

Transistors

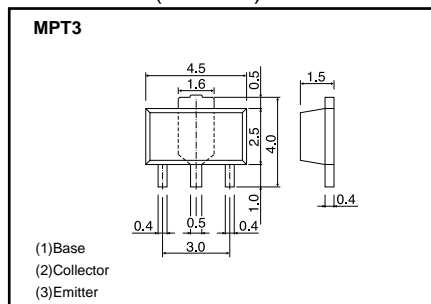
Medium power transistor (50V, 1A)

2SC5053

●Features

- 1) Low saturation voltage, typically $V_{CE(sat)}=0.12V$ at $I_C/I_B=500mA/50mA$
- 2) $P_C=2W$ (on $40 \times 40 \times 0.7mm$ ceramic board)
- 3) Complements the 2SA1900

●Dimensions (Unit : mm)



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

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-----------|-------------|--------------|
| Collector-base voltage | V_{CB0} | 60 | V |
| Collector-emitter voltage | V_{CE0} | 50 | V |
| Emitter- base voltage | V_{EB0} | 5 | V |
| Collector current | I_C | 1 | A |
| | | 2 | A (Pulse) *1 |
| Collector power dissipation | P_C | 0.5 | W |
| | | 2 | W *2 |
| Collector power dissipation | t_j | 150 | $^\circ C$ |
| Storage temperature | t_{stg} | -55 to +150 | $^\circ C$ |

*1 Single pulse $P_w=100ms$

*2 When mounted on a $40 \times 40 \times 0.7mm$ ceramic board.

●Electrical characteristics ($T_a=25^\circ C$)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|---------|----------------------------------|
| Collector-base breakdown voltage | BV_{CB0} | 60 | - | - | V | $I_C=50\mu A$ |
| Collector-emitter breakdown voltage | BV_{CE0} | 50 | - | - | V | $I_C=1mA$ |
| Emitter-base breakdown voltage | BV_{EB0} | 5 | - | - | V | $I_E=50\mu A$ |
| Collector cutoff current | I_{CB0} | - | - | 0.1 | μA | $V_{CB}=40V$ |
| Emitter cutoff current | I_{EB0} | - | - | 0.1 | μA | $V_{EB}=4V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | - | 0.4 | V | $I_C/I_B=500mA/50mA$ |
| DC current transfer ratio | h_{FE} | 120 | - | 390 | - | $V_{CE}/I_C=3V/0.5A$ |
| Transition frequency | f_T | - | 150 | - | MHz | $V_{CE}=5V, I_E=-50mA, f=100MHz$ |
| Output capacitance | C_{ob} | - | 15 | - | pF | $V_{CB}=10V, I_E=0A, f=1MHz$ |

●Packaging specifications and h_{FE}

| | |
|------------------------------|---------|
| Type | 2SC5053 |
| Package | MPT3 |
| h_{FE} | QR |
| Marking | CG * |
| Code | T100 |
| Basic ordering unit (pieces) | 1000 |

* Denotes h_{FE}

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●Electric characteristics curves

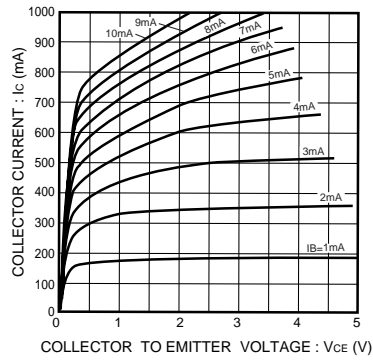


Fig.1 Grounded emitter output characteristics

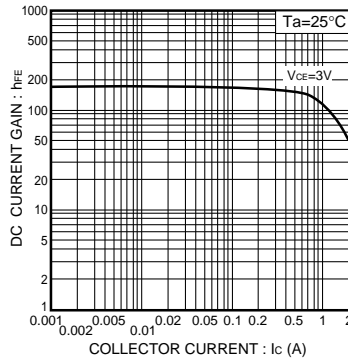


Fig.2 DC current gain vs. collector current

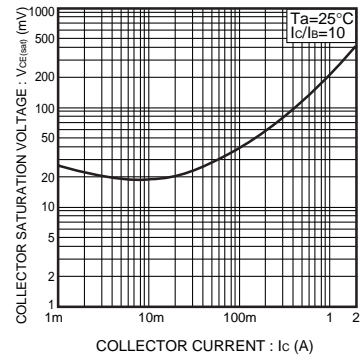


Fig.3 Collector-emitter saturation voltage vs. collector current

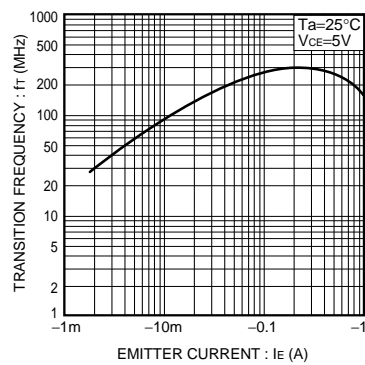


Fig.4 Gain bandwidth product vs. emitter current

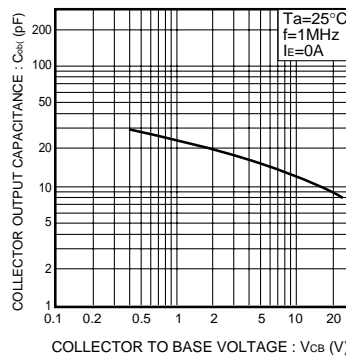


Fig.5 Collector output capacitance vs. collector-base voltage

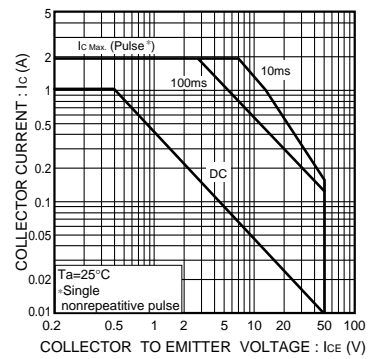


Fig.6 Safe operating area

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