

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

MT6C03AS

VHF-UHF Band Low Noise Amplifier Application
 VHF-UHF Band Oscillator Application

Unit: mm

- Two devices are built into the sES6 package, which is smaller and thinner than the super-thin and ultra-super mini (6-pin) ES6 package.

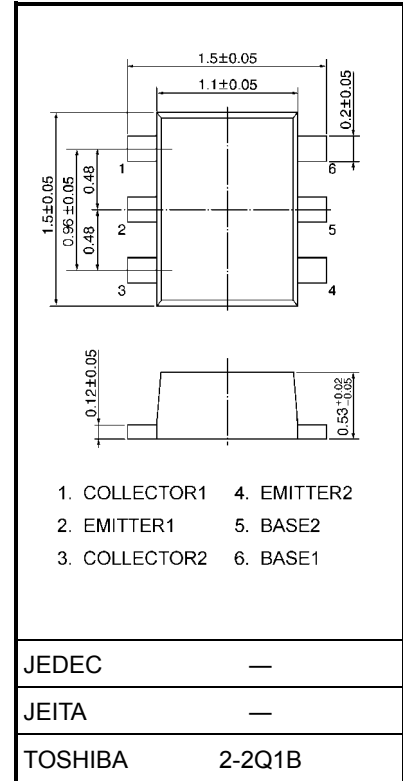
Mounted Devices

| | |
|------------------------------------|------------------------|
| | Q1/Q2: SSM (TESM) |
| Three pin (SSM/TESM) type part No. | MT3S03AS (MT3S03AT) |

Maximum Ratings (Ta = 25°C)

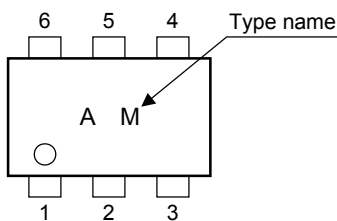
| Characteristics | Symbol | Q1/Q2 | Unit |
|-----------------------------|-------------------------|---------|------|
| Collector-base voltage | V _{CB0} | 10 | V |
| Collector-emitter voltage | V _{CEO} | 5 | V |
| Emitter-base voltage | V _{EBO} | 2 | V |
| Collector current | I _C | 40 | mA |
| Base current | I _B | 10 | mA |
| Collector power dissipation | P _C (Note 1) | 100 | mW |
| Junction temperature | T _j | 125 | °C |
| Storage temperature range | T _{stg} | -55~125 | °C |

Note 1: Total power dissipation of Q1 and Q2 mounted on the circuit board

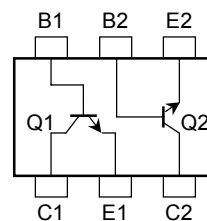


Weight: g (typ.)

Marking



Pin Assignment



Electrical Characteristics Q1/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 | $f_T(1)$ | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}$ | 5 | 7 | — | GHz |
| | $f_T(2)$ | $V_{CE} = 3\text{ V}, I_C = 10\text{ mA}$ | 7 | 10 | — | GHz |
| Insertion gain | $ S_{21e} ^2(1)$ | $V_{CE} = 1\text{ V}, I_C = 5\text{ mA}, f = 2\text{ GHz}$ | — | 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} | $V_{CB} = 1\text{ V}, I_E = 0, f = 1\text{ MHz}$ (Note 2) | — | 0.8 | 1.15 | pF |

Note 2: C_{re} is measured by 3 terminal method with capacitance bridge.

Caution

This device is sensitive to electrostatic discharge. Please make enough tool and equipment earthed when you handle.

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