

DESCRIPTION

2SC3101 is a silicon NPN epitaxial planar type transistor specifically designed for UHF power amplifiers applications.

FEATURES

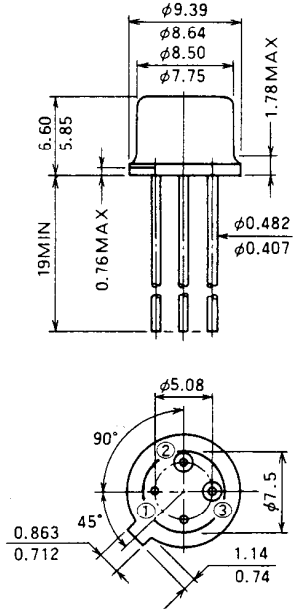
- High power gain: $G_{pe} \geq 5.7\text{dB}$
@ $V_{CC} = 12.5\text{V}$, $f = 520\text{MHz}$, $P_{in} = 0.8\text{W}$
- Emitter ballasted construction
- High ruggedness: Ability to withstand more than 20:1 load VSWR when operated at @ $V_{CC} = 15.2\text{V}$, $f = 520\text{MHz}$, $P_o = 3\text{W}$.

APPLICATION

For drive stage and output stage of power amplifiers in UHF band.

OUTLINE DRAWING

Dimensions in mm



PIN :
 ① EMITTER (CASE)
 ② BASE
 ③ COLLECTOR

T-8E

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

| Symbol | Parameter | Conditions | Ratings | Unit |
|-----------|------------------------------|--------------------------|------------|------------------|
| V_{CEO} | Collector to base voltage | | 35 | V |
| V_{EBO} | Emitter to base voltage | | 4 | V |
| V_{CEO} | Collector to emitter voltage | $R_{BE} = \infty$ | 17 | V |
| I_C | Collector current | | 1 | A |
| P_C | Collector dissipation | $T_C = 25^\circ\text{C}$ | 10 | W |
| T_j | Junction temperature | | 175 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | -55 to 175 | $^\circ\text{C}$ |

Note. Above parameters are guaranteed independently.

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

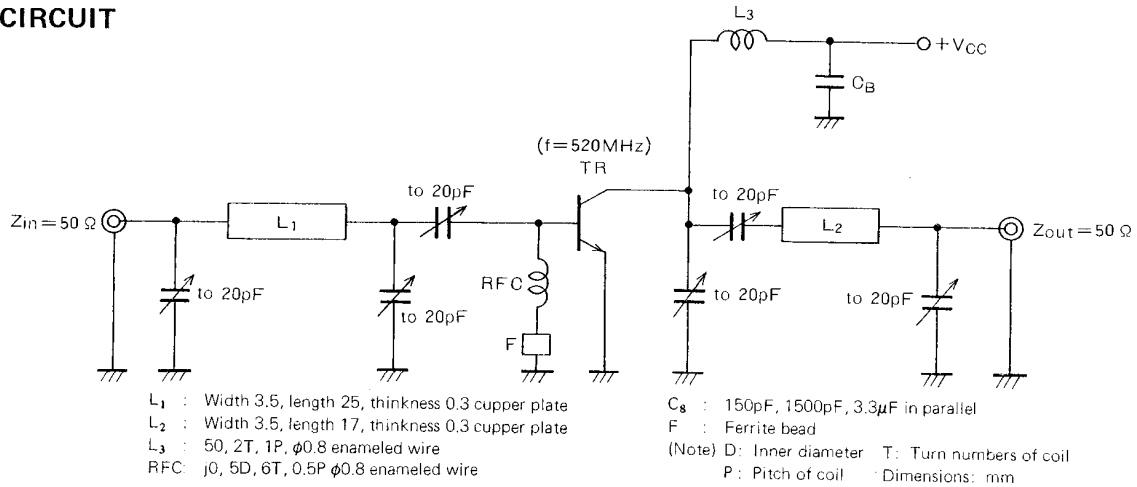
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|---------------|--|--|--------|-----|-----|---------------|
| | | | Min | Typ | Max | |
| $V_{(BR)EBO}$ | Emitter to base breakdown voltage | $I_E = 1\text{mA}$, $I_C = 0$ | 4 | | | V |
| $V_{(BR)CBO}$ | Collector to base breakdown voltage | $I_C = 10\text{mA}$, $I_E = 0$ | 35 | | | V |
| $V_{(BR)CEO}$ | Collector to emitter breakdown voltage | $I_C = 10\text{mA}$, $R_{BE} = \infty$ | 17 | | | V |
| I_{CBO} | Collector cutoff current | $V_{CB} = 15\text{V}$, $I_E = 0$ | | | 300 | μA |
| I_{EBO} | Emitter cutoff current | $V_{EB} = 2\text{V}$, $I_C = 0$ | | | 300 | μA |
| h_{FE} | DC forward current gain * | $V_{CB} = 10\text{V}$, $I_C = 0.1\text{A}$ | 10 | 50 | 180 | — |
| P_o | Output power | $V_{CC} = 12.5\text{V}$, $P_{in} = 0.8\text{W}$, $f = 520\text{MHz}$. | 3 | 3.5 | | W |
| η_C | Collector efficiency | | 50 | 60 | | % |

