



**THE DATASHEET OF
2SD2170T100**



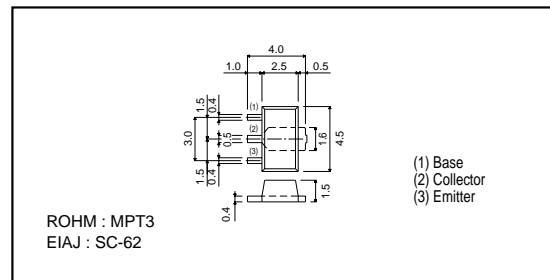
Medium Power Transistor (Motor, Relay drive) (90^{+20}_{-10} , 2A)

2SD2170

●Features

- 1) Built-in zener diode between collector and base.
- 2) Zener diode has low dispersion.
- 3) Strong protection against reverse power surges due to "L" loads.
- 4) Darlington connection for high DC current gain.
- 5) Built-in resistor between base and emitter.
- 6) Built-in damper diode.

●External dimensions (Units : mm)



●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|----------|--------------|
| Collector-base voltage | V _{CB0} | 90 | V |
| Collector-emitter voltage | V _{CE0} | 90 | V |
| Emitter-base voltage | V _{EB0} | 6 | V |
| Collector current | I _C | 2 | A (DC) |
| | | 3 | A (Pulse) *1 |
| Collector power dissipation | P _C | 2 | W *2 |
| Junction temperature | T _J | 150 | °C |
| Storage temperature | T _{stg} | -55~+150 | °C |

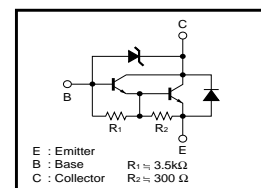
*1 Single pulse P_w = 10ms, Duty = 1 / 2

*2 When mounted on a 40 x 40 x 0.7 mm ceramic board.

●Packaging specifications and h_{FE}

| | |
|------------------------------|---------|
| Type | 2SD2170 |
| Package | MPT3 |
| h _{FE} | 1K~10K |
| Marking | DM |
| Code | T100 |
| Basic ordering unit (pieces) | 1000 |

●Equivalent circuit



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|-------|------|--|
| Collector-base breakdown voltage | BV _{CB0} | 80 | - | 110 | V | I _C = 50μA |
| Collector-emitter breakdown voltage | BV _{CE0} | 80 | - | 110 | V | I _C = 1mA |
| Collector cutoff current | I _{CB0} | - | - | 10 | μA | V _{CB} = 70V |
| Emitter cutoff current | I _{EB0} | - | - | 3 | mA | V _{EB} = 5V |
| Collector-emitter saturation voltage | V _{CE(sat)} | - | - | 1.5 | V | I _C /I _B = 1A/1mA *1 |
| DC current transfer ratio | h _{FE} | 1000 | - | 10000 | - | V _{CE} = 2V, I _C = 1A *1 |
| Transition frequency | f _r | - | 80 | - | MHz | V _{CE} = 5V, I _E = -0.1A, f = 30MHz *2 |
| Output capacitance | C _{ob} | - | 25 | - | pF | V _{CB} = 10V, I _E = 0A, f = 1MHz |

*1 Measured using pulse current.

*2 Transition frequency of the device.

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