

Medium Power Transistor

(Motor, Relay drive) (60±10V, 2A)

2SD2143

●Features

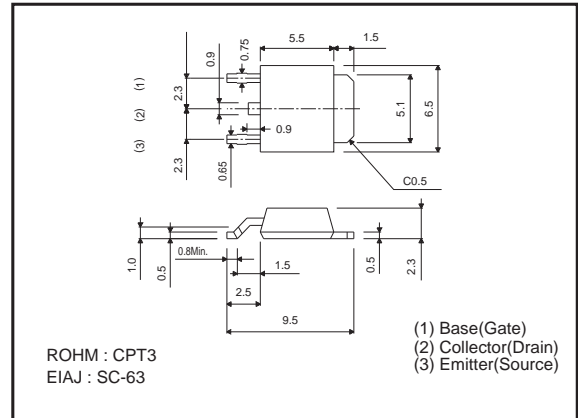
- 1) Built-in zener diode between collector and base.
- 2) Strong protection against reverse surges due to "L" loads.
- 3) Built-in resistor between base and emitter.
- 4) Built-in damper diode.

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|------------------|-------------|--------------------------|
| Collector-base voltage | V _{CB0} | 60±10 | V |
| Collector-emitter voltage | V _{CEO} | 60±10 | V |
| Emitter-base voltage | V _{EBO} | 6 | V |
| Collector current | I _c | 2 | A (DC) |
| | | 3 *1 | A (Pulse) |
| Collector power dissipation | P _c | 1 | W |
| | | 10 | W (T _c =25°C) |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

*1 Single pulse P_w=100ms

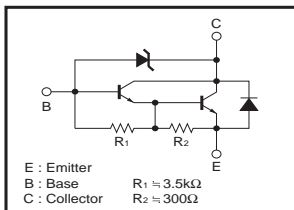
●Dimensions (Unit : mm)



●Packaging specifications and h_{FE}

| Type | 2SD2143 |
|------------------------------|-----------|
| Package | CPT3 |
| h _{FE} | 1k to 10k |
| Marking | - |
| Code | TL |
| Basic ordering unit (pieces) | 2500 |

●Inner circuit



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|----------------------|------|------|-------|------|---|
| Collector-base breakdown voltage | BV _{CB0} | 50 | - | 70 | V | I _c =50μA |
| Collector-emitter breakdown voltage | BV _{CEO} | 50 | - | 70 | V | I _c =5mA |
| Collector cutoff current | I _{cB0} | - | - | 1.0 | μA | V _{CB} =40V |
| 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 |
| DC current transfer ratio | h _{FE} | 1000 | - | 10000 | - | V _{CE} =2V, I _c =1A |
| Transition frequency | f _t | - | 80 | - | MHz | V _{CE} =5V, I _E =-0.1A, f=30MHz |
| Output capacitance | C _{ob} | - | 25 | - | pF | V _{CB} =10V, I _E =0A, f=1MHz |

* Measured using pulse current.

●Electrical characteristics curves

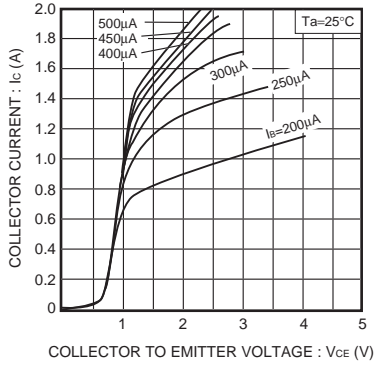


Fig.1 Grounded emitter output characteristics (I)

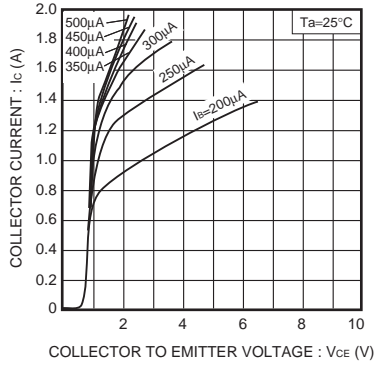


Fig.2 Grounded emitter output characteristics (II)

