

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

# 2SC4253

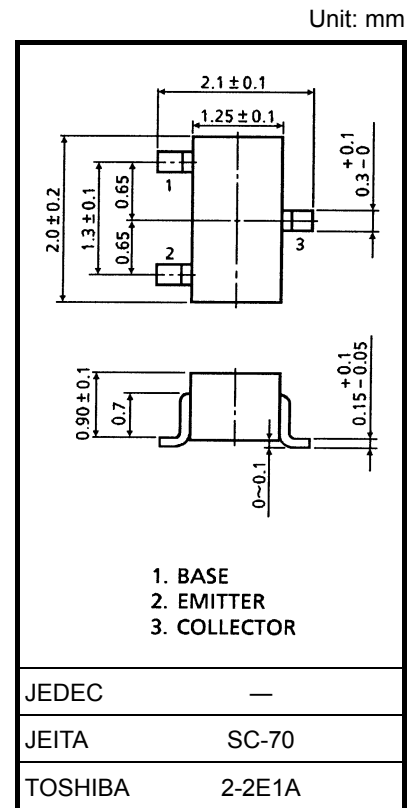
## TV Final Picture IF Amplifier Applications

- Good linearity of  $f_T$

### Absolute Maximum Ratings (Ta = 25°C)

| Characteristics             | Symbol    | Rating  | Unit |
|-----------------------------|-----------|---------|------|
| Collector-base voltage      | $V_{CBO}$ | 30      | V    |
| Collector-emitter voltage   | $V_{CEO}$ | 25      | V    |
| Emitter-base voltage        | $V_{EBO}$ | 4       | V    |
| Collector current           | $I_C$     | 50      | mA   |
| Base current                | $I_B$     | 25      | mA   |
| Collector power dissipation | $P_C$     | 100     | mW   |
| Junction temperature        | $T_j$     | 125     | °C   |
| Storage temperature range   | $T_{stg}$ | -55~125 | °C   |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.  
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

