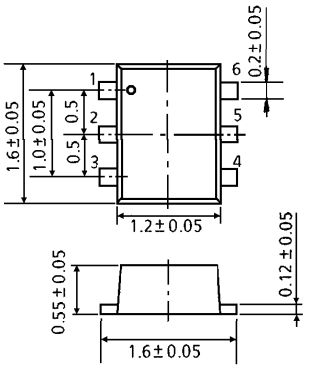
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# HN3C10FE

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

- Two devices are built in to the super-thin and extreme super mini (6pins) package : ES6




1. COLLECTOR 1
2. EMITTER 1
3. COLLECTOR 2
4. EMITTER 2
5. BASE 2
6. BASE 1

| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 2-2N1B |

MOUNTED DEVICES

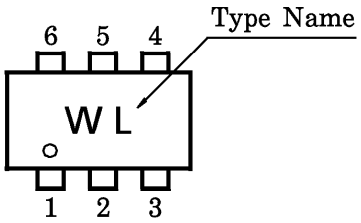
| | Q1 / Q2 |
|---|---|
| Three-pins (SSM) mold products are corresponded | 2SC5086 |

MAXIMUM RATINGS (Ta = 25°C)

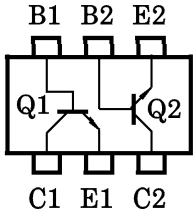
| CHARACTERISTIC | SYMBOL | Q1 / Q2 | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 20 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 12 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 3 | V |
| Collector Current | $I_C$ | 80 | mA |
| Base Current | $I_B$ | 40 | mA |
| Collector Power Dissipation | $P_C$ (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.

MARKING




PIN ASSIGNMENT (TOP VIEW)




961001EAA1

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}$ = 10 V, $I_E$ = 0 | — | — | 1 | μA |
| Emitter Cut-off Current | $I_{EBO}$ | $V_{EB}$ = 1 V, $I_C$ = 0 | — | — | 1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$ = 10 V, $I_C$ = 20 mA | 80 | — | 240 | — |
| Transition Frequency | $f_T$ | $V_{CE}$ = 10 V, $I_C$ = 20 mA | 5 | 7 | — | GHz |
| Insertion Gain | $\|S_{21e}\|^2$ (1) | $V_{CE}$ = 10 V, $I_C$ = 20 mA, f = 500 MHz | — | 16.5 | — | dB |
| | $\|S_{21e}\|^2$ (2) | $V_{CE}$ = 10 V, $I_C$ = 20 mA, f = 1000 MHz | 8 | 11.5 | — | |
| Noise Figure | NF (1) | $V_{CE}$ = 10 V, $I_C$ = 5 mA, f = 500 MHz | — | 1 | — | dB |
| | NF (2) | $V_{CE}$ = 10 V, $I_C$ = 5 mA, f = 1000 MHz | — | 1.1 | 2 | |
| Reverse Transfer Capacitance Q1 | $C_{re}$ | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz (Note 2) | — | 0.7 | 1.2 | pF |
| Reverse Transfer Capacitance Q2 | $C_{re}$ | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz (Note 2) | — | 0.65 | 1.15 | pF |

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