

Silicon NPN Power Transistors

2SC4538

DESCRIPTION

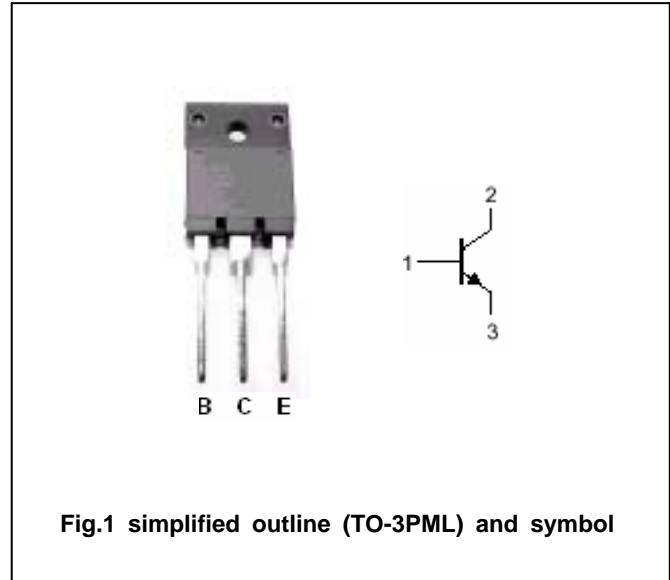
- With TO-3PML package
- High voltage ,high speed switching

APPLICATIONS

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

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | Base |
| 2 | Collector |
| 3 | Emitter |

Absolute maximum ratings($T_c=25^\circ\text{C}$)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------|-----------------------------|----------------|---------|------|
| V_{CBO} | Collector-base voltage | Open emitter | 900 | V |
| V_{CEO} | Collector-emitter voltage | Open base | 800 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 10 | V |
| I_C | Collector current | | 5 | A |
| I_B | Base current | | 3 | A |
| P_C | Collector power dissipation | $T_c=25$ | 80 | W |
| T_j | Junction temperature | | 150 | |
| T_{stg} | Storage temperature | | -55~150 | |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|----------------------------------|-----|------|
| $R_{th\ j-c}$ | Thermal resistance junction case | 1.5 | /W |

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CHARACTERISTICS

T_j=25 unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|--|-----|------|-----|------|
| V _{(BR)CBO} | Collector-base breakdown voltage | I _C =1mA; I _E =0 | 900 | | | V |
| V _{(BR)CEO} | Collector-emitter breakdown voltage | I _C =10mA; I _B =0 | 800 | | | V |
| V _{(BR)EBO} | Emitter-base breakdown voltage | I _E =1mA; I _C =0 | 10 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =2A; I _B =0.4A | | | 1.0 | V |
| V _{BEsat} | Base-emitter saturation voltage | I _C =2A; I _B =0.4A | | | 1.5 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =900V; I _E =0 | | | 1.0 | mA |
| I _{EBO} | Emitter cut-off current | V _{EB} =10V; I _C =0 | | | 1.0 | mA |
| h _{FE} | DC current gain | I _C =2A; V _{CE} =5V | 10 | | | |

Switching times

| | | | | | | |
|------------------|--------------|---|--|--|-----|----|
| t _{on} | Turn-on time | I _C =3A; R _L =100 I _{B1} =0.6A; I _{B2} =-1.2A P _w = 20 μs; Duty 2% | | | 1.0 | μs |
| t _{stg} | Storage time | | | | 4.0 | μs |
| t _f | Fall time | | | | 0.8 | μs |

