

Silicon NPN Power Transistors

2SC2438

DESCRIPTION

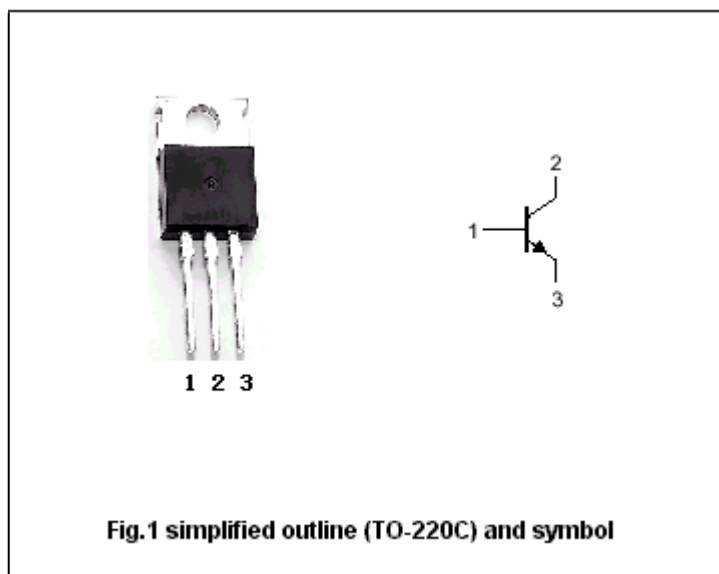
- With TO-220C package
- Low collector saturation voltage
- High reliability

APPLICATIONS

- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

PINNING

| PIN | DESCRIPTION |
|-----|--------------------------------------|
| 1 | Base |
| 2 | Collector;connected to mounting base |
| 3 | Emitter |



Absolute maximum ratings(Ta=25°C)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|------------------|-----------------------------|----------------------|---------|------|
| V _{CBO} | Collector-base voltage | Open emitter | 150 | V |
| V _{CEO} | Collector-emitter voltage | Open base | 80 | V |
| V _{EBO} | Emitter-base voltage | Open collector | 7 | V |
| I _C | Collector current | | 7 | A |
| I _B | Base current | | 2 | A |
| P _C | Collector power dissipation | T _C =25°C | 50 | W |
| T _j | Junction temperature | | 150 | °C |
| T _{stg} | Storage temperature | | -55~150 | °C |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------------|----------------------------------|-----|------|
| R _{th j-c} | Thermal resistance junction case | 2.5 | °C/W |

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CHARACTERISTICS

T_j=25 °C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|---|-----|------|-----|------|
| V _{(BR)CEO} | Collector-emitter breakdown voltage | I _C =10mA ; I _B =0 | 80 | | | V |
| V _{(BR)CBO} | Collector-base breakdown voltage | I _C =100μA ; I _E =0 | 150 | | | V |
| V _{(BR)EBO} | Emitter-base breakdown voltage | I _E =100μA ; I _C =0 | 7 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =4A; I _B =0.4A | | | 0.5 | V |
| V _{BEsat} | Base-emitter saturation voltage | I _C =4A; I _B =0.4A | | | 1.2 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =150V ; I _E =0 | | | 100 | μA |
| I _{EBO} | Emitter cut-off current | V _{EB} =7V; I _C =0 | | | 100 | μA |
| h _{FE} | DC current gain | I _C =4 A ; V _{CE} =1V | 30 | | | |

Switching times

| | | | | | | |
|-----------------|--------------|---|--|--|-----|----|
| t _{on} | Turn-on time | I _C =4A; I _{B1} =0.4A I _{B2} =-0.4A; R _L =5Ω | | | 0.5 | μs |
| t _s | Storage time | | | | 2.5 | μs |
| t _f | Fall time | | | | 0.3 | μs |

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PACKAGE OUTLINE

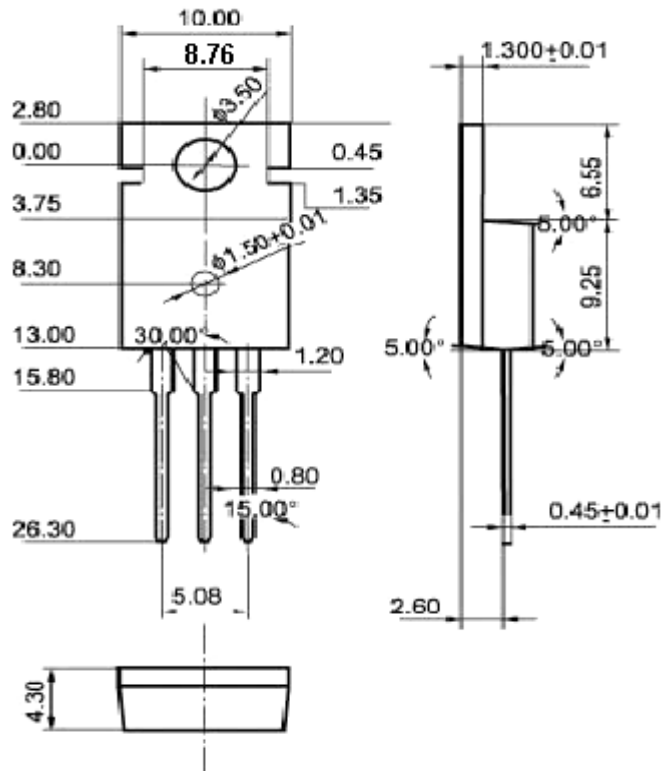


Fig.2 Outline dimensions (unindicated tolerance: ± 0.10 mm)

