

TOSHIBA

MT3S06U

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT3S06U

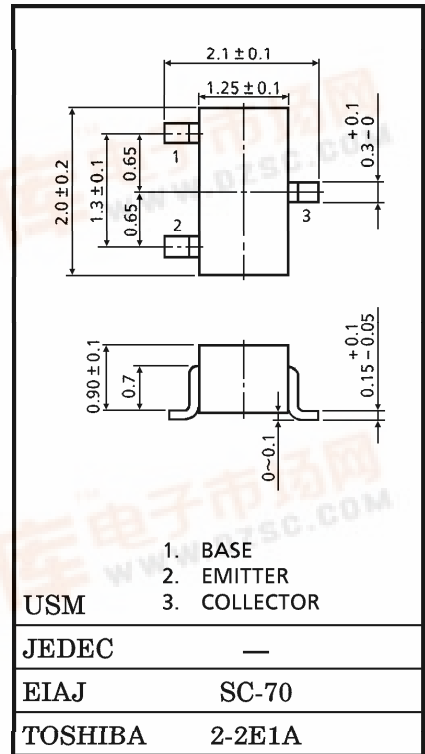
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

- Low Noise Figure : $NF = 1.6 \text{ dB}$
($V_{CE} = 3 \text{ V}, I_C = 3 \text{ mA}, f = 2 \text{ GHz}$)
- High Gain : $|S_{21e}|^2 = 9.5 \text{ dB}$
($V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}, f = 2 \text{ GHz}$)

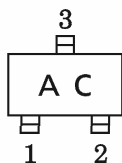
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------|---------|------------------|
| Collector-Base Voltage | V_{CBO} | 10 | V |
| Collector-Emitter Voltage | V_{CEO} | 5 | V |
| Emitter-Base Voltage | V_{EBO} | 1.5 | V |
| Base Current | I_C | 15 | mA |
| Collector Current | I_B | 7 | mA |
| Collector Power Dissipation | P_C | 60 | mW |
| Junction Temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55~125 | $^\circ\text{C}$ |



Weight : 0.006 g

MARKING



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MICROWAVE CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------|-------------------|---|------|------|------|------|
| Transition Frequency | f_T | $V_{CE} = 3 \text{ V}, I_C = 5 \text{ mA}$ | 7 | 10 | — | GHz |
| Insertion Gain | $ S_{21e} ^2 (1)$ | $V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}, f = 2 \text{ GHz}$ | — | 8.5 | — | dB |
| | $ S_{21e} ^2 (2)$ | $V_{CE} = 3 \text{ V}, I_C = 7 \text{ mA}, f = 2 \text{ GHz}$ | 6.5 | 9.5 | — | |
| Noise Figure | NF (1) | $V_{CE} = 1 \text{ V}, I_C = 3 \text{ mA}, f = 2 \text{ GHz}$ | — | 1.7 | 3 | dB |
| | NF (2) | $V_{CE} = 3 \text{ V}, I_C = 3 \text{ mA}, f = 2 \text{ GHz}$ | — | 1.6 | 3 | |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|------------------------------|-----------|--|------|------|------|---------------|
| Collector Cut-off Current | I_{CBO} | $V_{CB} = 5 \text{ V}, I_E = 0$ | — | — | 0.1 | μA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = 1 \text{ V}, I_C = 0$ | — | — | 1 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = 1 \text{ V}, I_C = 5 \text{ mA}$ | 70 | — | 140 | — |
| Reverse Transfer Capacitance | C_{re} | $V_{CB} = 1 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ (Note) | — | 0.25 | 0.7 | pF |

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

CAUTION

This device electrostatic sensitivity. Please handle with caution.