

DESCRIPTION

2SC3104 is a silicon NPN epitaxial planar type transistor specifically designed for UHF power amplifier applications.

FEATURES

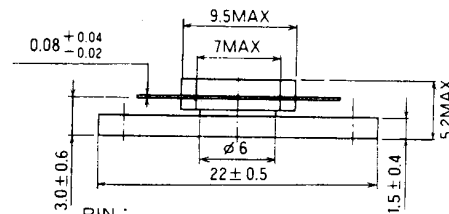
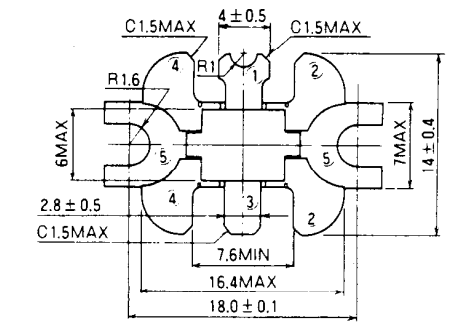
- High power gain: $G_{pe} \geq 4.7\text{dB}$
@ $V_{CC} = 7.2\text{V}$, $f = 520\text{MHz}$, $P_{in} = 2\text{W}$.
- Emitter ballasted construction.
- High ruggedness: Ability to withstand more than 20:1 load VSWR when operated at $V_{CC} = 9\text{V}$, $f = 520\text{MHz}$, $P_O = 6\text{W}$.
- Flange type ceramic package.
- $Z_{in} = 1.6 - 0.4\ \Omega$, $Z_{out} = 3.5 - j1.0\ \Omega$ at $V_{CC} = 7.2\text{V}$, $f = 520\text{MHz}$, $P_O = 6\text{W}$.

APPLICATION

For output stage of 5W power amplifiers in UHF band portable type radio set.

OUTLINE DRAWING

Dimensions in mm



PIN :

- ① COLLECTOR
- ② EMITTER (FLANGE)
- ③ BASE
- ④ EMITTER (FLANGE)
- ⑤ FIN (EMITTER)

T-31E

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

| Symbol | Parameter | Conditions | Ratings | Unit |
|------------|------------------------------|--------------------------|------------|--------------------|
| V_{CBO} | Collector to base voltage | | 20 | V |
| V_{EBO} | Emitter to base voltage | | 3.5 | V |
| V_{CEO} | Collector to emitter voltage | $R_{BE} = \infty$ | 9 | V |
| I_C | Collector current | | 3 | A |
| P_C | Collector dissipation | $T_C = 25^\circ\text{C}$ | 20 | W |
| T_J | Junction temperature | | 175 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | -55 to 175 | $^\circ\text{C}$ |
| R_{th-c} | Thermal resistance | Junction to case | 7.5 | $^\circ\text{C/W}$ |

Note. Above parameters are guaranteed independently.

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

| Symbol | Parameter | Test conditions | Limits | | | Unit |
|---------------|--|---|--------|-----|-----|---------------|
| | | | Min | Typ | Max | |
| $V_{IBR1EBO}$ | Emitter to base breakdown voltage | $I_E = 5\text{mA}$, $I_C = 0$ | 3.5 | | | V |
| $V_{IBR1CBO}$ | Collector to base breakdown voltage | $I_C = 10\text{mA}$, $I_E = 0$ | 20 | | | V |
| $V_{IBR1CEO}$ | Collector to emitter breakdown voltage | $I_C = 50\text{mA}$, $R_{BE} = \infty$ | 9 | | | V |
| I_{CBO} | Collector cut off current | $V_{CB} = 10\text{V}$, $I_E = 0$ | | | 500 | μA |
| I_{EBO} | Emitter cut off current | $V_{EB} = 2\text{V}$, $I_C = 0$ | | | 500 | μA |
| h_{FE} | DC forward current gain * | $V_{CE} = 5\text{V}$, $I_C = 0.1\text{A}$ | 10 | 50 | 180 | — |
| P_O | Power Output | $V_{CC} = 7.2\text{V}$, $P_{in} = 2\text{W}$, $f = 520\text{MHz}$ | 6 | 7 | | W |
| η_C | Collector efficiency | $V_{CC} = 7.2\text{V}$, $P_{in} = 2\text{W}$, $f = 520\text{MHz}$ | 60 | 65 | | % |

Note : Above parameters , ratings , limits and conditions are subject to change.