

Medium Power Transistor (32V, 0.5A)

2SC4097

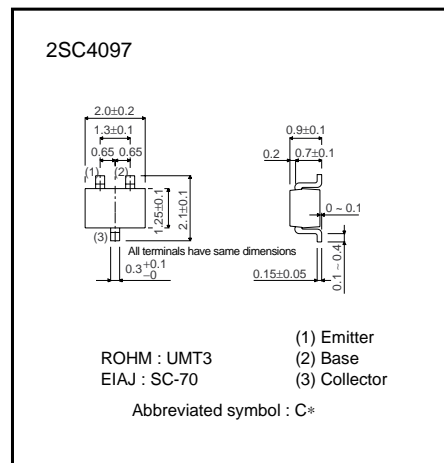
●Features

- 1) High $I_{CMax.}$
 $I_{CMax.} = 0.5A$
- 2) Low $V_{CE(sat)}$.
Optimal for low voltage operation.
- 3) Complements the 2SA1577.

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Units : mm)



* Denotes h_{FE}

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

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-----------|-------------|------------|
| Collector-base voltage | V_{CBO} | 40 | V |
| Collector-emitter voltage | V_{CEO} | 32 | V |
| Emitter-base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 0.5 | A * |
| Collector power dissipation | P_C | 0.2 | W |
| Junction temperature | T_J | 150 | $^\circ C$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ C$ |

* P_C must not be exceeded.

Transistors

●Electrical characteristics (Ta = 25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|------|------|--|
| Collector-base breakdown voltage | BV _{CB0} | 40 | – | – | V | I _c = 100μA |
| Collector-emitter breakdown voltage | BV _{CEO} | 32 | – | – | V | I _c = 1mA |
| Emitter-base breakdown voltage | BV _{EBO} | 5 | – | – | V | I _E = 100μA |
| Collector cutoff current | I _{cBO} | – | – | 1 | μA | V _{CB} = 20V |
| Emitter cutoff current | I _{EBO} | – | – | 1 | μA | V _{EB} = 4V |
| DC current transfer ratio | h _{FE} | 120 | – | 390 | – | V _{CE} = 3V, I _c = 10mA |
| Collector-emitter saturation voltage | V _{CE(sat)} | – | – | 0.6 | V | I _c /I _B = 500mA/50mA |
| Transition frequency | f _T | – | 250 | – | MHz | V _{CE} = 5V, I _E = –20mA, f = 100MHz |
| Output capacitance | C _{ob} | – | 6.5 | – | pF | V _{CB} = 10V, I _E = 0A, f = 1MHz |

●Packaging Specifications and h_{FE}

| Type | h _{FE} | Package | Taping |
|---------|-----------------|------------------------------|--------|
| 2SC4097 | QR | | ○ |
| | | Code | T106 |
| | | Basic ordering unit (pieces) | 3000 |

h_{FE} values are classified as follows:

| Item | Q | R |
|-----------------|------------|------------|
| h _{FE} | 120 to 270 | 180 to 390 |

●Electrical characteristic curves

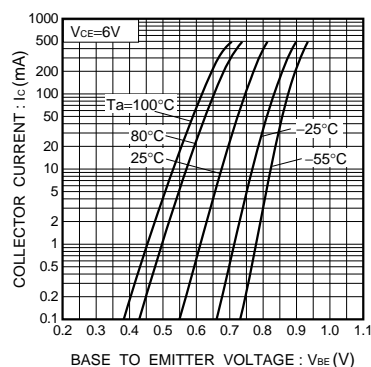


Fig.1 Grounded emitter propagation characteristics

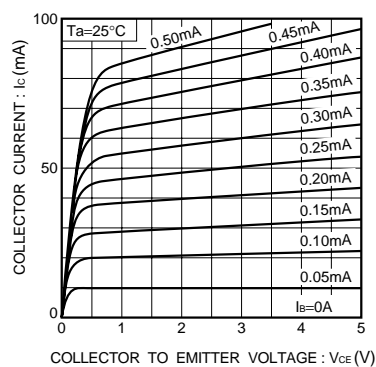


Fig.2 Grounded emitter output characteristics (I)

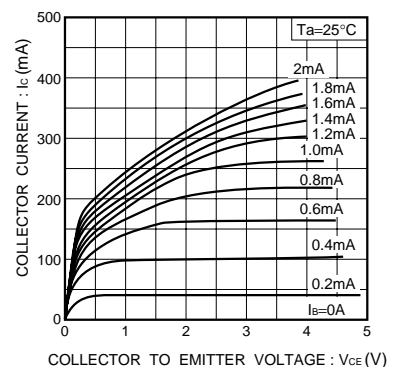


Fig.3 Grounded emitter output characteristics (II)

Transistors

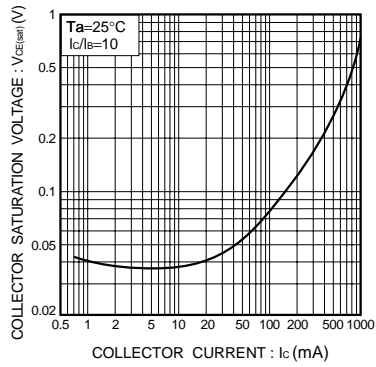


Fig.4 Collector-emitter saturation voltage vs. collector current

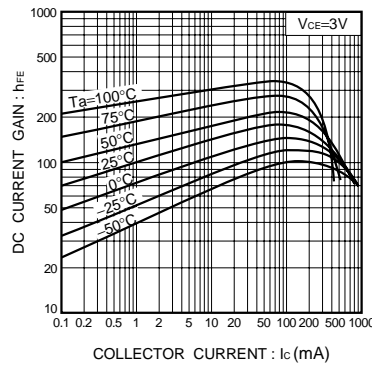


Fig.5 DC current gain vs. collector current

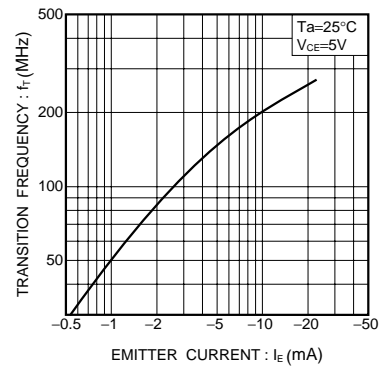


Fig.6 Gain bandwidth product vs. emitter current

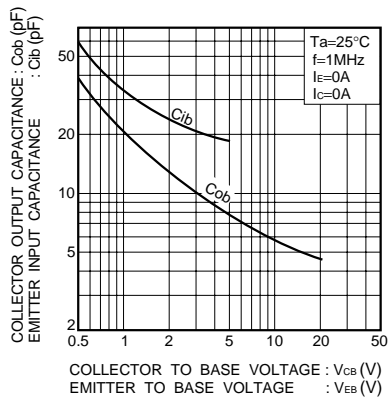


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

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