# C945 TRANSISTOR (NPN )

**TO-92**

1.EMITTER

2.COLLECTOR

3. BASE

1 2 3

## FEATURE

- Excellent $h_{FE}$ linearity
- Low noise
- Complementary to A733

## MAXIMUM RATINGS (T=25℃ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 60 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 50 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current -Continuous | 150 | mA |
| $P_C$ | Collector Power Dissipation | 400 | mW |
| $T_J$ | Junction Temperature | 125 | ℃ |
| $T_{stg}$ | Storage Temperature | -55-125 | ℃ |

## ELECTRICAL CHARACTERISTICS (T=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=1mA , $I_E$=0 | 60 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=100μA , $I_B$=0 | 50 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=100 μA, $I_C$=0 | 5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=60V, $I_E$=0 | | | 0.1 | μA |
| Collector cut-off current | $I_{CEO}$ | $V_{CE}$=45V, $I_B$=0 | | | 0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=5V ,$I_C$=0 | | | 0.1 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}$=6V , $I_C$=1mA | 70 | | 700 | |
| | $h_{FE(2)}$ | $V_{CE}$=6V , $I_C$=0.1mA | 40 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=100mA, $I_B$=10mA | | | 0.3 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=100mA, $I_B$=10mA | | | 1 | V |
| Transition frequency | $f_T$ | $V_{CE}$=6V,$I_C$=10mA,f=30MHz | 200 | | | MHz |
| Collector output capacitance | C | $V_{CB}$=10V,$I_E$=0,f=1MHz | | | 3.0 | pF |
| Noise figure | $NF_{ob}$ | VCE=6V,IC=0.1mA<br>RG=10kΩ,f=1MHz | | | 10 | dB |

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

| Rank | O | Y | GR | BL |
|---|---|---|---|---|
| Range | 70-140 | 120-240 | 200-400 | 350-700 |

# Typical Characteristics