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PACKAGE OUTLINE

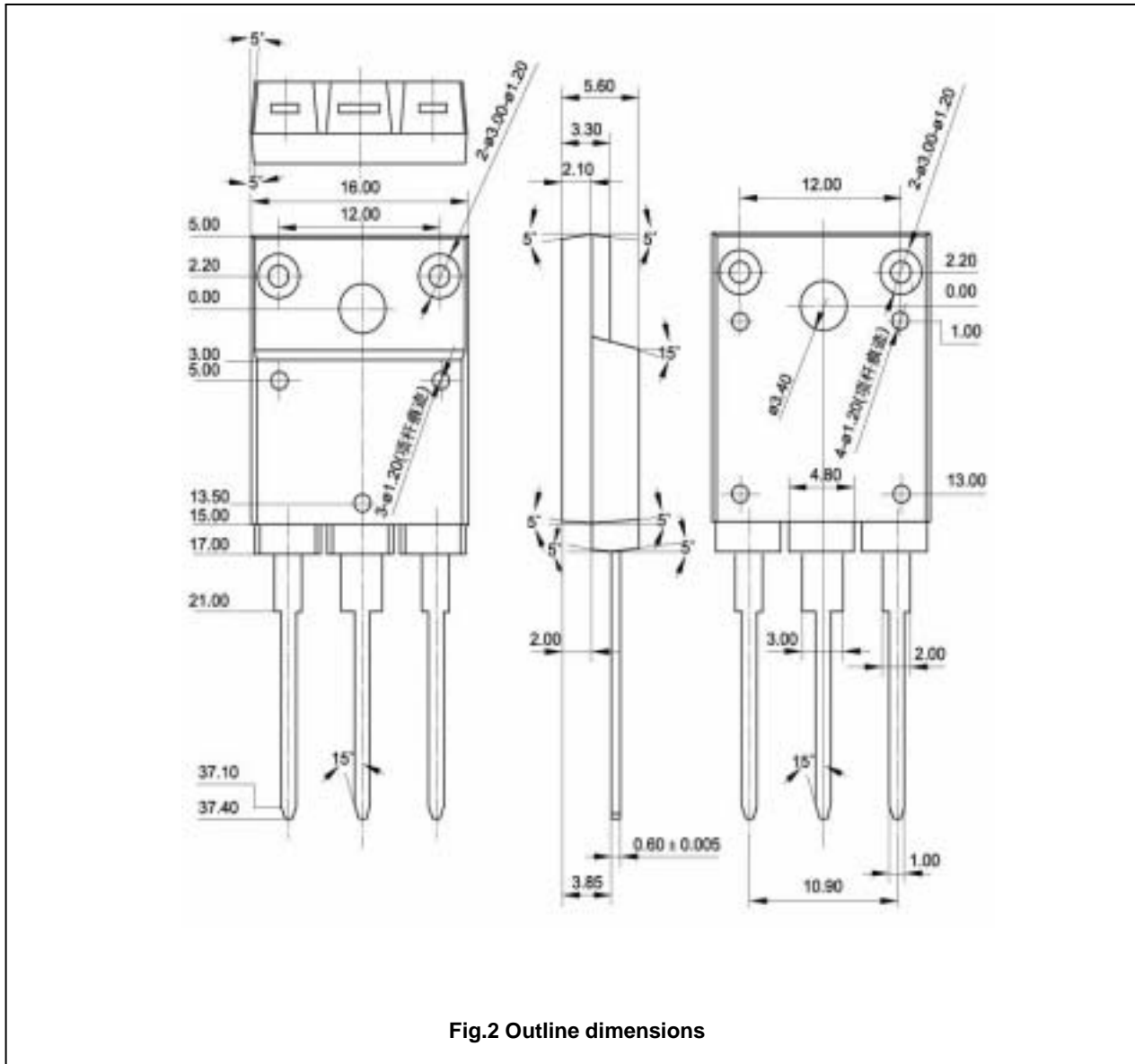


Fig.2 Outline dimensions

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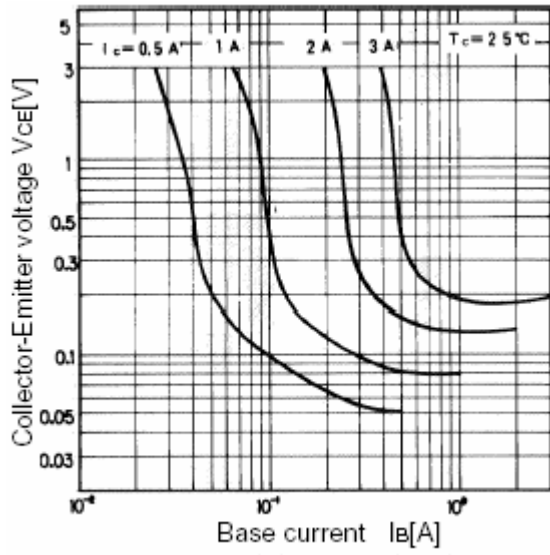


