

Description

Silicon NPN transistor in a TO-92 Plastic Package

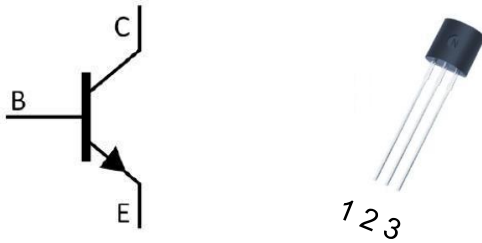
Features

- High voltage
- Excellent h_{FE} linearity

Applications

AF amplifier and low speed switching applications

| Symbol | Parameter | Max | Unit |
|-----------|---------------------------|-----|------|
| V_{CE0} | collector-emitter voltage | 50 | V |
| I_C | collector current (DC) | 150 | mA |

Equivalent Circuit & Pinning


PIN1: Collector

PIN 2: Base

PIN 3: Emitter

 h_{FE} Classifications & Marking

| h_{FE} Classifications Symbol | R | Q | P | K |
|------------------------------------|--------|---------|---------|---------|
| h_{FE} Range | 90~180 | 135~270 | 200~400 | 300~600 |

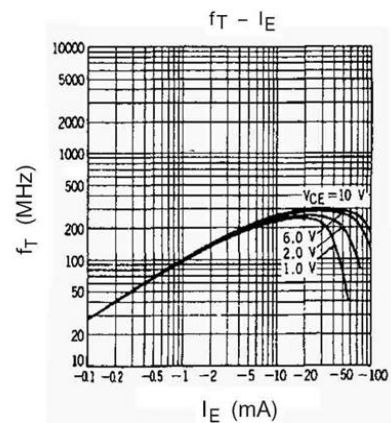
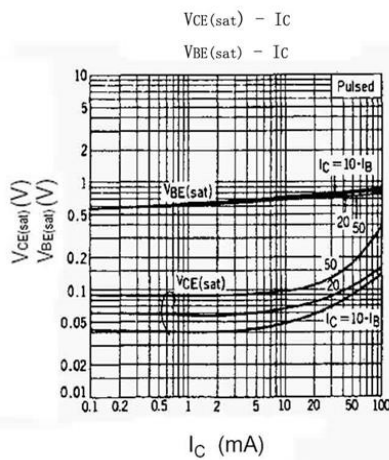
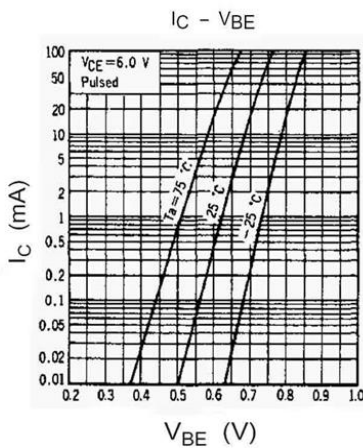
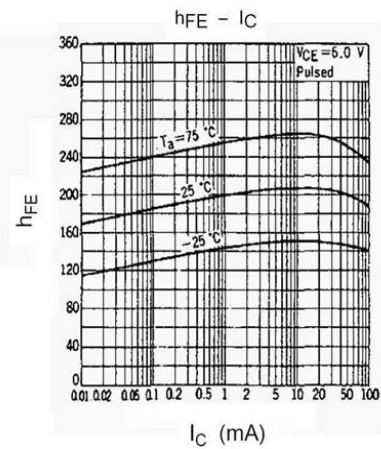
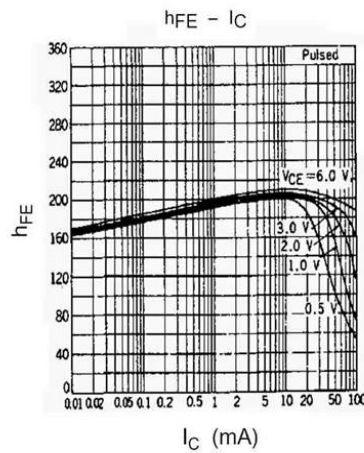
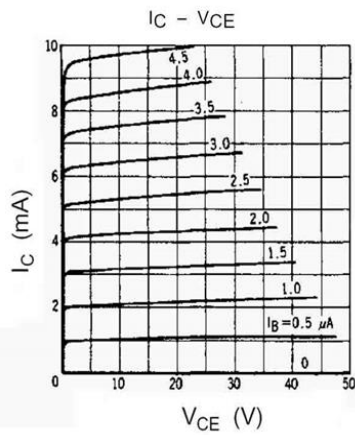
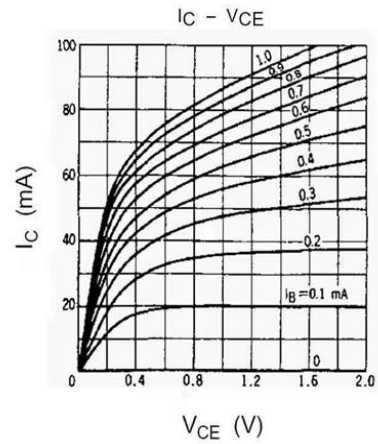
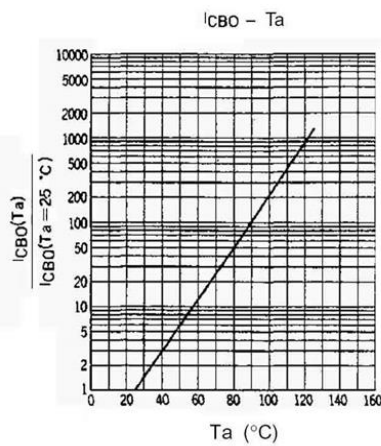
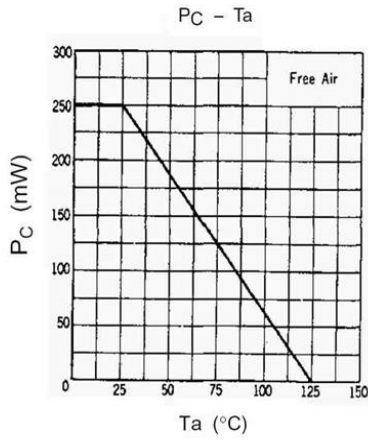
Absolute Maximum Ratings(Ta=25°C)

