

C945 TRANSISTOR (NPN)

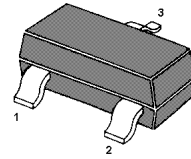
FEATURE

Excellent h_{FE} Linearity

Low noise

Complementary to A733

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

MARKING: CR

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

| Symbol | Parameter | Value | Units |
|-----------|-------------------------------|---------|------------------|
| 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 | 200 | mW |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature | -55-150 | $^\circ\text{C}$ |

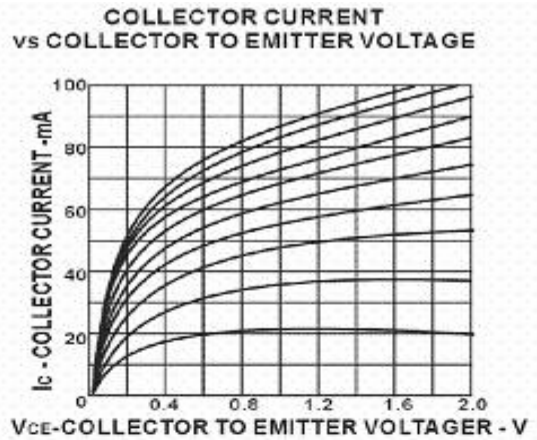
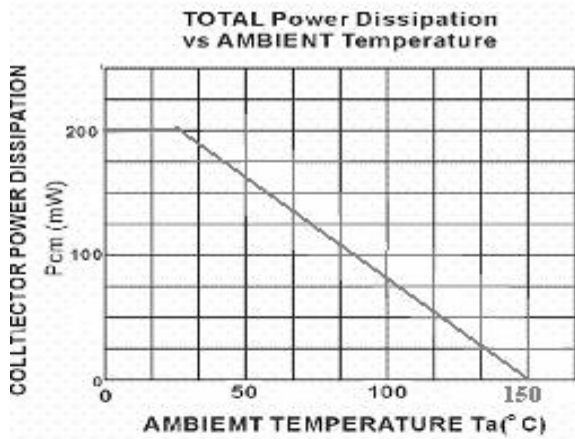
ELECTRICAL CHARACTERISTICS ($T_{amb}=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|-----|---------------|
| Collector-base breakdown voltage | $V(BR)_{CBO}$ | $I_C=100\mu\text{A}$, $I_E=0$ | 60 | | | V |
| Collector-emitter breakdown voltage | $V(BR)_{CEO}$ | $I_C=1\text{mA}$, $I_B=0$ | 50 | | | V |
| Emitter-base breakdown voltage | $V(BR)_{EBO}$ | $I_E=0.1\text{mA}$, $I_C=0$ | 5 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=60\text{V}$, $I_E=0$ | | | 0.1 | μA |
| Collector cut-off current | I_{CER} | $V_{CE}=55\text{V}$, $R=10\text{M}\Omega$ | | | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=5\text{V}$, $I_C=0$ | | | 0.1 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}=6\text{V}$, $I_C=1\text{mA}$ | 200 | | 400 | |
| | $h_{FE(2)}$ | $V_{CE}=6\text{V}$, $I_C=0.1\text{mA}$ | 40 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=100\text{mA}$, $I_B=10\text{mA}$ | | | 0.3 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=100\text{mA}$, $I_B=10\text{mA}$ | | | 1 | V |
| Transition frequency | f_T | $V_{CE}=6\text{V}$, $I_C=10\text{mA}$, $f=30\text{MHz}$ | 150 | | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$ | | | 3.0 | pF |
| Noise figure | NF | $V_{CE}=6\text{V}$, $I_C=0.1\text{mA}$ $R_g=10\text{k}\Omega$, $f=1\text{kHz}$ | | 4 | 10 | dB |

