

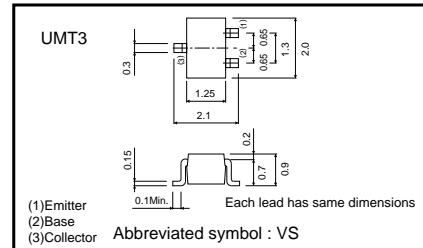
Medium power transistor (60V, 0.5A)

2SC5876

●Features

- 1) High speed switching. (T_f : Typ. : 80ns at $I_c = 500\text{mA}$)
- 2) Low saturation voltage, typically
(Typ. : 150mV at $I_c = 100\text{mA}$, $I_B = 10\text{mA}$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2088

●External dimensions (Unit : mm)



●Applications

Small signal low frequency amplifier
High speed switching

●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | T106 |
| | Basic ordering unit (pieces) | 3000 |
| 2SC5876 | | ○ |

●Absolute maximum ratings ($T_a=25^\circ\text{C}$)

| 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 | I_c | 0.5 | A |
| | I_{cP} | 1.0 | A ^{*1} |
| Power dissipation | P_c | 200 | mW ^{*2} |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Range of storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

*1 $P_w=10\text{ms}$

*2 Each terminal mounted on a recommended land.

Transistor

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CBO} | 60 | - | - | V | I _C =100μA |
| Collector-emitter breakdown voltage | BV _{CEO} | 60 | - | - | V | I _C =1mA |
| Emitter-base breakdown voltage | BV _{EBO} | 6 | - | - | V | I _E =100μA |
| 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)} | - | 150 | 300 | mV | I _C =100mA, I _B =10mA |
| DC current gain | h _{FE} | 120 | - | 390 | - | V _{CE} =2V, I _C =50mA |
| Transition frequency | f _T | - | 300 | - | MHz | V _{CE} =10V, I _E =-100mA, f=10MHz *1 |
| Collector output capacitance | C _{ob} | - | 5 | - | pF | V _{CB} =10V, I _E =0mA, f=1MHz |
| Turn-on time | t _{on} | - | 70 | - | ns | I _C =500mA, I _{B1} =50mA |
| Storage time | t _{stg} | - | 130 | - | ns | I _{B2} =-50mA |
| Fall time | t _f | - | 80 | - | ns | V _{CC} =25V *1 |

