

XN04505 (XN4505)

Silicon NPN epitaxial planar type

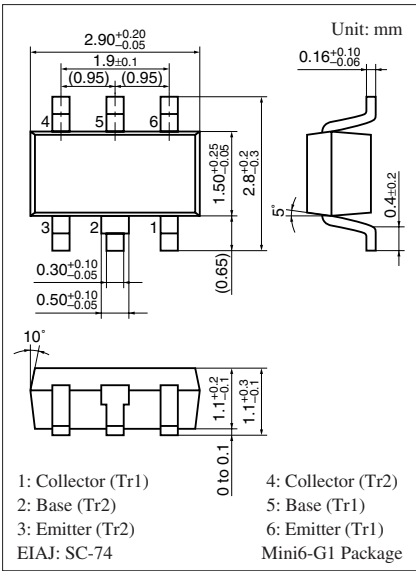
For general amplification (Tr1)
For amplification of low-frequency output (Tr2)

- Features
- Two elements incorporated into one package
 - Reduction of the mounting area and assembly cost by one half

- Basic Part Number
- 2SD0601A (2SD601A) + 2SD1328

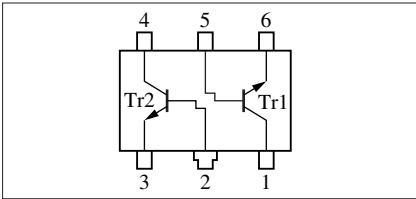
■ Absolute Maximum Ratings $T_a = 25^{\circ}\text{C}$

| | Parameter | Symbol | Rating | Unit |
|---------|---------------------------------------|------------------|-------------|--------------------|
| Tr1 | Collector-base voltage (Emitter open) | V_{CBO} | 60 | V |
| | Collector-emitter voltage (Base open) | V_{CEO} | 50 | V |
| | Emitter-base voltage (Collector open) | V_{EBO} | 7 | V |
| | Collector current | I_{C} | 100 | mA |
| | Peak collector current | I_{CP} | 200 | mA |
| Tr2 | Collector-base voltage (Emitter open) | V_{CBO} | 25 | V |
| | Collector-emitter voltage (Base open) | V_{CEO} | 20 | V |
| | Emitter-base voltage (Collector open) | V_{EBO} | 12 | V |
| | Collector current | I_{C} | 0.5 | A |
| | Peak collector current | I_{CP} | 1 | A |
| Overall | Total power dissipation | P_{T} | 300 | mW |
| | Junction temperature | T_{j} | 150 | $^{\circ}\text{C}$ |
| | Storage temperature | T_{stg} | -55 to +150 | $^{\circ}\text{C}$ |



Marking Symbol: DZ

Internal Connection



Note) The part number in the parenthesis shows conventional part number.

■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

• Tr1

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|----------------------|---|-----|-----|-----|---------------|
| Collector-base voltage (Emitter open) | V_{CBO} | $I_{\text{C}} = 10\ \mu\text{A}, I_{\text{E}} = 0$ | 60 | | | V |
| Collector-emitter voltage (Base open) | V_{CEO} | $I_{\text{C}} = 2\ \text{mA}, I_{\text{B}} = 0$ | 50 | | | V |
| Emitter-base voltage (Collector open) | V_{EBO} | $I_{\text{E}} = 10\ \mu\text{A}, I_{\text{C}} = 0$ | 7 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{\text{CB}} = 20\ \text{V}, I_{\text{E}} = 0$ | | | 0.1 | μA |
| Collector-emitter cutoff current (Base open) | I_{CEO} | $V_{\text{CE}} = 10\ \text{V}, I_{\text{B}} = 0$ | | | 100 | μA |
| Forward current transfer ratio | h_{FE} | $V_{\text{CE}} = 10\ \text{V}, I_{\text{C}} = 2\ \text{mA}$ | 160 | | 460 | — |
| Collector-emitter saturation voltage | $V_{\text{CE(sat)}}$ | $I_{\text{C}} = 100\ \text{mA}, I_{\text{B}} = 10\ \text{mA}$ | | 0.3 | 0.5 | V |
| Transition frequency | f_{T} | $V_{\text{CB}} = 10\ \text{V}, I_{\text{E}} = -2\ \text{mA}, f = 200\ \text{MHz}$ | | 150 | | MHz |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{\text{CB}} = 10\ \text{V}, I_{\text{E}} = 0, f = 1\ \text{MHz}$ | | 3.5 | | pF |

