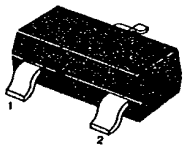
# KSC2758 NPN EPITAXIAL SILICON TRANSISTOR

T-31-15

## RF. MIXER FOR UHF TUNER

- HIGH POWER GAIN TYP. 17dB
- LOW NF TYP. 2.8dB

SOT-23



1. Base 2. Emitter 3. Collector

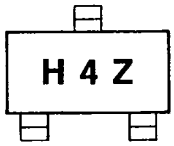
## ABSOLUTE MAXIMUM RATINGS ($T_a$=25°C)

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 30 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 25 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 4 | V |
| Collector Current (DC) | $I_C$ | 20 | mA |
| Collector Dissipation | $P_C$ | 150 | mW |
| Junction Temperature | Tj | 150 | °C |
| Storage Temperature | Tstg | −55−150 | °C |

## ELECTRICAL CHARACTERISTICS ($T_a$=25°C)

| Characteristic | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=25V, $I_E$=0 | | | 0.1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=10V, $I_C$=3mA | 60 | 120 | 240 | |
| Current Gain Bandwidth Product | $f_T$ | $V_{CE}$=10V, $I_E$=−3mA | 750 | 1000 | | MHz |
| Output Capacitance | Cob | f=1MHz, $V_{CB}$=10V, $I_E$=0 | | 0.6 | 0.8 | pF |
| Noise Figure | NF | $V_{CB}$=10V, $I_E$=−3mA f=900MHz | | 2.8 | 4.5 | dB |
| Power Gain | Gpb | $V_{CB}$=10V, $I_E$=−3mA, f=900MHz | 14 | 17 | | dB |
| AGC Current | $I_{AGC}$ | Gpb AGC=$I_E$ of $G_{Pb}$−30dB | | −8 | −11 | mA |

Marking



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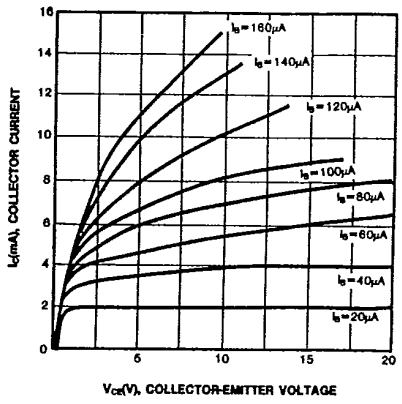
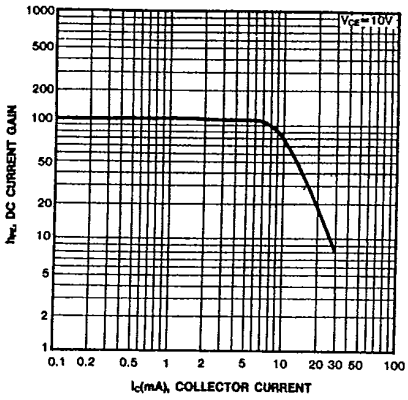
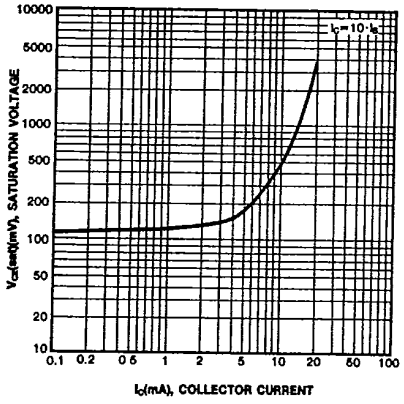
$I_C$-$V_{CE}$ CHARACTERISTIC



