

Medium power transistor (30V, 2A)

2SC5916

●Features

- 1) High speed switching. (T_f : Typ. : 20ns at $I_c = 2A$)
- 2) Low saturation voltage, typically
(Typ. : 200mV at $I_c = 1.0A, I_b = 0.1A$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2113

●Applications

Low frequency amplifier
High speed switching

●Structure

NPN Silicon epitaxial planar transistor

●Packaging specifications

| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | TL |
| | Basic ordering unit (pieces) | 3000 |
| 2SC5916 | | ○ |

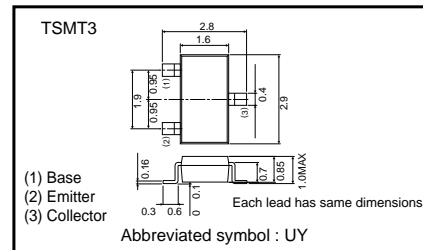
●Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

| Parameter | Symbol | Limits | Unit |
|------------------------------|-----------|----------|------------------|
| Collector-base voltage | V_{CB0} | 30 | V |
| Collector-emitter voltage | V_{CE0} | 30 | V |
| Emitter-base voltage | V_{EB0} | 6 | V |
| Collector current | I_c | 2 | A |
| | 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~+150 | °C |

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

*2 Each terminal mounted on a recommended land.

●External dimensions (Units : mm)



Transistor

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|---------|-----------------------------------|
| Collector-base breakdown voltage | BV_{CEO} | 30 | - | - | V | $I_c=100\mu A$ |
| Collector-emitter breakdown voltage | BV_{CBO} | 30 | - | - | V | $I_c=1mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | 6 | - | - | V | $I_E=100\mu A$ |
| Collector cut-off current | I_{CBO} | - | - | 1.0 | μA | $V_{CB}=20V$ |
| Emitter cut-off current | I_{EBO} | - | - | 1.0 | μA | $V_{EB}=4V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | 200 | 400 | mV | $I_c=1.0A, I_b=0.1A$ |
| DC current gain | h_{FE} | 120 | - | 390 | - | $V_{CE}=2V, I_c=100mA$ |
| Transition frequency | f_T | - | 250 | - | MHz | $V_{CE}=10V, I_E=-100mA, f=10MHz$ |
| Collector output capacitance | C_{ob} | - | 15 | - | pF | $V_{CB}=10V, I_E=0, f=1MHz$ |
| Turn-on time | T_{on} | - | 25 | - | ns | $I_c=2A$ |
| Storage time | T_{stg} | - | 100 | - | ns | $I_{B1}=200mA$ $I_{B2}=-200mA$ |
| Fall time | T_f | - | 20 | - | ns | $V_{CC}=-25V$ |