*1 Pulse measurement

●h_{FE} RANK

| Q | R |
|---------|---------|
| 120-270 | 180-390 |

●Electrical characteristic curves

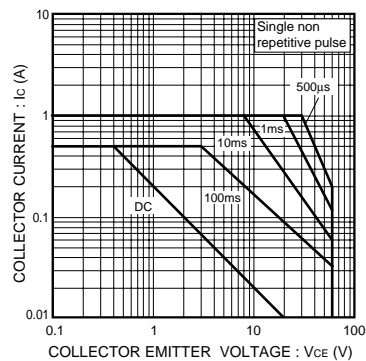


Fig.1 Safe operating area

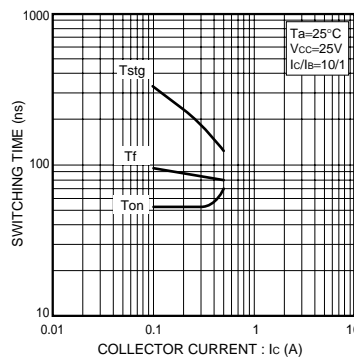


Fig.2 Switching Time

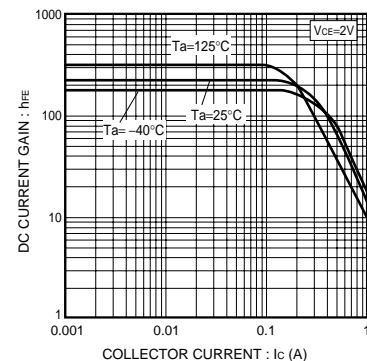


Fig.3 DC current gain vs. collector current

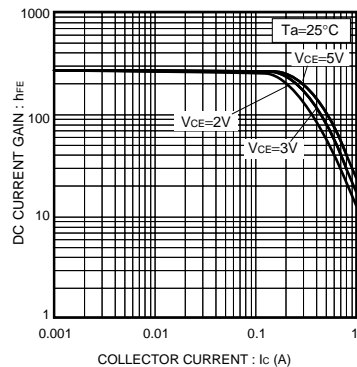


Fig.4 DC current gain vs. collector current

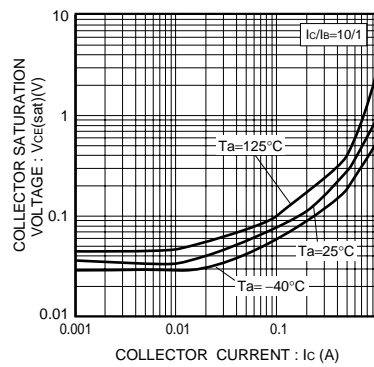


Fig.5 Collector-emitter saturation voltage vs. collector current

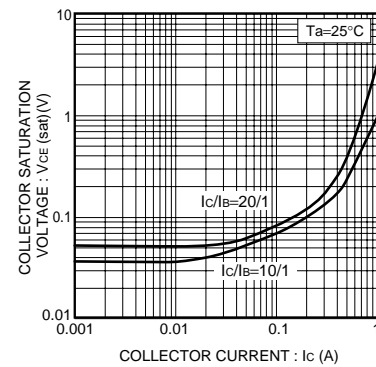


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistor

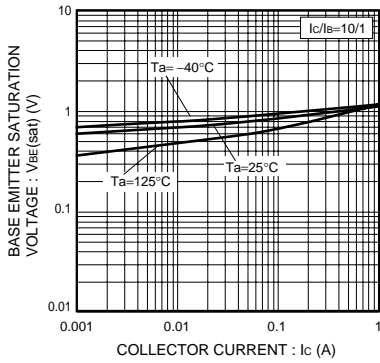


Fig.7 Base-emitter saturation voltage vs. collector current

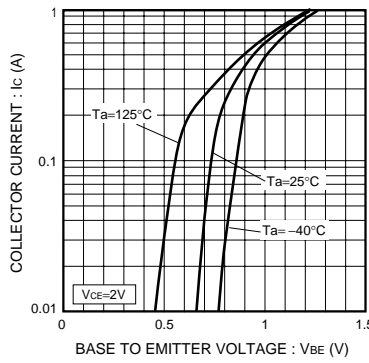


Fig.8 Ground emitter propagat on characteristics

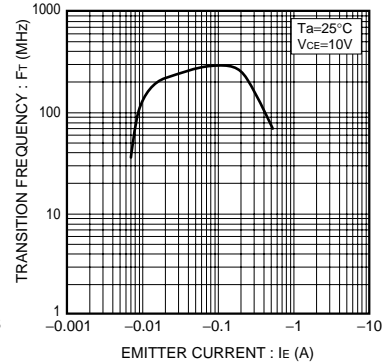


Fig.9 Transition frequency

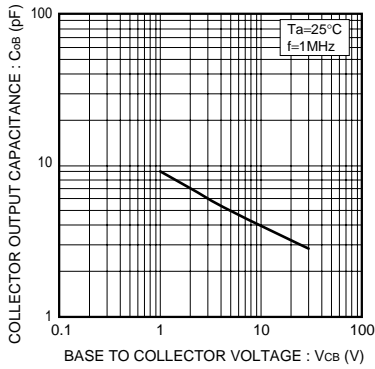
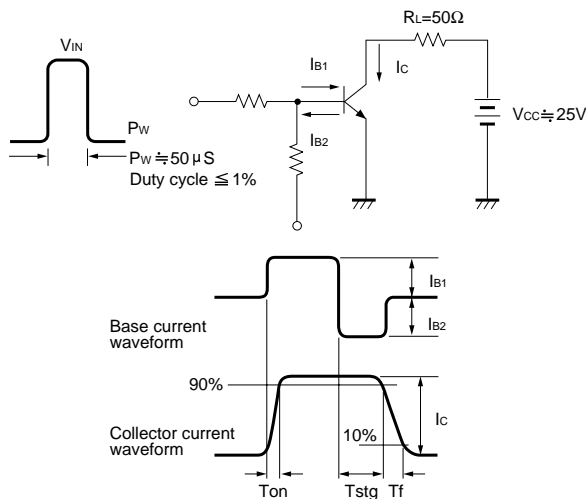


Fig.10 Collector output capacitance

●Switching characteristics measurement circuits



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