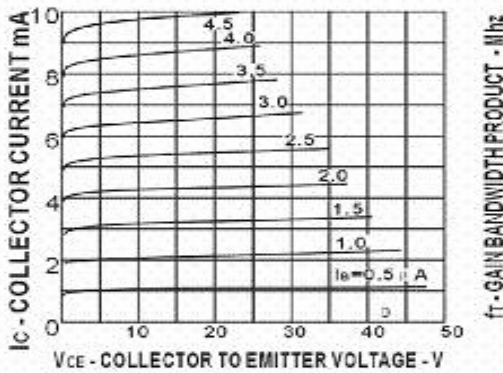


Typical Characteristics

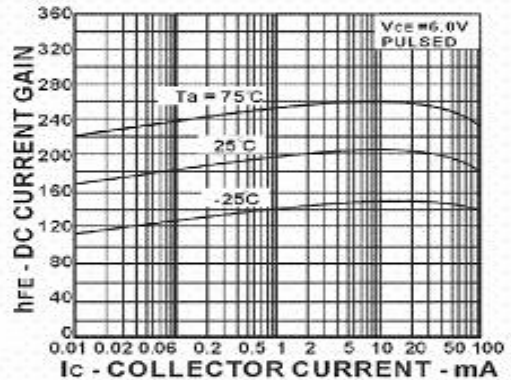
C945



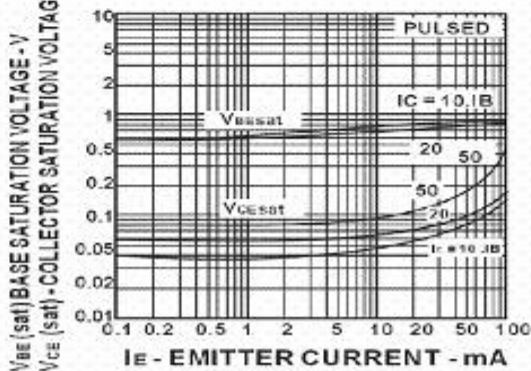
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



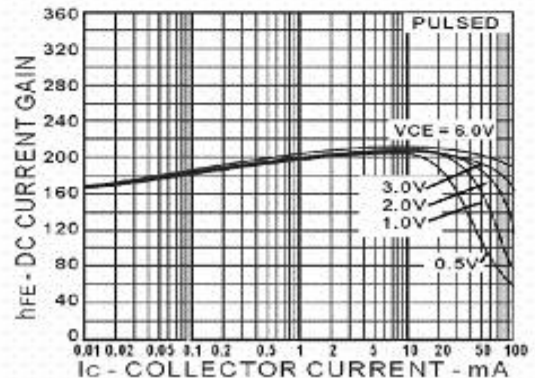
DC CURRENT GAIN vs. COLLECTOR CURRENT



COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT

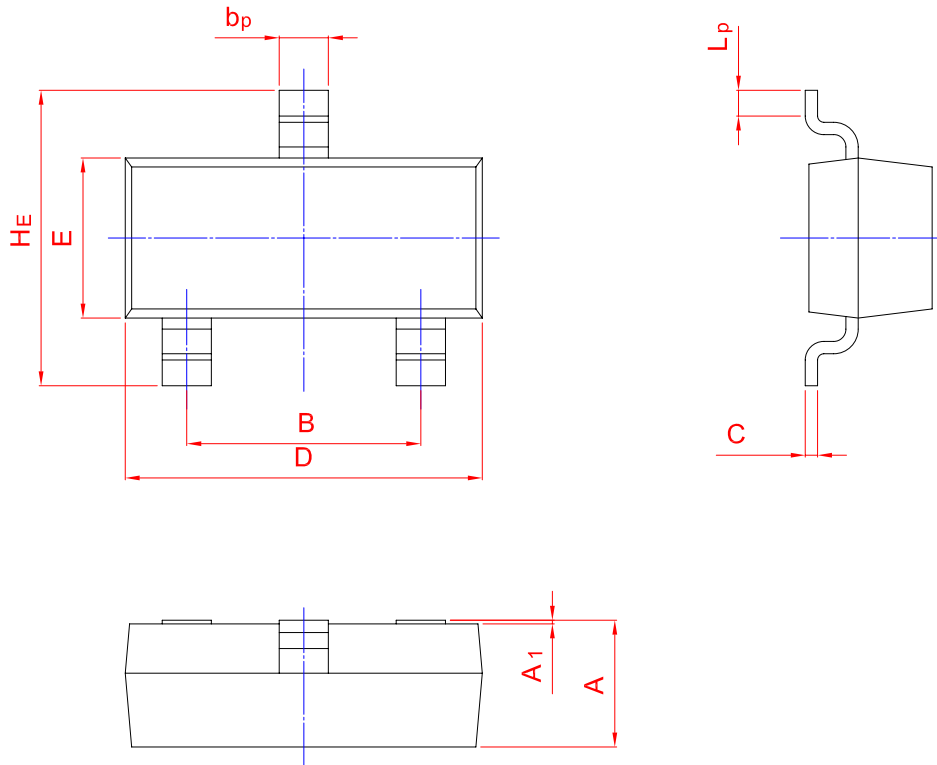
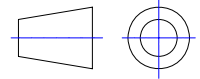




PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| UNIT | A | B | bp | C | D | E | Hε | A1 | Lp |
|------|------|------|------|------|------|------|------|-------|------|
| mm | 1.40 | 2.04 | 0.50 | 0.19 | 3.10 | 1.65 | 3.00 | 0.100 | 0.50 |
| | 0.95 | 1.78 | 0.35 | 0.08 | 2.70 | 1.20 | 2.20 | 0.013 | 0.20 |