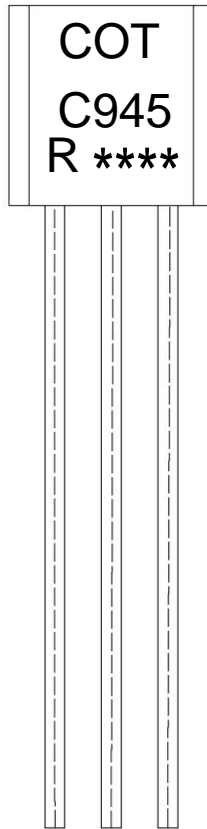
| Parameter | Symbol | Rating | Unit |
|--------------------------------|-----------|---------|------|
| Collector to Base Voltage | V_{CBO} | 60 | V |
| Collector to Emitter Voltage | V_{CEO} | 50 | V |
| Emitter to Base Voltage | V_{EBO} | 5.0 | V |
| Collector Current - Continuous | I_C | 150 | mA |
| Base Current – Continuous | I_B | 20 | mA |
| Collector Power Dissipation | P_C | 250 | mW |
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature Range | T_{stg} | -55~150 | °C |

Electrical Characteristic (Ta=25°C)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---------------|--|-----|------|------|---------|
| Collector Cut-Off Current | I_{CBO} | $V_{CB}=60V$ $I_E=0$ | | | 0.1 | μA |
| Emitter Cut-Off Current | I_{EBO} | $V_{EB}=5.0V$ $I_C=0$ | | | 0.1 | μA |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}=6.0V$ $I_C=1.0mA$ | 90 | | 600 | |
| | $h_{FE(2)}$ | $V_{CE}=6.0V$ $I_C=0.1mA$ | 50 | | | |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=100mA$ $I_B=10mA$ | | 0.15 | 0.3 | V |
| Base to Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=100mA$ $I_B=10mA$ | | 0.86 | 1.0 | V |
| Base to Emitter Voltage | V_{BE} | $V_{CE}=6.0V$ $I_C=1.0mA$ | | 0.62 | 0.65 | V |
| Transition Frequency | f_T | $V_{CE}=6.0V$ $I_C=10mA$ | 150 | 250 | 450 | MHz |
| Collector Output Capacitance | C_{ob} | $V_{CB}=6.0V$ $I_E=0$ $f=1.0MHz$ | | 3.0 | 4.0 | pF |
| Noise Figure | NF | $V_{CE}=6.0V$ $I_C=0.1mA$ $R_g=2.0K\Omega$ $f=1.0KHz$ | | 0.8 | 15 | dB |

Electrical Characteristic Curve



Marking Instructions


Note:

COT: Company Code.

C945: Product Type Code.

R: hFE Classifications Symbol.

****: Lot No. Code, code change with Lot No.

| h _{FE} Classifications Symbol | R | Q | P | K |
|--|--------|---------|---------|---------|
| h _{FE} Range | 90~180 | 135~270 | 200~400 | 300~600 |

Packaging SPEC.
BULK

| Package Type | Units | | | | | Dimension (unit: mm3) | | |
|--------------|-----------|----------------|-----------------|-----------------------|-----------------|-----------------------|-------------|-------------|
| | Units/Bag | Bags/Inner Box | Units/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Bag | Inner Box | Outer Box |
| TO-92 | 1,000 | 10 | 10,000 | 5 | 50,000 | 135×190 | 237×172×102 | 560×245×195 |
| | 1,000 | 10 | 10,000 | 10 | 100,000 | 135×190 | 237×172×102 | 560×245×375 |

AMMO

| Package Type | Units | | | | | Dimension (unit: mm3) | |
|--------------|------------|----------------|----------------|-----------------------|-----------------|-----------------------|-----------------------------|
| | Units/tape | Tape/Inner Box | Rows/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Inner Box | Outer Box |
| TO-92 | 3,000 | 1 | 120 | 10 | 30,000 | 328×230×42 | 480×346×235, 547×407×268 |

Package Outline Dimensions

TO-92

Unit: mm