Fig.3 Static Characteristic

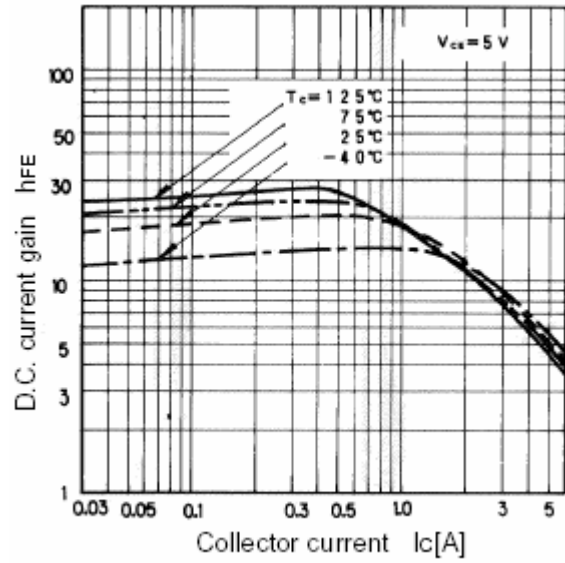


Fig.4 DC current Gain

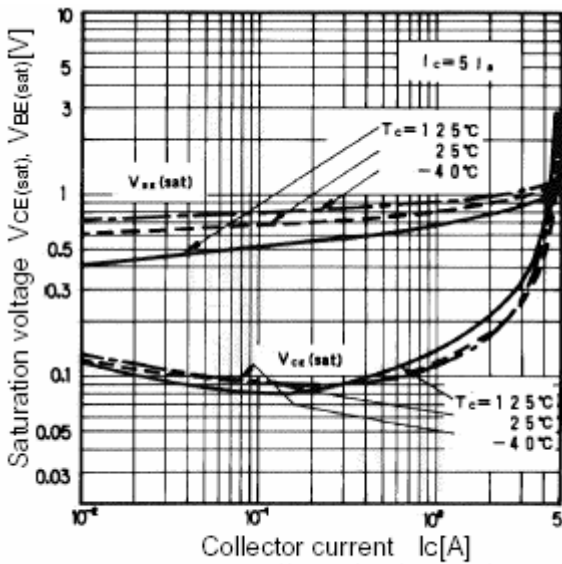


Fig.5 Base-Emitter Saturation Voltage
Collector-Emmitter Saturation Voltage

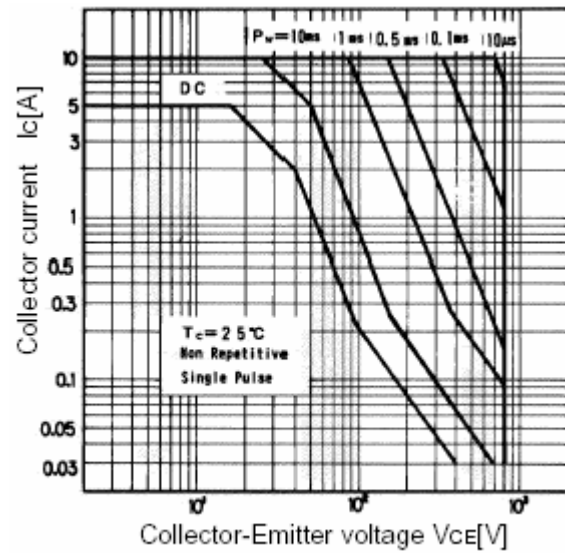


Fig.6 Safe Operating Area