

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

**HN2C10FU**

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

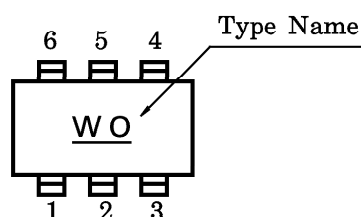
- Including Two Devices in US6 (Ultra Super Mini Type with 6 Leads)

MAXIMUM RATINGS (Ta = 25°C)

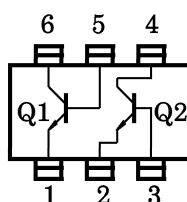
| CHARACTERISTIC              | SYMBOL           | RATING  | UNIT |
|-----------------------------|------------------|---------|------|
| Collector-Base Voltage      | V <sub>CB0</sub> | 20      | V    |
| Collector-Emitter Voltage   | V <sub>CEO</sub> | 12      | V    |
| Emitter-Base Voltage        | V <sub>EB0</sub> | 3       | V    |
| Base Current                | I <sub>B</sub>   | 40      | mA   |
| Collector Current           | I <sub>C</sub>   | 80      | mA   |
| Collector Power Dissipation | P <sub>C</sub> * | 200     | mW   |
| Junction Temperature        | T <sub>j</sub>   | 125     | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -55~125 | °C   |

\* : Total

MARKING



PIN ASSIGNMENT (TOP VIEW)



|         |  |                     |
|---------|--|---------------------|
|         |  | 1. EMITTER 1 (E1)   |
|         |  | 2. EMITTER 2 (E2)   |
|         |  | 3. BASE 2 (B2)      |
|         |  | 4. COLLECTOR 2 (C2) |
|         |  | 5. BASE 1 (B1)      |
|         |  | 6. COLLECTOR 1 (C1) |
| JEDEC   |  | —                   |
| EIAJ    |  | —                   |
| TOSHIBA |  | 2-2J1B              |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                  | SYMBOL                          | TEST CONDITION                                                | MIN. | TYP. | MAX. | UNIT |
|---------------------------------|---------------------------------|---------------------------------------------------------------|------|------|------|------|
| Collector Cut-off Current       | I <sub>CBO</sub>                | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0                     | —    | —    | 1    | μA   |
| Emitter Cut-off Current         | I <sub>EBO</sub>                | V <sub>EB</sub> = 1V, I <sub>C</sub> = 0                      | —    | —    | 1    | μA   |
| DC Current Gain                 | h <sub>FE</sub>                 | V <sub>CE</sub> = 10V, I <sub>C</sub> = 20mA                  | 80   | —    | 240  | —    |
| Transition Frequency            | f <sub>T</sub>                  | V <sub>CE</sub> = 10V, I <sub>C</sub> = 20mA                  | 5    | 7    | —    | GHz  |
| Insertion Gain                  | S <sub>21e</sub>   <sup>2</sup> | V <sub>CE</sub> = 10V, I <sub>C</sub> = 20mA, f = 1GHz        | 8.5  | 11.5 | —    | dB   |
| Noise Figure                    | NF                              | V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA, f = 1GHz         | —    | 1.1  | 2    | dB   |
| Reverse Transfer Capacitance Q1 | C <sub>re</sub>                 | V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz<br>(Note) | —    | 0.55 | 1.05 | pF   |
| Reverse Transfer Capacitance Q2 | C <sub>re</sub>                 |                                                               | —    | 0.6  | 1.1  | pF   |

(Note) C<sub>re</sub> is measured by 3 terminal method capacitance bridge.

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