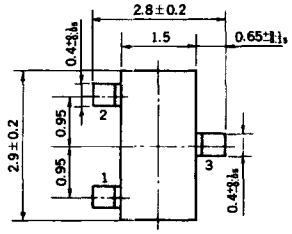
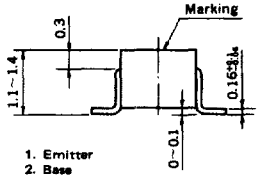
# SILICON TRANSISTOR
# 2SC2758

## RF AMP. FOR UHF TV TUNER
## NPN SILICON TRANSISTOR
## MINI MOLD

**PACKAGE DIMENSIONS**
in millimeters




1. Emitter
2. Base
3. Collector

The 2SC2758 is specifically designed for UHF RF amplifier applications. The 2SC2758 features high power gain, low noise, and excellent forward AGC characteristics in tiny plastic mini mold package designed for use in small type equipments especially recommended for Hybrid Integrated Circuit and other applications.

**FEATURES**

- Low NF high $G_{pb}$.
  NF = 2.8 dB TYP. $G_{pb}$ = 18 dB TYP. (f = 900 MHz)
- Forward AGC characteristic.

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

| | | | |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | 30 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | 25 | V |
| Emitter to Base Voltage | $V_{EBO}$ | 3.0 | V |
| Collector Current | $I_C$ | 20 | mA |
| Total Power Dissipation | $P_T$ | 150 | mW |
| Junction Temperature | $T_j$ | 125 | °C |
| Storage Temperature | $T_{stg}$ | −55 to +125 | °C |

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

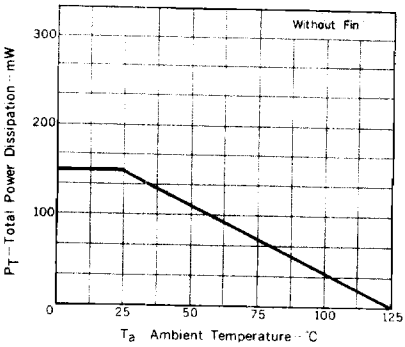
| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| Collector Cutoff Current | $I_{CBO}$ | | | 0.1 | μA | $V_{CB}$ = 25 V, $I_E$ = 0 |
| DC Current Gain | $h_{FE}$ | 60 | 120 | 240 | | $V_{CE}$ = 10 V, $I_C$ = 3.0 mA |
| Gain Bandwidth Product | $f_T$ | 750 | 1000 | | MHz | $V_{CE}$ = 10 V, $I_E$ = −3.0 mA |
| Output Capacitance | $C_{ob}$ | | 0.6 | 0.8 | pF | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz |
| Noise Figure | NF | | 2.8 | 4.5 | dB | $V_{CB}$ = 10 V, $I_E$ = −3.0 mA, f = 900 MHz |
| Power Gain | $G_{pb}$ | 14 | | | dB | $V_{CB}$ = 10 V, $I_E$ = −3.0 mA, f = 900 MHz |
| AGC Current | $I_{AGC}$ | −8 | | −11 | mA | $I_E$ for which $G_{pbAGC} = G_{pb}$−30 dB |

$I_{AGC}$ Classification

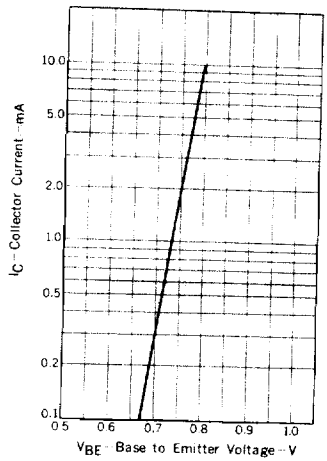
| Marking | U12 | U13 | U14 |
|---|---|---|---|
| $I_{AGC}$(mA) | −8 to −10 | −9 to −11 | − |

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

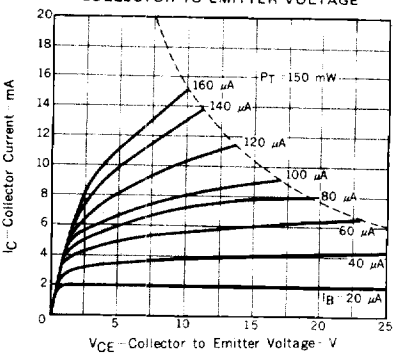
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



