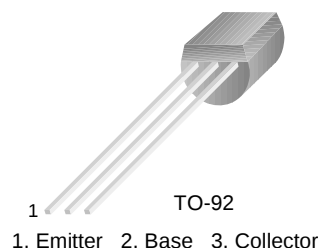


# SS9013

SS9013

## 1W Output Amplifier of Potable Radios in Class B Push-pull Operation.

- High total power dissipation. ( $P_T=625\text{mW}$ )
- High Collector Current. ( $I_C=500\text{mA}$ )
- Complementary to SS9012
- Excellent  $h_{FE}$  linearity.



## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                   | Ratings   | Units            |
|-----------|-----------------------------|-----------|------------------|
| $V_{CBO}$ | Collector-Base Voltage      | 40        | V                |
| $V_{CEO}$ | Collector-Emitter Voltage   | 20        | V                |
| $V_{EBO}$ | Emitter-Base Voltage        | 5         | V                |
| $I_C$     | Collector Current           | 500       | mA               |
| $P_C$     | Collector Power Dissipation | 625       | mW               |
| $T_J$     | Junction Temperature        | 150       | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature         | -55 ~ 150 | $^\circ\text{C}$ |

### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol                 | Parameter                            | Test Condition                                                                    | Min.     | Typ.       | Max. | Units |
|------------------------|--------------------------------------|-----------------------------------------------------------------------------------|----------|------------|------|-------|
| $BV_{CBO}$             | Collector-Base Breakdown Voltage     | $I_C=100\mu\text{A}$ , $I_E=0$                                                    | 40       |            |      | V     |
| $BV_{CEO}$             | Collector-Emitter Breakdown Voltage  | $I_C=1\text{mA}$ , $I_B=0$                                                        | 20       |            |      | V     |
| $BV_{EBO}$             | Emitter-Base Breakdown Voltage       | $I_E=100\mu\text{A}$ , $I_C=0$                                                    | 5        |            |      | V     |
| $I_{CBO}$              | Collector Cut-off Current            | $V_{CB}=25\text{V}$ , $I_E=0$                                                     |          |            | 100  | nA    |
| $I_{EBO}$              | Emitter Cut-off Current              | $V_{EB}=3\text{V}$ , $I_C=0$                                                      |          |            | 100  | nA    |
| $h_{FE1}$<br>$h_{FE2}$ | DC Current Gain                      | $V_{CE}=1\text{V}$ , $I_C=50\text{mA}$<br>$V_{CE}=1\text{V}$ , $I_C=500\text{mA}$ | 64<br>40 | 120<br>120 | 202  |       |
| $V_{CE}(\text{sat})$   | Collector-Emitter Saturation Voltage | $I_C=500\text{mA}$ , $I_B=50\text{mA}$                                            |          | 0.16       | 0.6  | V     |
| $V_{BE}(\text{sat})$   | Base-Emitter Saturation Voltage      | $I_C=500\text{mA}$ , $I_B=50\text{mA}$                                            |          | 0.91       | 1.2  | V     |
| $V_{BE}(\text{on})$    | Base-Emitter On Voltage              | $V_{CE}=1\text{V}$ , $I_C=10\text{mA}$                                            | 0.6      | 0.67       | 0.7  | V     |

## $h_{FE}$ Classification

| Classification | D       | E        | F        | G         | H         |
|----------------|---------|----------|----------|-----------|-----------|
| $h_{FE1}$      | 64 ~ 91 | 78 ~ 112 | 96 ~ 135 | 112 ~ 166 | 144 ~ 202 |

## Typical Characteristics

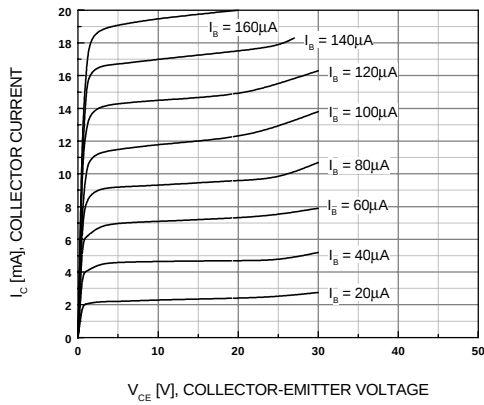


Figure 1. Static Characteristic

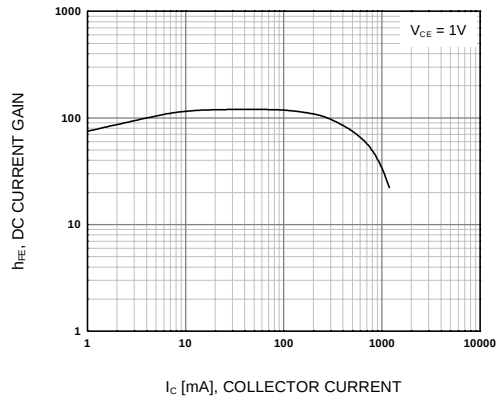


Figure 2. DC current Gain

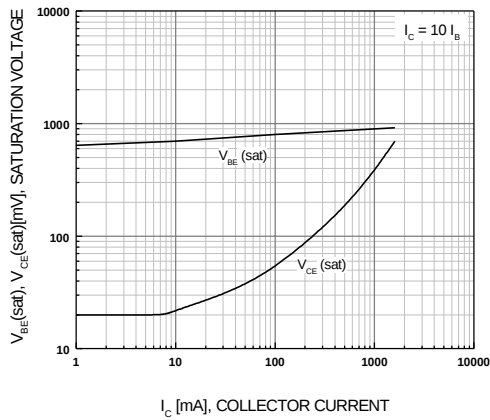


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

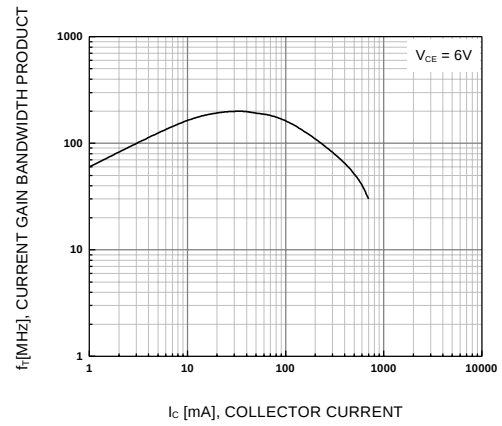


Figure 4. Current Gain Bandwidth Product

# Package Dimensions

## TO-92



Dimensions in Millimeters

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