

KSC1730

NPN EPITAXIAL SILICON TRANSISTOR

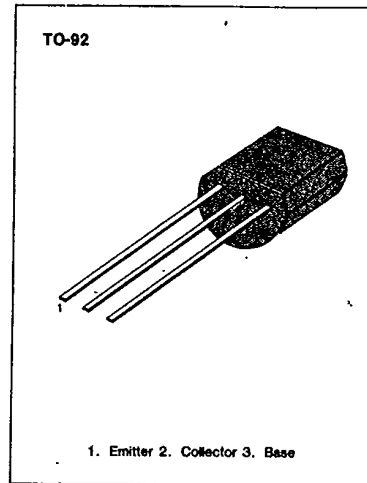
T-31-17

TV VHF, UHF TUNER OSCILLATOR

- High Current Gain Bandwidth Product $f_T = 1100\text{MHz}$ (Typ)
- Output Capacitance $C_{ob} = 1.5\text{pF}$ (Max)

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| Characteristic | Symbol | Rating | Unit |
|---------------------------|-----------|-----------|------------------|
| Collector-Base Voltage | V_{CBO} | 30 | V |
| Collector-Emitter Voltage | V_{CEO} | 15 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 50 | mA |
| Collector Dissipation | P_C | 250 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -55 ~ 150 | $^\circ\text{C}$ |



3

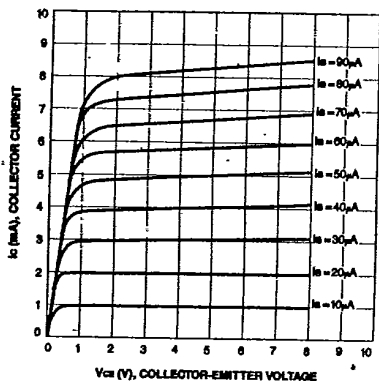
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------------|--|-----|------|-----|---------------|
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C = 10\mu\text{A}, I_E = 0$ | 30 | | | V |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C = 5\text{mA}, I_B = 0$ | 15 | | | V |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E = -10\mu\text{A}, I_C = 0$ | 5 | | | V |
| Collector Cut-off Current | I_{CBO} | $V_{CB} = 12\text{V}, I_E = 0$ | | | 0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = 10\text{V}, I_C = 5.0\text{mA}$ | 40 | | 240 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 10\text{mA}, I_B = 1\text{mA}$ | | | 0.5 | V |
| Current Gain-Bandwidth Product | f_T | $V_{CE} = 10\text{V}, I_C = 5\text{mA}$ | 800 | 1100 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = 10\text{V}, f = 1\text{MHz}$ $I_E = 0$ | | | 1.5 | pF |
| Collector-Base Time Constant | $C_C \cdot r_{bb'}$ | $V_{CE} = 10\text{V}, f = 31.9\text{MHz}$ $I_E = -0.5\text{mA}$ | | 10 | 20 | ps |

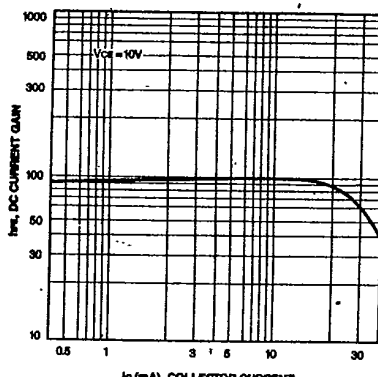
 h_{FE} CLASSIFICATION

| Classification | R | O | Y |
|----------------|-------|--------|---------|
| h_{FE} | 40-80 | 70-140 | 120-240 |

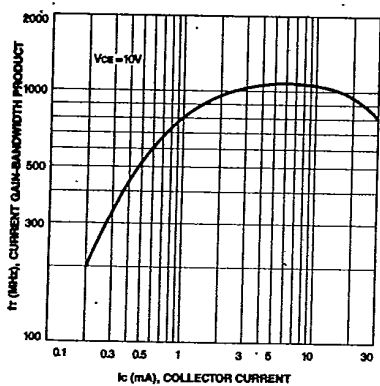
STATIC CHARACTERISTIC



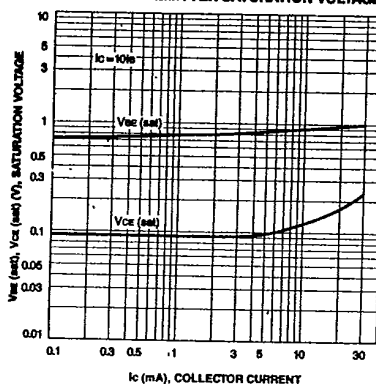
DC CURRENT GAIN



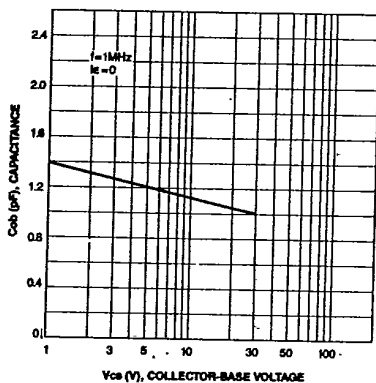
CURRENT GAIN-BANDWIDTH PRODUCT



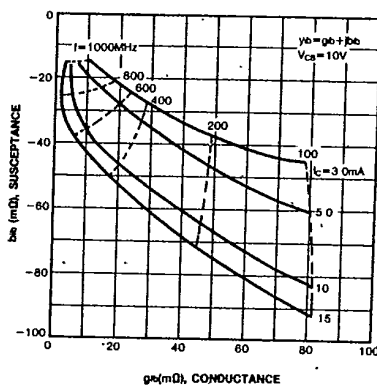
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



OUTPUT CAPACITANCE



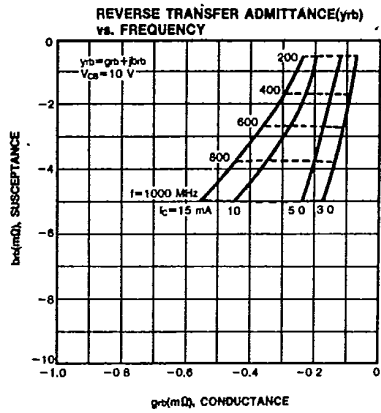
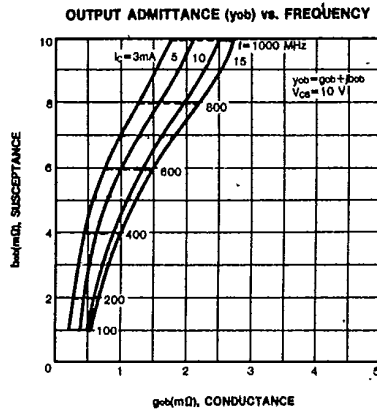
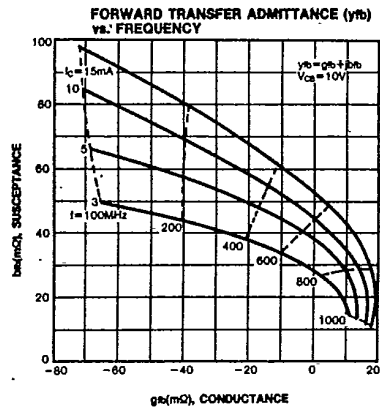
INPUT ADMITTANCE (yib) vs. FREQUENCY



KSC1730

NPN EPITAXIAL SILICON TRANSISTOR

T-31-17



3