

UP04601

Silicon NPN epitaxial planar type (Tr1)
 Silicon PNP epitaxial planar type (Tr2)

For general amplification

■ Features

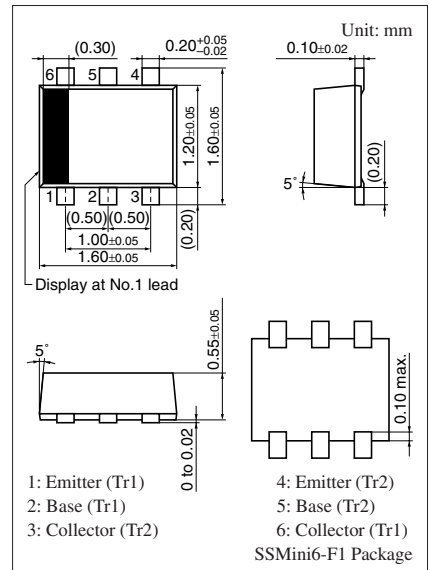
- Two elements incorporated into one package
 (Each transistor is separated)
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number

- 2SD0601A + 2SB0709A

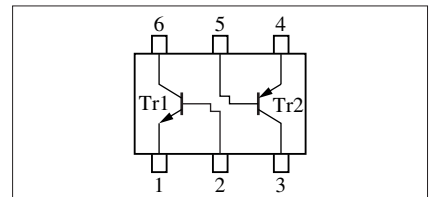
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| | 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} | -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 |
| Overall | Total power dissipation | P_T | 125 | mW |
| | Junction temperature | T_j | 125 | $^\circ\text{C}$ |
| | Storage temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |



Marking Symbol: 5C

Internal Connection



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

• Tr1

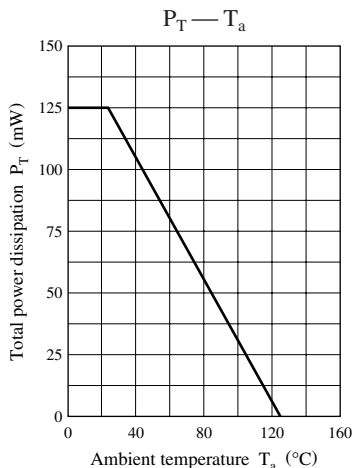
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------|---|-----|-----|-----|---------------|
| Collector-base voltage (Emitter open) | V_{CBO} | $I_C = 10 \mu\text{A}, I_E = 0$ | 60 | | | V |
| Collector-emitter voltage (Base open) | V_{CEO} | $I_C = 2 \text{ mA}, I_B = 0$ | 50 | | | V |
| Emitter-base voltage (Collector open) | V_{EBO} | $I_E = 10 \mu\text{A}, I_C = 0$ | 7 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{CB} = 20 \text{ V}, I_E = 0$ | | | 0.1 | μA |
| Collector-emitter cutoff current (Base open) | I_{CEO} | $V_{CE} = 10 \text{ V}, I_B = 0$ | | | 100 | μA |
| Forward current transfer ratio | h_{FE} | $V_{CE} = 10 \text{ V}, I_C = 2 \text{ mA}$ | 180 | | 390 | — |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$ | | 0.1 | 0.3 | V |
| Transition frequency | f_T | $V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$ | | 150 | | MHz |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ | | 3.5 | | pF |