● h_{FE} RANK

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

●Electrical characteristic curves

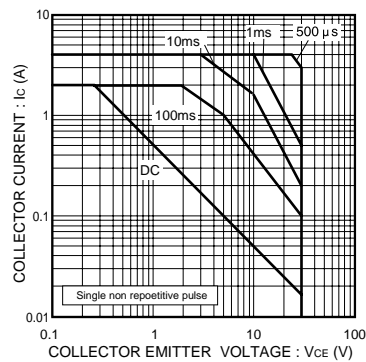


Fig.1 Safe operating area

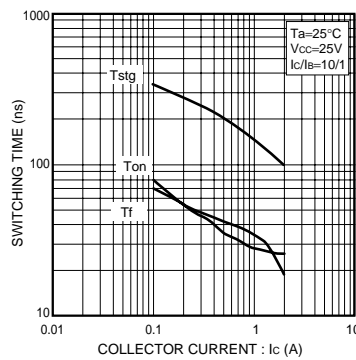


Fig.2 Switching Time

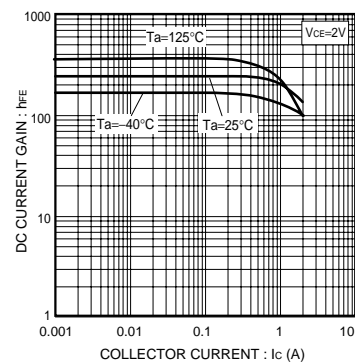


Fig.3 DC current gain vs. collector current

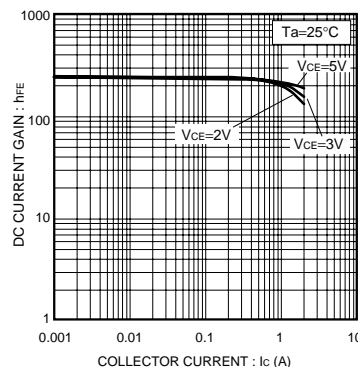


Fig.4 DC current gain vs. collector current

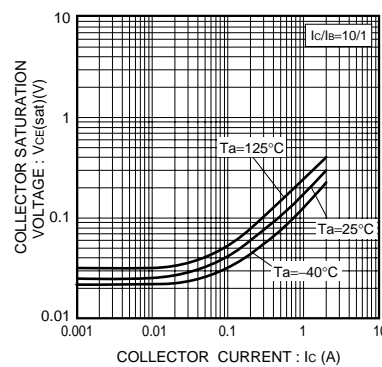


Fig.5 Collector-emitter saturation voltage vs. collector current

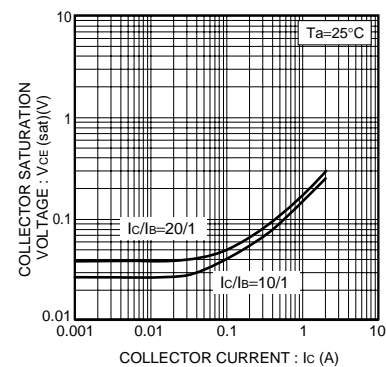


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistor

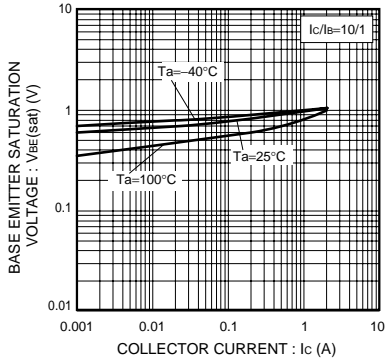


Fig.7 Base-emitter saturation voltage vs. collector current

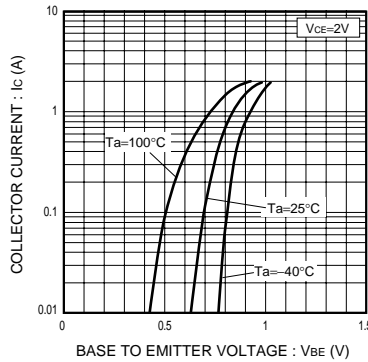


Fig.8 Ground emitter propagation characteristics

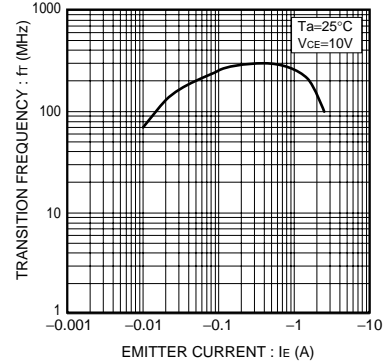


Fig.9 Transition frequency

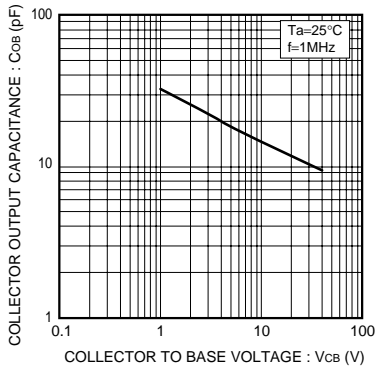


Fig.10 Collector output capacitance

●Switching characteristics measurement circuits