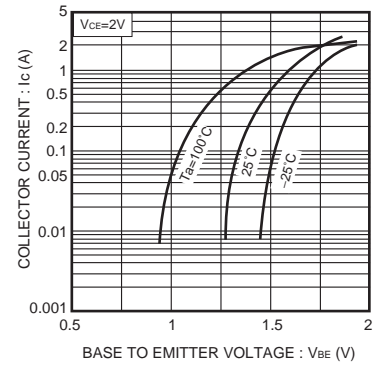


Fig.3 Grounded emitter propagation characteristics

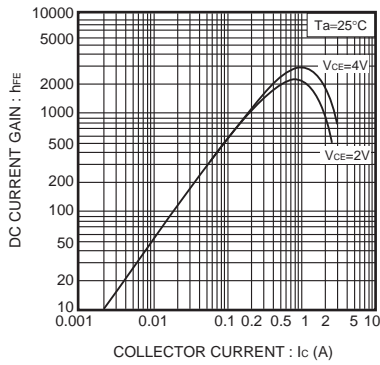


Fig.4 DC current gain vs. collector current (I)

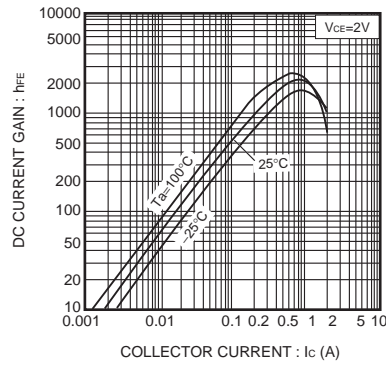


Fig.5 DC current gain vs. collector current (II)

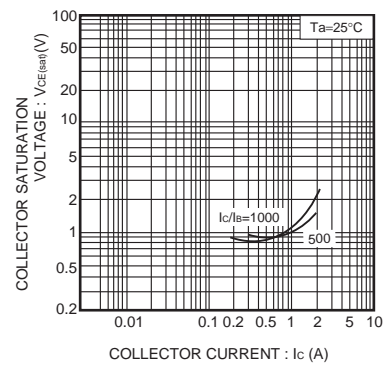


Fig.6 Collector-emitter saturation voltage vs. collector current

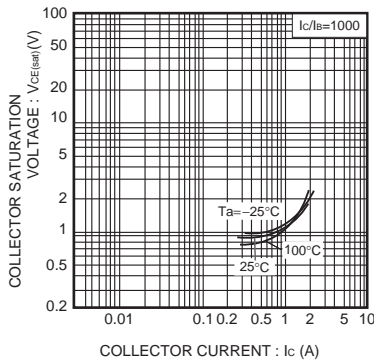


Fig.7 Collector-emitter saturation voltage vs. collector current

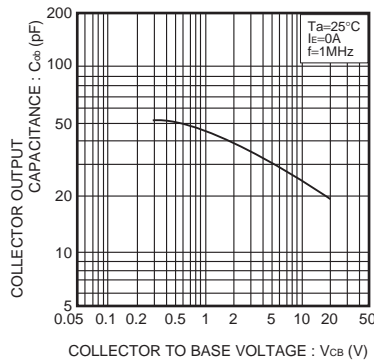


Fig.8 Collector output capacitance vs. collector-base voltage

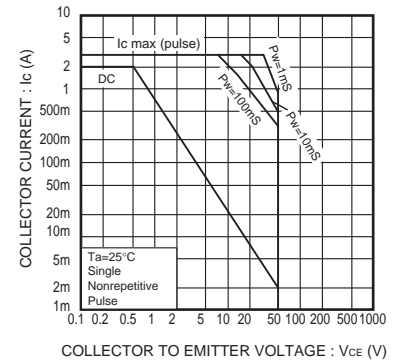


Fig.9 Safe operating area (A. S. O) 2SD2143 (CPT)

Notes

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