

Medium power transistor (−60V, −2A)

2SA2094

●Features

- 1) High speed switching.
(Tf : Typ. : 30ns at Ic = −2A)
- 2) Low saturation voltage, typically
(Typ. : −200mV at Ic = −1A, IB = −0.1A)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SC5866

●Applications

Low frequency amplifier
High speed switching

●Structure

PNP epitaxial planar silicon transistor

●Packaging specifications

| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | TL |
| | Basic ordering unit (pieces) | 3000 |
| 2SA2094 | | ○ |

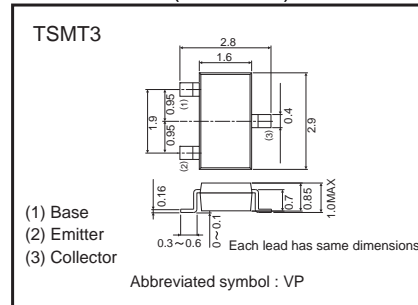
●Absolute maximum ratings (Ta=25°C)

| Parameter | | Symbol | Limits | Unit |
|------------------------------|--------|------------------|------------|-------|
| Collector-base voltage | | V _{CB0} | −60 | V |
| Collector-emitter voltage | | V _{CE0} | −60 | V |
| Emitter-base voltage | | V _{EB0} | −6 | V |
| Collector current | DC | I _c | −2 | A |
| | Pulsed | I _{CP} | −4 | A *1 |
| Power dissipation | | P _c | 500 | mW *2 |
| Junction temperature | | T _j | 150 | °C |
| Range of storage temperature | | T _{stg} | −55 to 150 | °C |

*1 Pw=10ms

*2 Each terminal mounted on a recommended land

●Dimensions (Unit : mm)



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|--------------------------------------|---------------|------|------|------|---------|------------------------------------------------------------------------|
| Collector-emitter breakdown voltage | BV_{CEO} | -60 | - | - | V | $I_C = -1mA$ |
| Collector-base breakdown voltage | BV_{CBO} | -60 | - | - | V | $I_C = -100\mu A$ |
| Emitter-base breakdown voltage | BV_{EBO} | -6 | - | - | V | $I_E = -100\mu A$ |
| Collector cut-off current | I_{CBO} | - | - | -1.0 | μA | $V_{CB} = -40V$ |
| Emitter cut-off current | I_{EBO} | - | - | -1.0 | μA | $V_{EB} = -4V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | -200 | -500 | mV | $I_C = -1A$ $I_B = -0.1A$ |
| DC current gain | h_{FE} | 120 | - | 270 | - | $V_{CE} = -2V$ $I_C = -100mA$ |
| Transition frequency | f_T | - | 300 | - | MHz | $V_{CE} = -10V$ $I_E = 100mA$ $f = 10MHz$ |
| Corrector output capacitance | C_{ob} | - | 25 | - | pF | $V_{CB} = -10V$ $I_E = 0mA$ $f = 1MHz$ |
| Turn-on time | T_{on} | - | 25 | - | ns | $I_C = -2A$ $I_{B1} = -200mA$ $I_{B2} = 200mA$ $V_{CC} = 25V$ |
| Storage time | T_{stg} | - | 100 | - | ns | |
| Fall time | T_f | - | 30 | - | ns | |

*1 Non repetitive pulse

*2 See Switching characteristics measurement circuits

●hFE RANK

| |
|---------|
| Q |
| 120-270 |

●Electrical characteristic curves

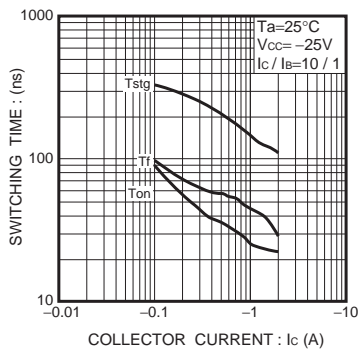


Fig.1 Switching Time

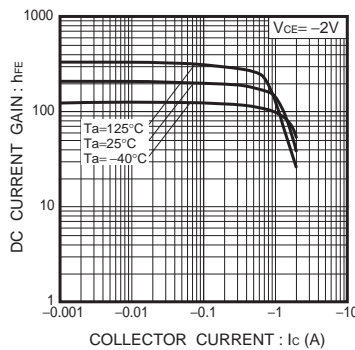


Fig.2 DC Current Gain vs. Collector Current (I)