Note. * Pulse test, $P_w = 150\mu\text{s}$, duty = 5%.

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

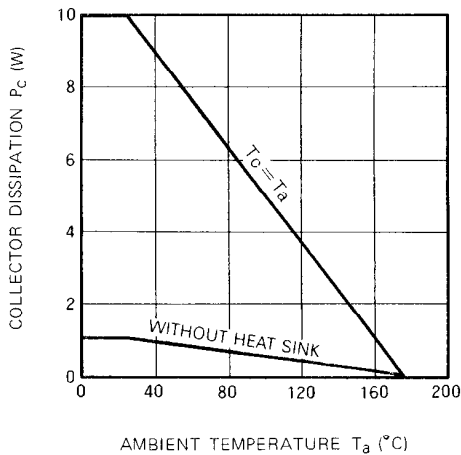
NPN EPITAXIAL PLANAR TYPE

TEST CIRCUIT

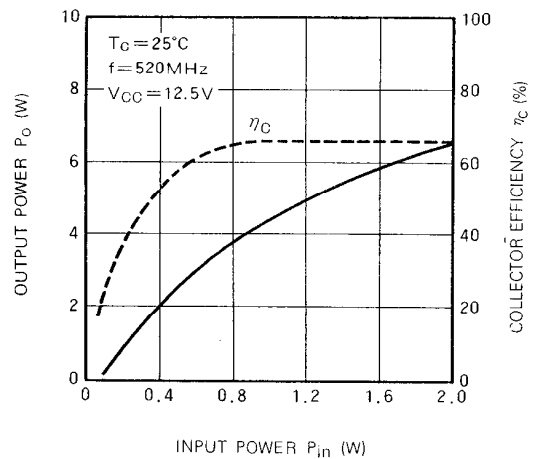


TYPICAL PERFORMANCE DATA

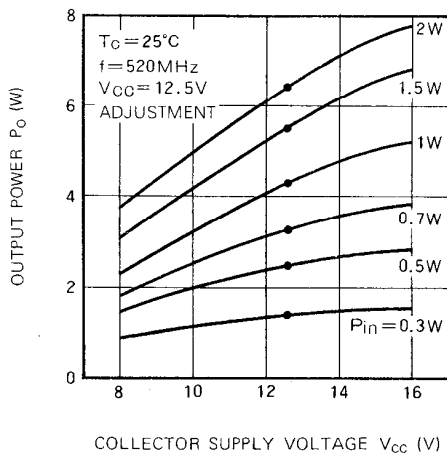
COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE CHARACTERISTICS



OUTPUT POWER, COLLECTOR EFFICIENCY VS. INPUT POWER CHARACTERISTICS



OUTPUT POWER VS. COLLECTOR SUPPLY VOLTAGE CHARACTERISTICS



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE CHARACTERISTICS

