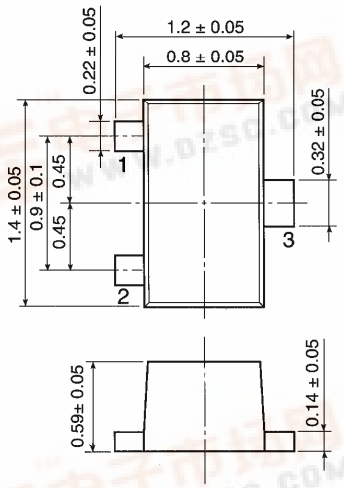
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC5322FT

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

- Low Noise Figure : NF = 1.4 dB (f = 2 GHz)
- High Gain : $|S_{21e}|^2$ = 10 dB (f = 2 GHz)

Unit in mm



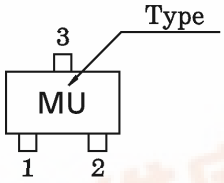

1. BASE
2. EMITTER
3. COLLECTOR

| | |
|---|---|
| TESM | |
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 2-1B1A |

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 8 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 5 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 1.5 | V |
| Collector Current | $I_C$ | 10 | mA |
| Base Current | $I_B$ | 5 | mA |
| Collector Power Dissipation | $P_C$ | 100 | mW |
| Junction Temperature | $T_j$ | 125 | °C |
| Storage Temperature Range | $T_{stg}$ | −55~125 | °C |

MARKING




MICROWAVE CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Transition Frequency | $f_T$ | $V_{CE}$ = 3 V, $I_C$ = 7 mA | 9 | — | — | GHz |
| Insertion Gain | $\|S_{21e}\|^2$ (1) | $V_{CE}$ = 3 V, $I_C$ = 7 mA, f = 1 GHz | 12.5 | 15.5 | — | dB |
| | $\|S_{21e}\|^2$ (2) | $V_{CE}$ = 3 V, $I_C$ = 7 mA, f = 2 GHz | 7 | 10 | — | |
| Noise Figure | NF (1) | $V_{CE}$ = 3 V, $I_C$ = 3 mA, f = 1 GHz | — | 0.9 | 1.8 | dB |
| | NF (2) | $V_{CE}$ = 3 V, $I_C$ = 3 mA, f = 2 GHz | — | 1.4 | 2.2 | |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}$ = 8 V, $I_E$ = 0 | — | — | 1 | μA |
| Emitter Cut-off Current | $I_{EBO}$ | $V_{EB}$ = 1 V, $I_C$ = 0 | — | — | 1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$ = 3 V, $I_C$ = 7 mA | 50 | — | 250 | — |
| Output Capacitance | $C_{ob}$ | $V_{CB}$ = 2.5 V, $I_E$ = 0, f = 1 MHz (Note) | — | 0.4 | — | pF |
| Reverse Transfer Capacitance | $C_{re}$ | | — | 0.3 | 0.7 | pF |

(Note) $C_{re}$ is measured by 3 terminal method with Capacitance bridge.

CAUTION

This device electrostatic sensitivity. Please handle with caution.

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