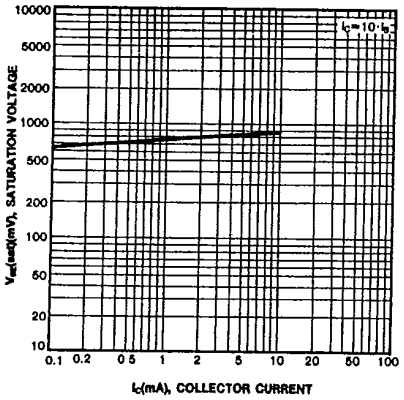

$h_{FE}$-$I_C$ CHARACTERISTIC



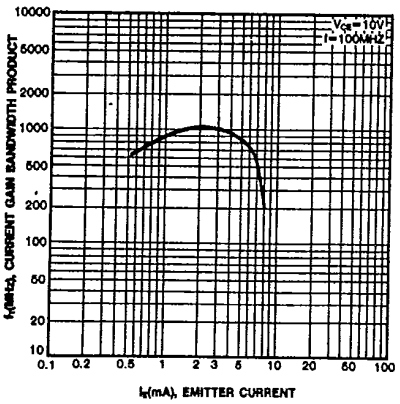

$V_{CE}$(sat)-$I_C$ CHARACTERISTIC



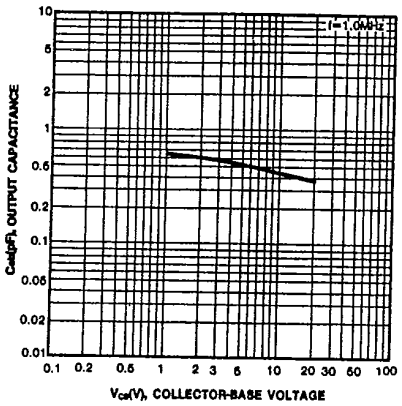

$V_{BE}$(sat)-$I_C$ CHARACTERISTIC




$f_T$-$I_E$ CHARACTERISTIC




Cob-$V_{CB}$ CHARACTERISTIC

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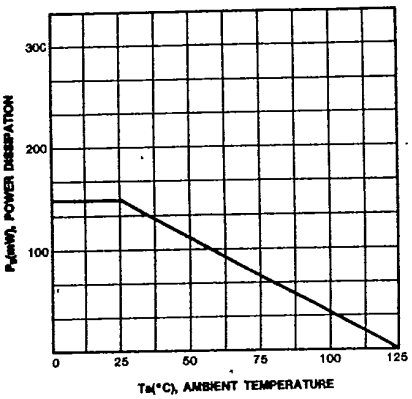
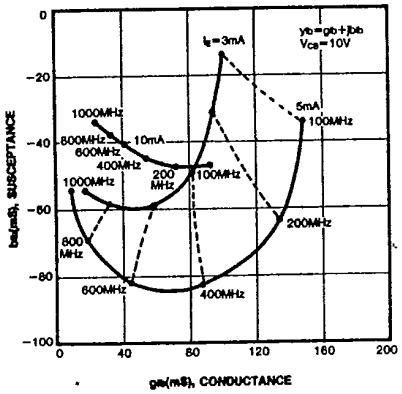
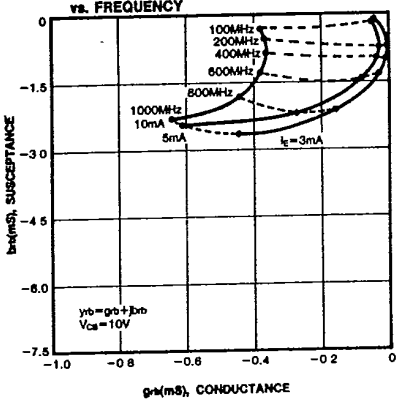
$P_C$-$T_a$ CHARACTERISTIC