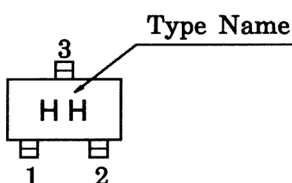


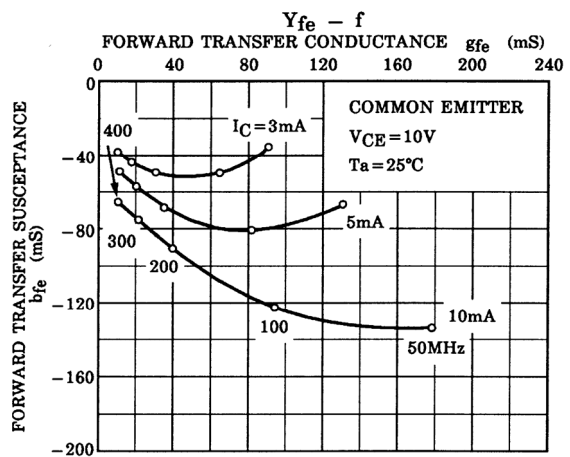
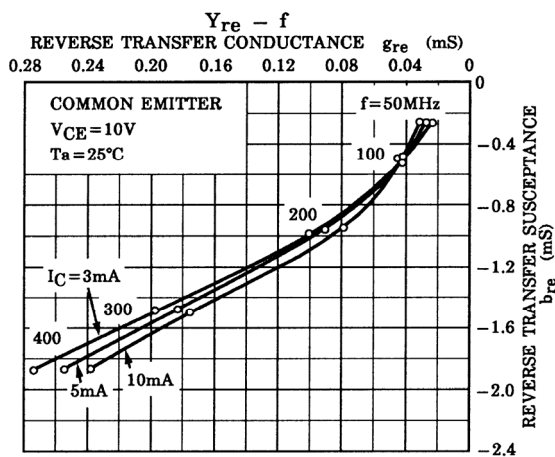
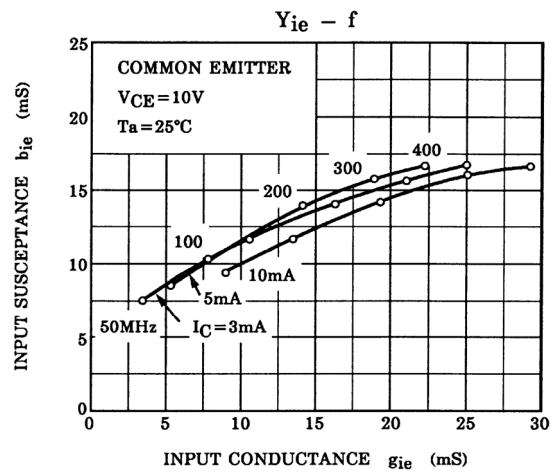
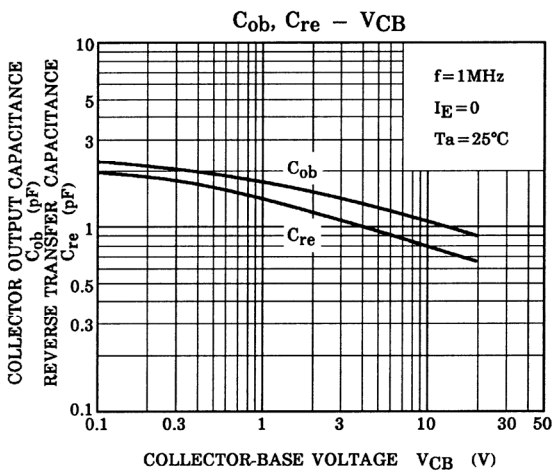
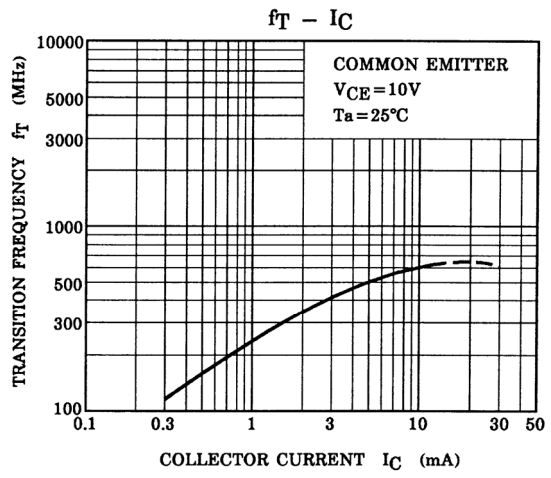
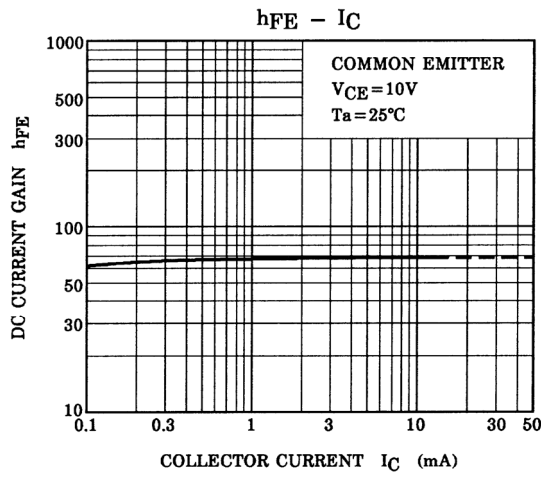
Weight: 0.006 g (typ.)