• Tr2

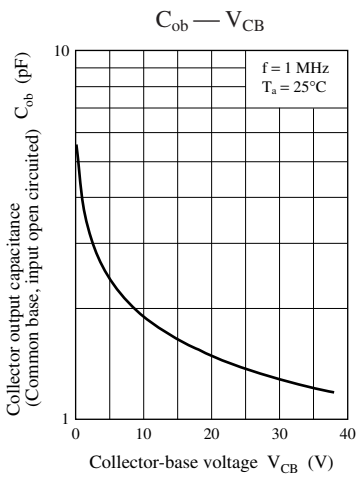
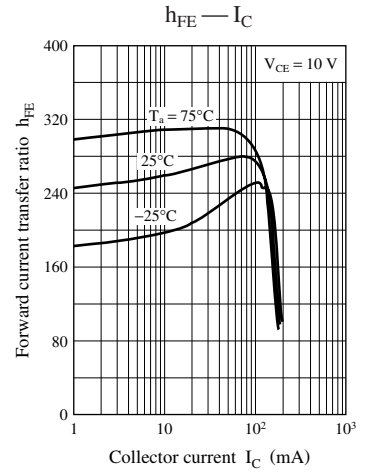
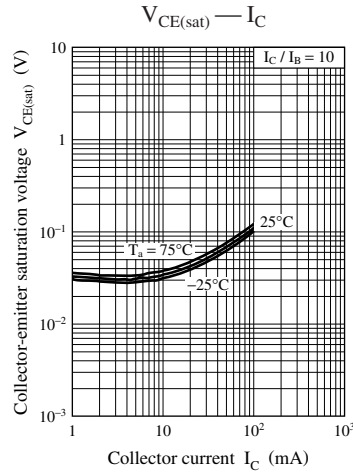
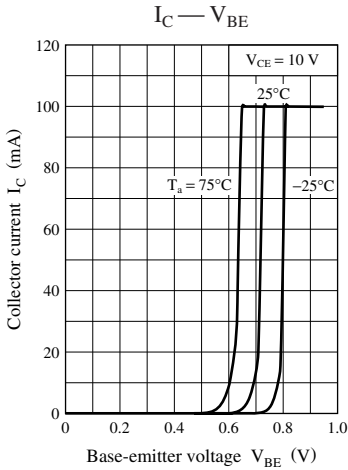
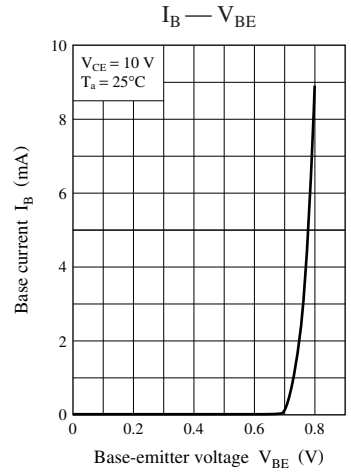
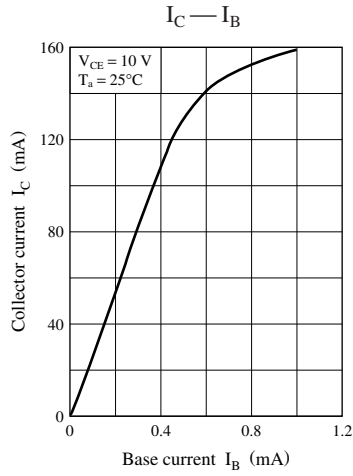
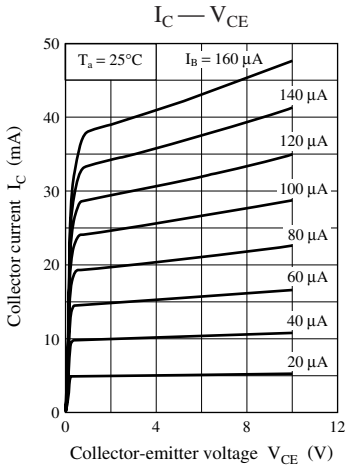
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------|---|-----|------|------|---------------|
| Collector-base voltage (Emitter open) | V_{CBO} | $I_C = -10 \mu\text{A}, I_E = 0$ | -60 | | | V |
| Collector-emitter voltage (Base open) | V_{CEO} | $I_C = -2 \text{ mA}, I_B = 0$ | -50 | | | V |
| Emitter-base voltage (Collector open) | V_{EBO} | $I_E = -10 \mu\text{A}, I_C = 0$ | -7 | | | V |
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{CB} = -20 \text{ V}, I_E = 0$ | | | -0.1 | μA |
| Collector-emitter cutoff current (Base open) | I_{CEO} | $V_{CE} = -10 \text{ V}, I_B = 0$ | | | -100 | μA |
| Forward current transfer ratio | h_{FE} | $V_{CE} = -10 \text{ V}, I_C = -5 \text{ mA}$ | 180 | | 390 | — |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -100 \text{ mA}, I_B = -10 \text{ mA}$ | | -0.3 | -0.5 | V |
| Transition frequency | f_T | $V_{CB} = -10 \text{ V}, I_E = 1 \text{ mA}, f = 200 \text{ MHz}$ | | 80 | | MHz |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ | | 2.7 | | pF |