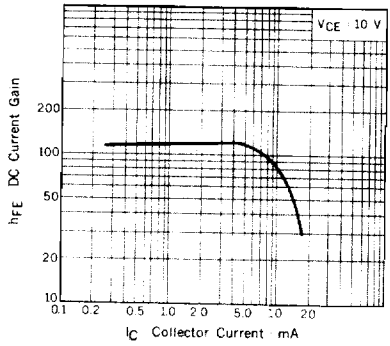

COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



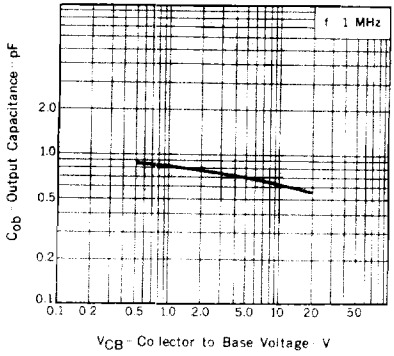

COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



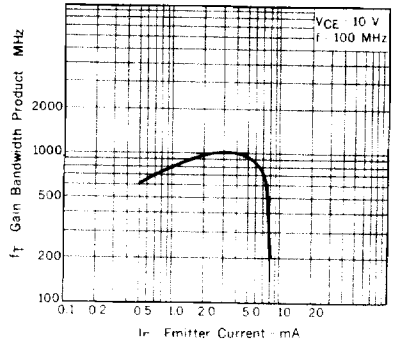

DC CURRENT GAIN vs. COLLECTOR CURRENT




OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE

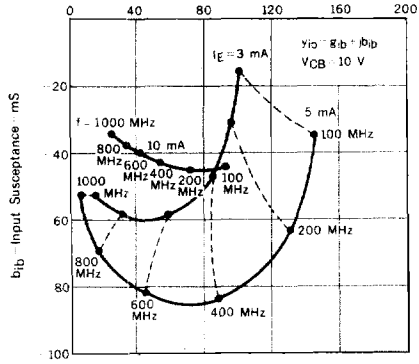



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT

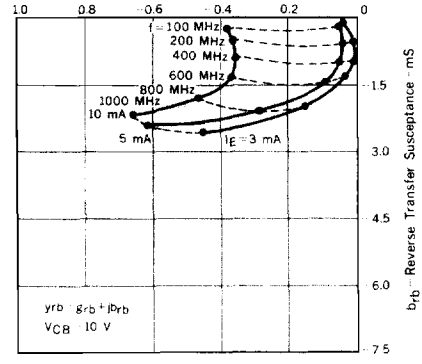


## TYPICAL CHARACTERISTICS of "Y" PARAMETERS

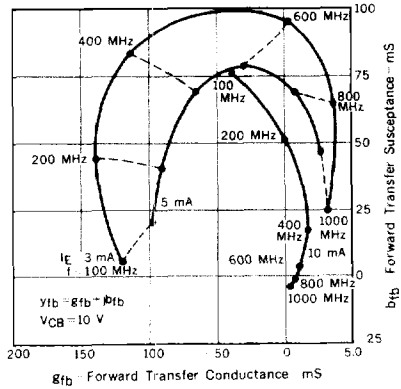
INPUT ADMITTANCE ($Y_{ib}$) vs. FREQUENCY



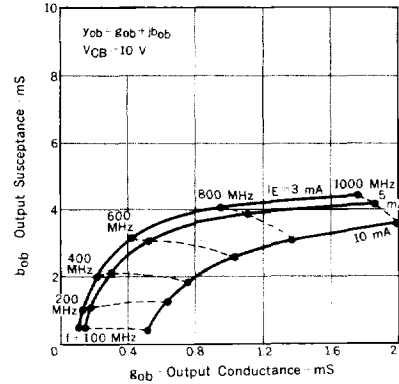

REVERSE TRANSFER ADMITTANCE ($Y_{rb}$) vs. FREQUENCY



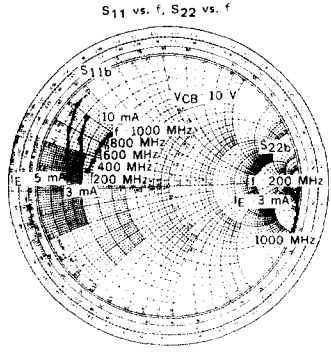

FORWARD TRANSFER ADMITTANCE ($Y_{fb}$) vs. FREQUENCY




OUTPUT ADMITTANCE ($Y_{ob}$) vs. FREQUENCY




$S_{11}$ vs. f, $S_{22}$ vs. f

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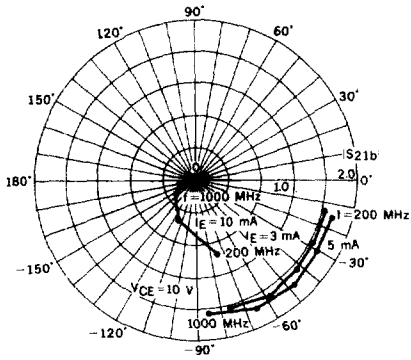
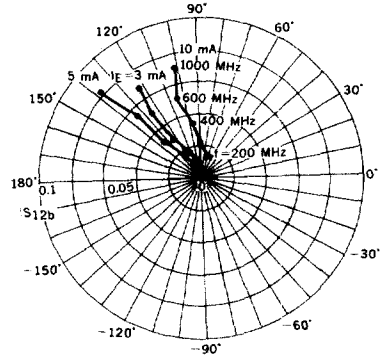
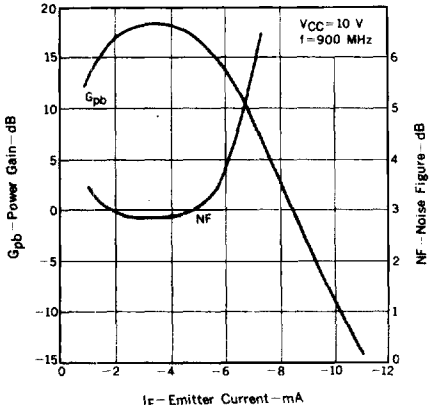
$S_{21b}$ vs. f



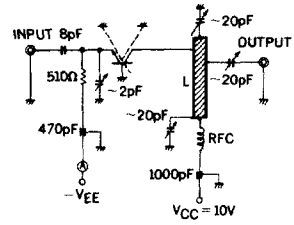

$S_{12b}$ vs. f




NOISE FIGURE, POWER GAIN vs. EMITTER CURRENT




900 MHz $G_{pb}$ NF TEST CIRCUIT




L : 20×5.0×0.2 mm