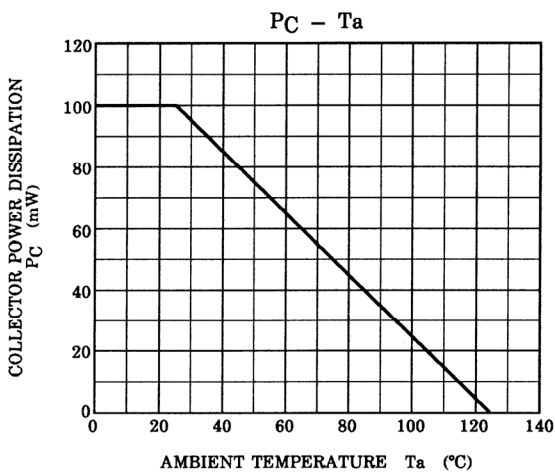
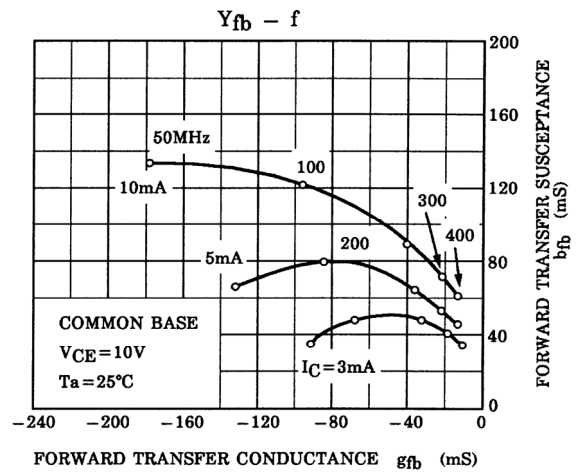
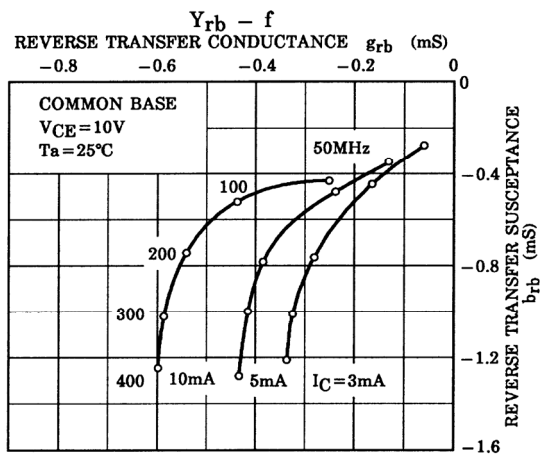
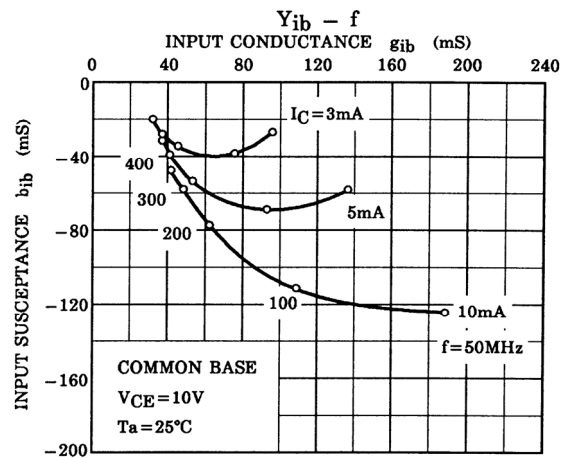
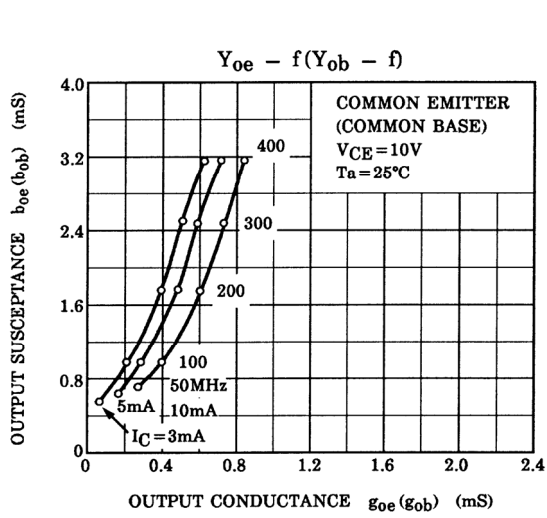
### Electrical Characteristics (Ta = 25°C)

| Characteristics                     |                   | Symbol        | Test Condition   | Min | Typ. | Max | Unit          |
|-------------------------------------|-------------------|---------------|--|-----|------|-----|---------------|
| Collector cut-off current           |                   | $I_{CBO}$     | $V_{CB} = 30\text{ V}, I_E = 0$                              | —   | —    | 0.1 | $\mu\text{A}$ |
| Emitter cut-off current             |                   | $I_{EBO}$     | $V_{EB} = 3\text{ V}, I_C = 0$                               | —   | —    | 0.1 | $\mu\text{A}$ |
| Collector-emitter breakdown voltage |                   | $V_{(BR)CEO}$ | $I_C = 1\text{ mA}, I_B = 0$                                 | 25  | —    | —   | V             |
| DC current gain                     |                   | $h_{FE}$      | $V_{CE} = 10\text{ V}, I_C = 10\text{ mA}$                   | 20  | 70   | 200 |               |
| Saturation voltage                  | Collector-emitter | $V_{CE(sat)}$ | $I_C = 15\text{ mA}, I_B = 1.5\text{ mA}$                    | —   | —    | 0.2 | V             |
|                                     | Base-emitter      | $V_{BE(sat)}$ |  | —   | —    | 1.5 |               |
| Collector output capacitance        |                   | $C_{ob}$      | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$            | —   | 1.1  | 1.6 | pF            |
| Collector-base time constant        |                   | $C_c.rbb'$    | $V_{CB} = 10\text{ V}, I_C = 1\text{ mA}, f = 30\text{ MHz}$ | —   | —    | 25  | ps            |
| Transition frequency                |                   | $f_T$         | $V_{CE} = 10\text{ V}, I_C = 10\text{ mA}$                   | 250 | 600  | —   | MHz           |

### Marking







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20070701-EN GENERAL

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