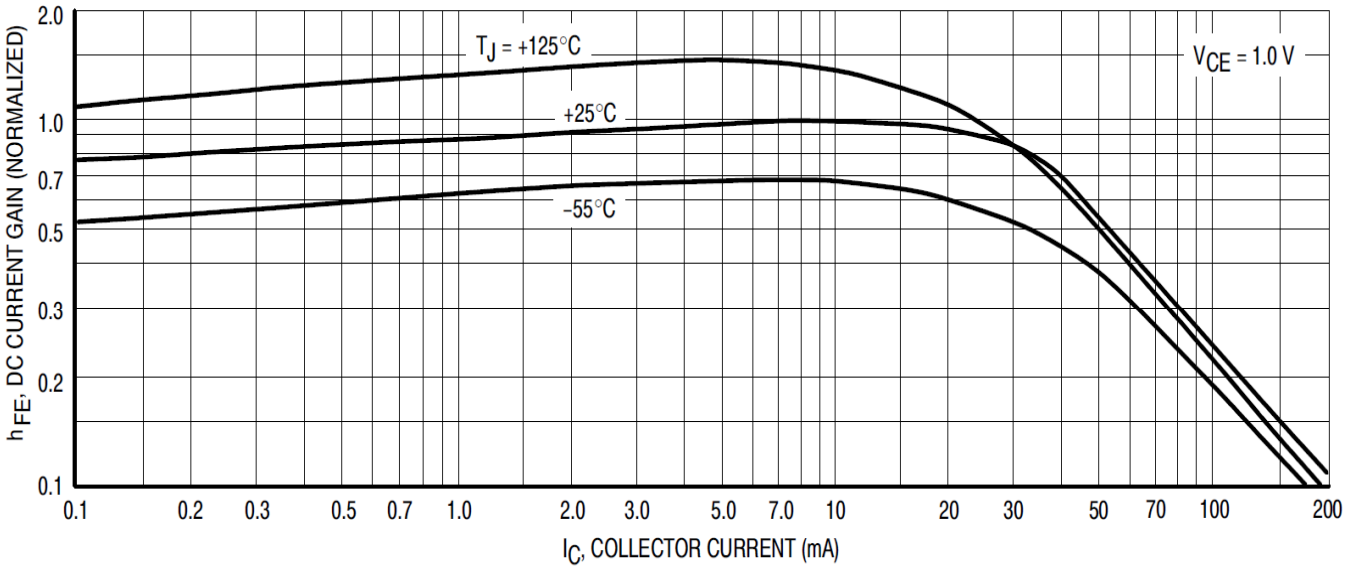



**Delay and Rise Time**
**Equivalent Test Circuit**

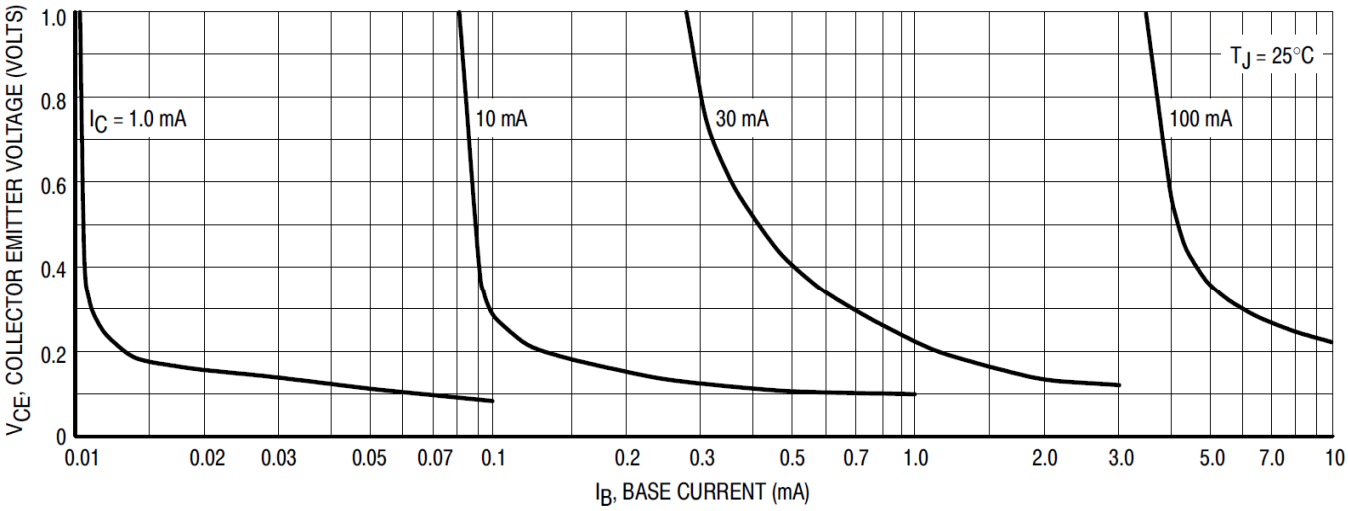



**Storage and Fall Time**
**Equivalent Test Circuit**

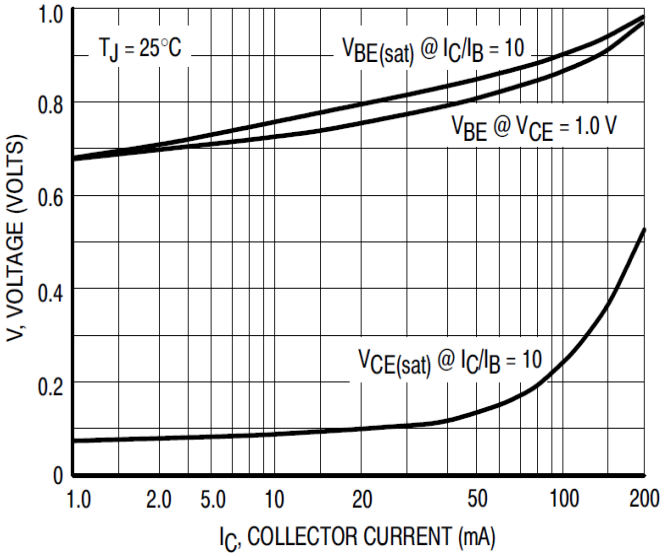
* Total shunt capacitance of test jig and connectors



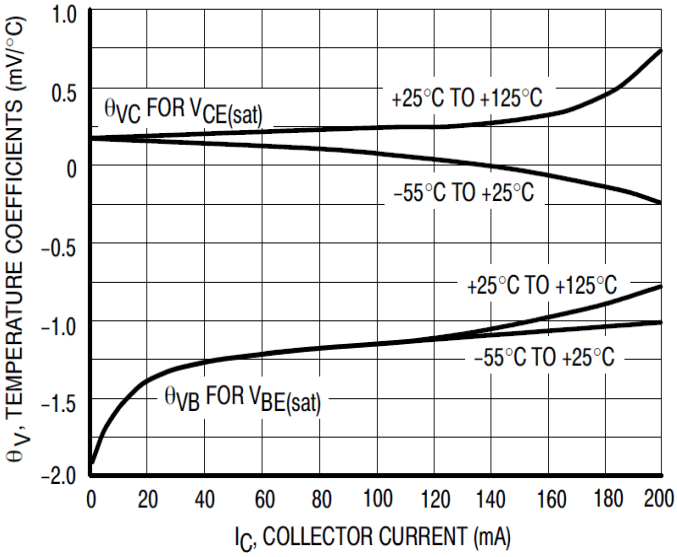

**DC Current Gain**




**Collector Saturation Region**




**"ON" Voltages**




**Temperature Coefficients**