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

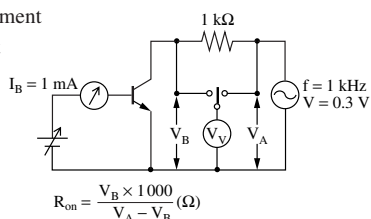
• Tr2

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|----------------------|--|-----|------|------|---------------|
| Collector-base voltage (Emitter open) | V_{CBO} | $I_{\text{C}} = 10\ \mu\text{A}, I_{\text{E}} = 0$ | 25 | | | V |
| Collector-emitter voltage (Base open) | V_{CEO} | $I_{\text{C}} = 1\ \text{mA}, I_{\text{B}} = 0$ | 20 | | | V |
| Emitter-base voltage (Collector open) | V_{EBO} | $I_{\text{E}} = 10\ \mu\text{A}, I_{\text{C}} = 0$ | 12 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{\text{CB}} = 25\ \text{V}, I_{\text{E}} = 0$ | | | 0.1 | μA |
| Forward current transfer ratio ^{*1} | h_{FE1} | $V_{\text{CE}} = 2\ \text{V}, I_{\text{C}} = 0.5\ \text{A}$ | 200 | | 800 | — |
| | h_{FE2} | $V_{\text{CE}} = 2\ \text{V}, I_{\text{C}} = 1\ \text{A}$ | 60 | | | |
| Collector-emitter saturation voltage ^{*1} | $V_{\text{CE(sat)}}$ | $I_{\text{C}} = 0.5\ \text{A}, I_{\text{B}} = 20\ \text{mA}$ | | 0.13 | 0.40 | V |
| Base-emitter saturation voltage ^{*1} | $V_{\text{BE(sat)}}$ | $I_{\text{C}} = 0.5\ \text{A}, I_{\text{B}} = 20\ \text{mA}$ | | | 1.2 | V |
| Transition frequency | f_{T} | $V_{\text{CB}} = 10\ \text{V}, I_{\text{E}} = -50\ \text{mA}, f = 200\ \text{MHz}$ | | 200 | | MHz |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{\text{CB}} = 10\ \text{V}, I_{\text{E}} = 0, f = 1\ \text{MHz}$ | | 10 | | pF |
| ON resistance ^{*2} | R_{on} | | | 1.0 | | Ω |

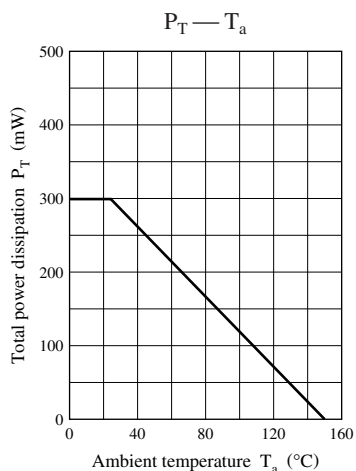
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. ^{*1}: Pulse measurement

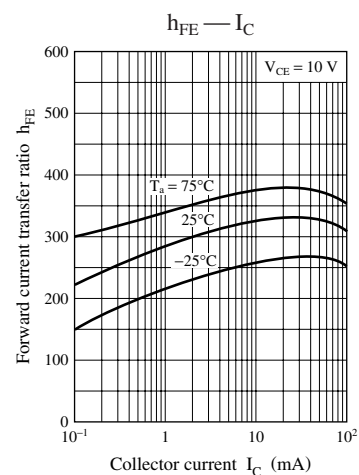
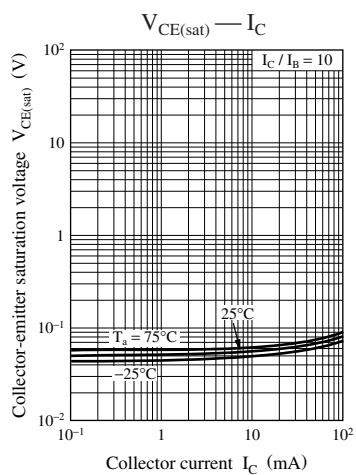
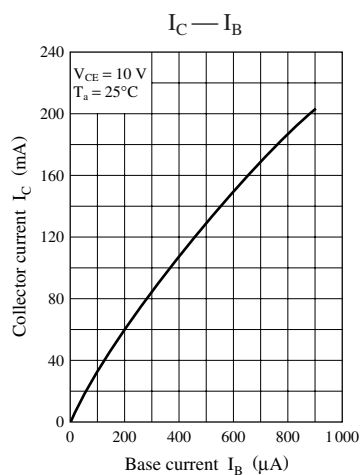
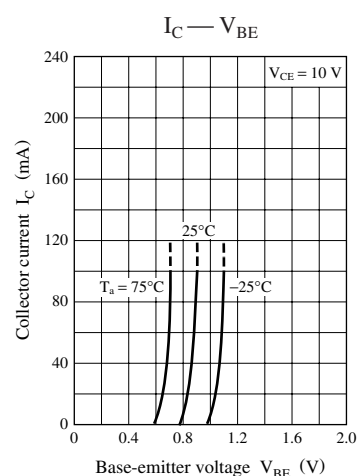
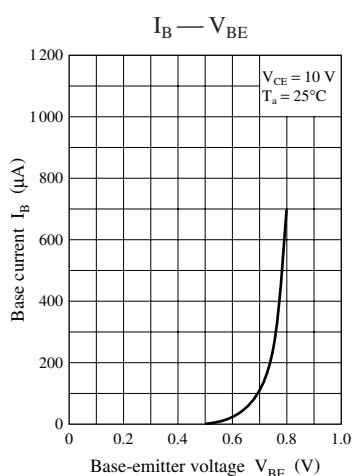
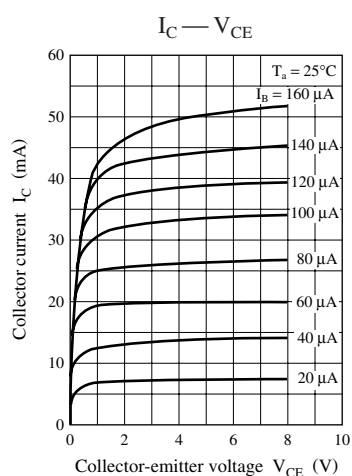
^{*2}: R_{on} test circuit