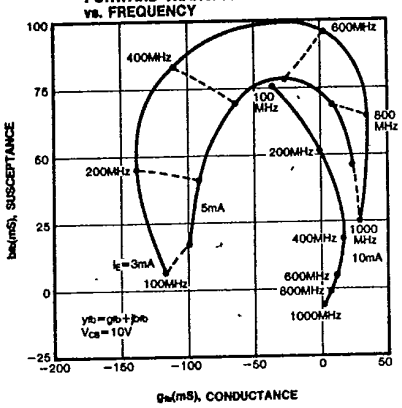

INPUT ADMITTANCE vs. FREQUENCY



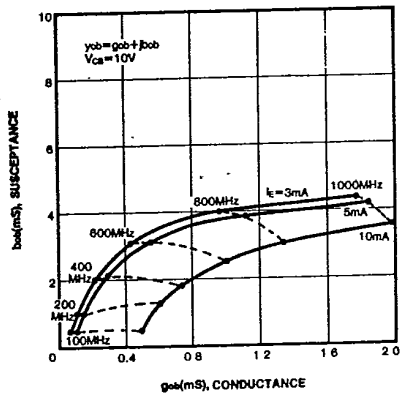

REVERSE TRANSFER ADMITTANCE vs. FREQUENCY



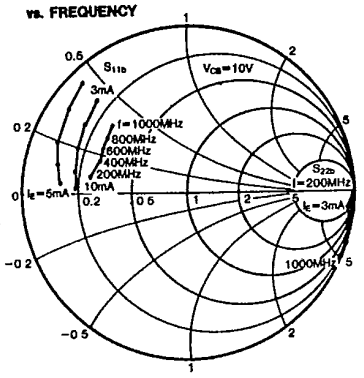

FORWARD TRANSFER ADMITTANCE vs. FREQUENCY




OUTPUT ADMITTANCE vs. FREQUENCY




INPUT AND OUTPUT REFLECTION COEFFICIENT vs. FREQUENCY



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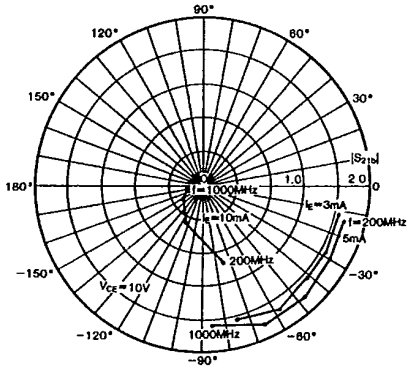
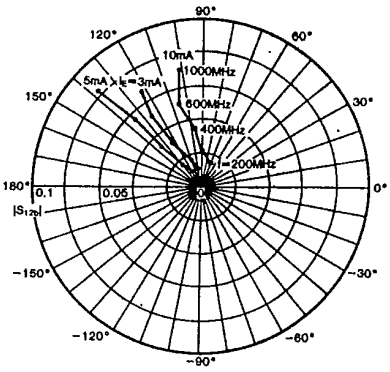
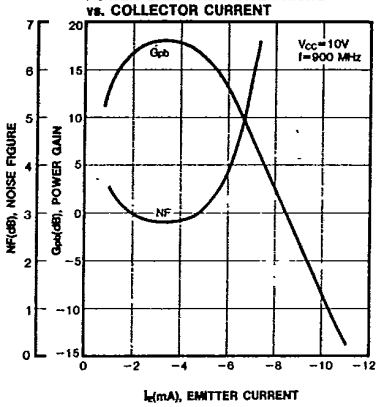
FORWARD INSERTION GAIN vs. FREQUENCY



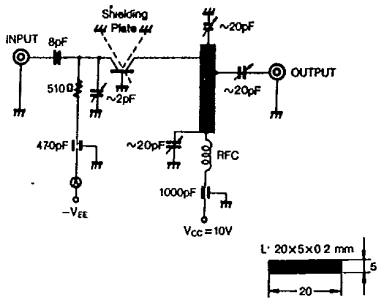

REVERSE INSERTION GAIN vs. FREQUENCY




POWER GAIN AND NOISE FIGURE vs. COLLECTOR CURRENT




900 MHz Gpb, NF TEST CIRCUIT

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