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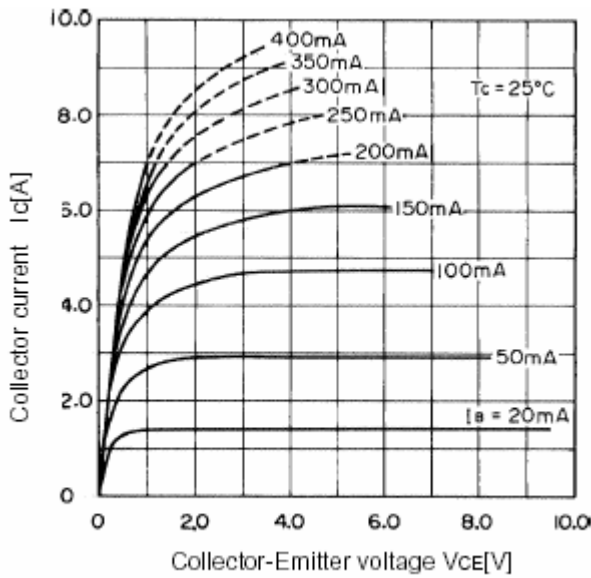


Fig.3 Static Characteristic

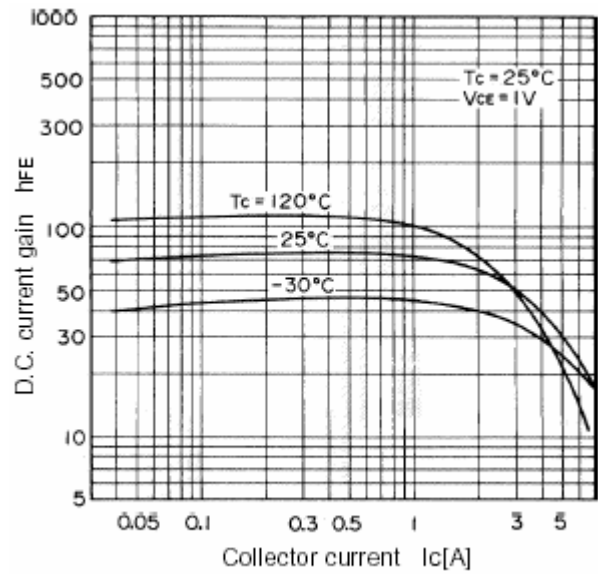


Fig.4 DC current Gain

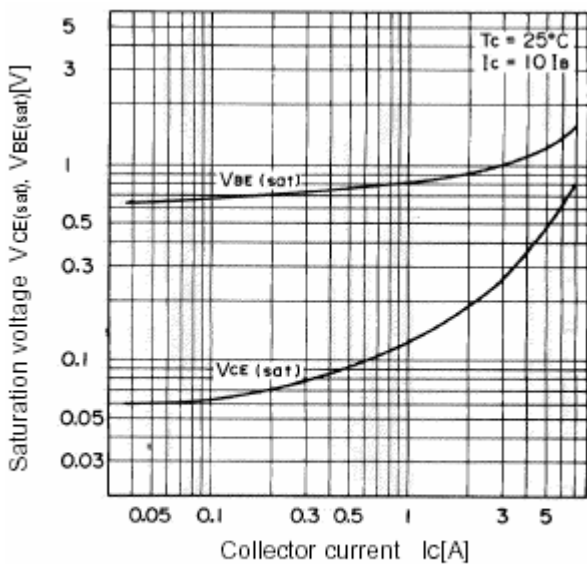


Fig.5 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

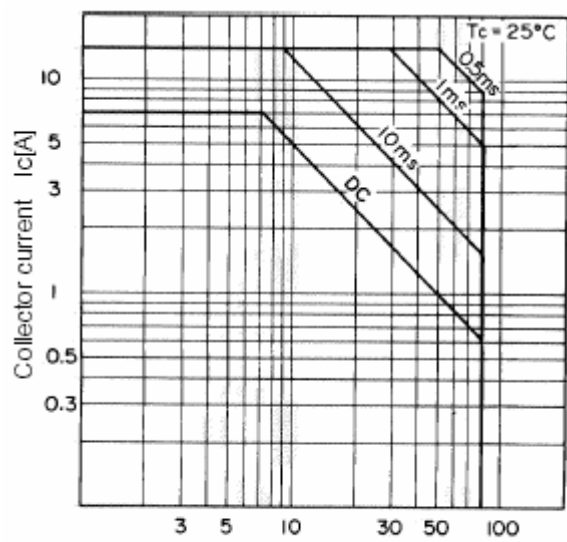


Fig.6 Safe Operating Area