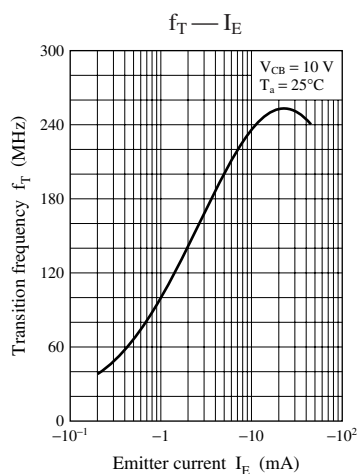


Common characteristics chart

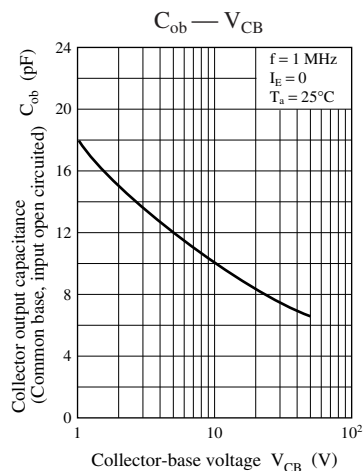
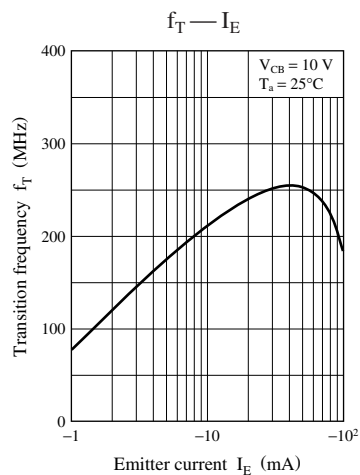
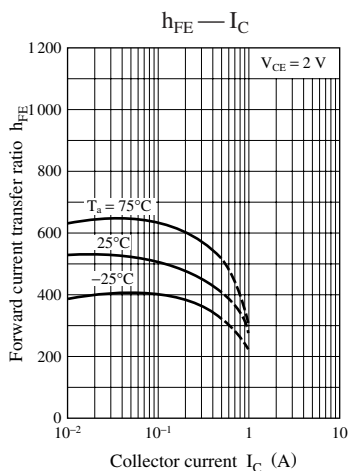
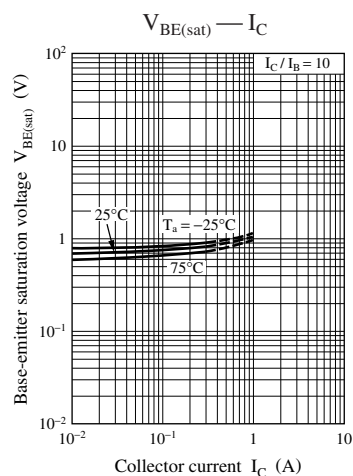
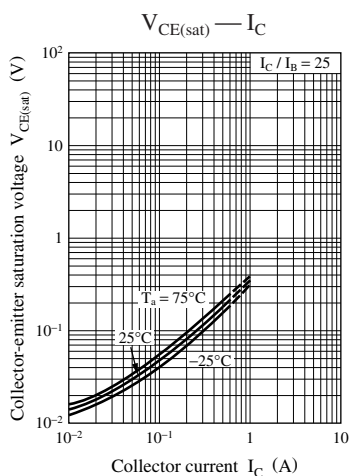
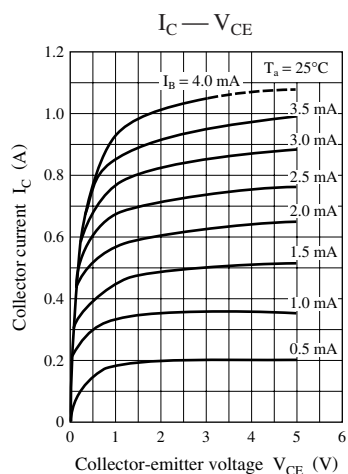


Characteristics charts of Tr1





Characteristics charts of Tr2



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