

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

MT6L62AE

VHF-UHF Band Low Noise Amplifier Application

VHF-UHF Band Oscillator Application

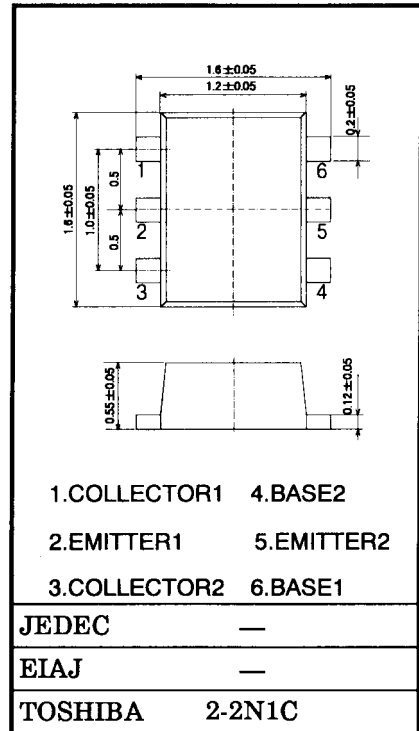
Unit in mm

Maximum Ratings (Ta = 25°C)

| Characteristics | Symbol | Rating | | Unit |
|-----------------------------|---------------------------|---------|----|------|
| | | Q1 | Q2 | |
| Collector-base voltage | V _{CBO} | 10 | 10 | V |
| Collector-emitter voltage | V _{CEO} | 5 | 5 | V |
| Emitter-base voltage | V _{EBO} | 1.5 | 2 | V |
| Collector current | I _C | 25 | 40 | mA |
| Base current | I _B | 10 | 10 | mA |
| Collector power dissipation | P _C (Note1) | 100 | | mW |
| Junction temperature | T _j | 125 | | °C |
| Storage temperature range | T _{stg} | -55~125 | | °C |

Note1: Total power dissipation of Q1 and Q2

| | Q1 | Q2 |
|-----------------------------|---------|----------|
| Three pin SSM type part No. | MT3S07S | MT3S03AS |



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Electrical Characteristics Q1-Side (Ta = 25°C)

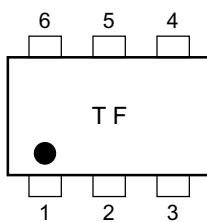
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|------------------------------|-------------------|-------------------------------------------------------------|-----|------|------|---------------|
| Collector cut-off current | I_{CBO} | $V_{CB} = 5\text{ V}, I_E = 0$ | — | — | 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 | — |
| Transition frequency | f_T | $V_{CE} = 3\text{ V}, I_C = 10\text{ mA}$ | 10 | 12 | — | GHz |
| Insertion gain | $ S_{21e} ^2 (1)$ | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$ | — | 7 | — | dB |
| | $ S_{21e} ^2 (2)$ | $V_{CE} = 3\text{ V}, I_C = 15\text{ mA}, f = 2\text{ GHz}$ | 6.5 | 8.5 | — | |
| Noise figure | NF (1) | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$ | — | 1.6 | 3 | dB |
| | NF (2) | $V_{CE} = 3\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$ | — | 1.5 | 3 | |
| Reverse transfer capacitance | C_{re} | $V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$ (Note2) | — | 0.45 | 0.85 | pF |

Electrical Characteristics Q2-Side (Ta = 25°C)

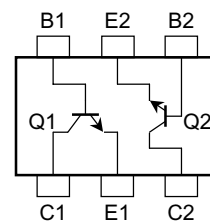
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|------------------------------|-------------------|-------------------------------------------------------------|-----|------|------|---------------|
| Collector cut-off current | I_{CBO} | $V_{CB} = 5\text{ V}, I_E = 0$ | — | — | 0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 1\text{ V}, I_C = 0$ | — | — | 1 | μA |
| DC current gain | h_{FE} | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$ | 80 | — | 160 | — |
| Transition frequency | $f_T (1)$ | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$ | 3 | 5 | — | GHz |
| | $f_T (2)$ | $V_{CE} = 3\text{ V}, I_C = 10\text{ mA}$ | 7 | 10 | — | |
| Insertion gain | $ S_{21e} ^2 (1)$ | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$ | — | 5 | — | dB |
| | $ S_{21e} ^2 (2)$ | $V_{CE} = 3\text{ V}, I_C = 20\text{ mA}, f = 2\text{ GHz}$ | 3 | 6.5 | — | |
| Noise figure | NF (1) | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$ | — | 1.7 | 3 | dB |
| | NF (2) | $V_{CE} = 3\text{ V}, I_C = 7\text{ mA}, f = 2\text{ GHz}$ | — | 1.4 | 2.2 | |
| Reverse transfer capacitance | C_{re} | $V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$ (Note2) | — | 0.8 | 1.15 | pF |

Note2: C_{re} is measured by 3 terminal method with capacitance bridge.

Marking



Pin Assignment (top view)



Caution

This device electrostatic sensitivity. Please handle with caution.