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

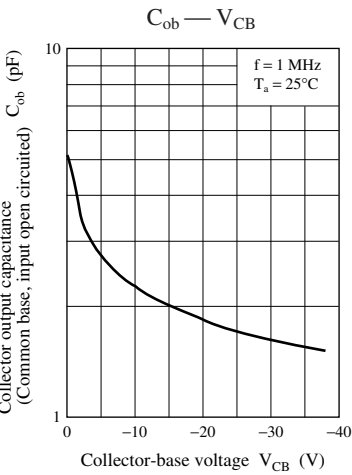
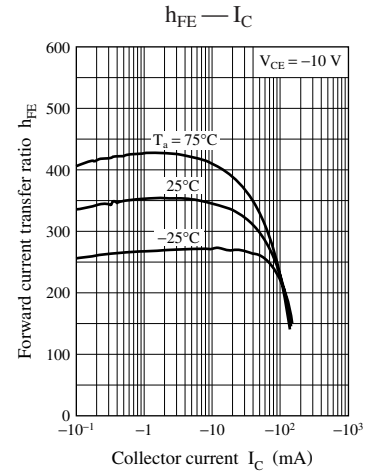
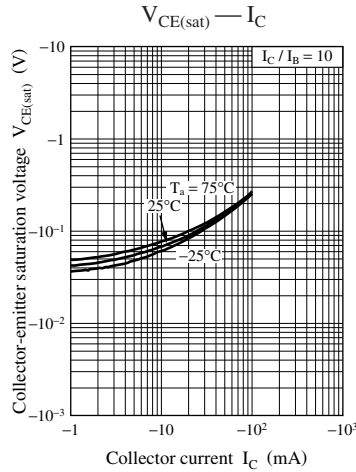
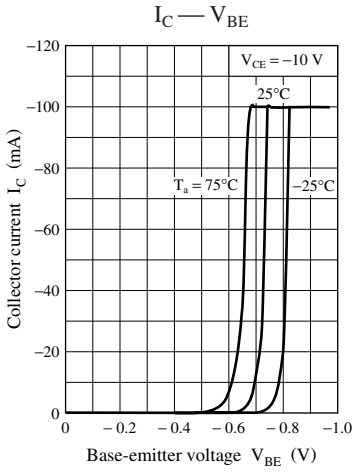
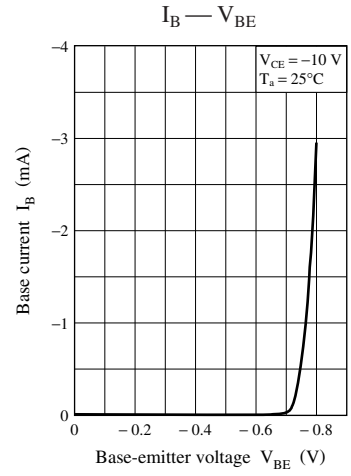
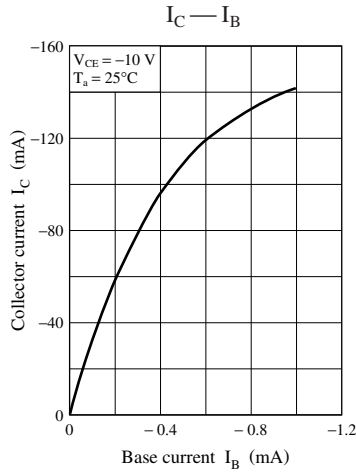
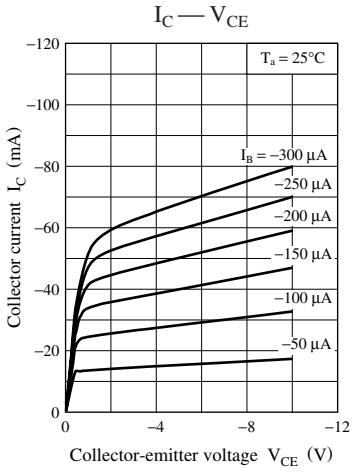
Common characteristics chart



Characteristics charts of Tr1



Characteristics charts of Tr2



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