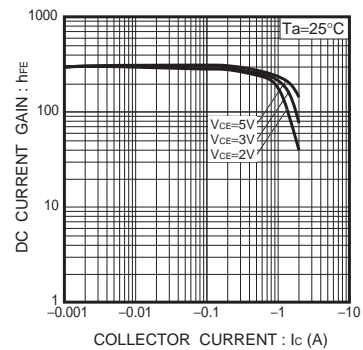


Fig.3 DC Current Gain vs. Collector Current (II)

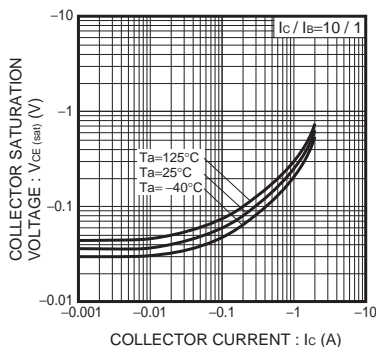


Fig.4 Collector-Emitter Saturation Voltage vs. Collector Current (I)

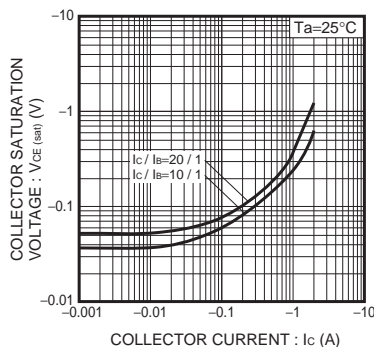


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (II)

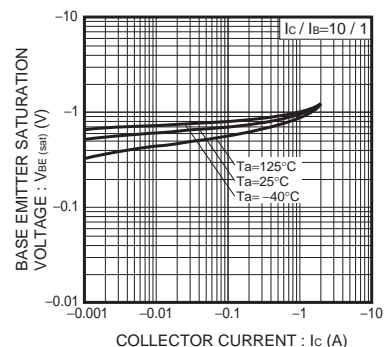


Fig.6 Base-Emitter Saturation Voltage vs. Collector Current

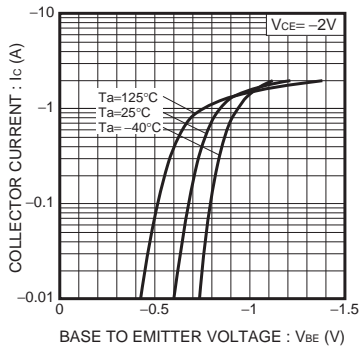


Fig.7 Grounded Emitter Propagation Characteristics

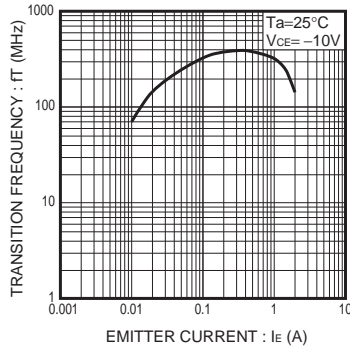


Fig.8 Transition Frequency

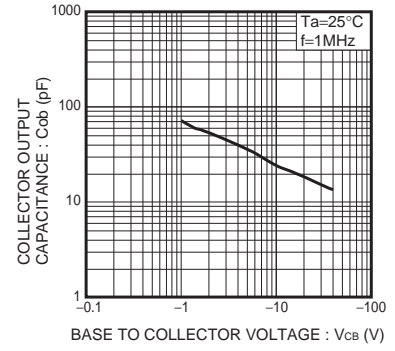
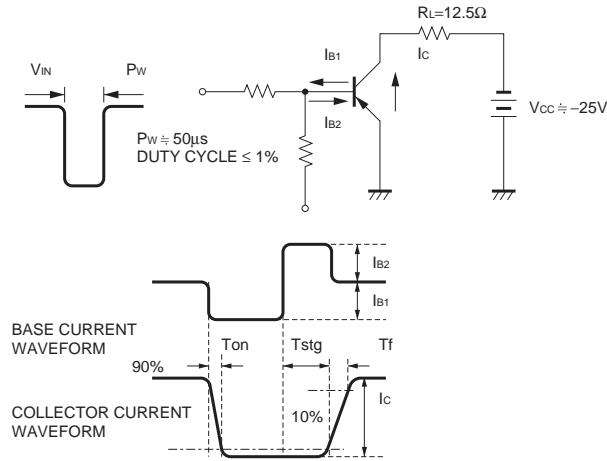


Fig.9 Collector Output Capacitance

●Switching characteristics measurement circuits



Notes

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