

Silicon NPN Power Transistors

2SC4423

DESCRIPTION

- With TO-3PML package
- High breakdown voltage, high reliability.
- Fast switching speed
- Wide area of safe operation

APPLICATIONS

- For switching regulator applications

PINNING

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

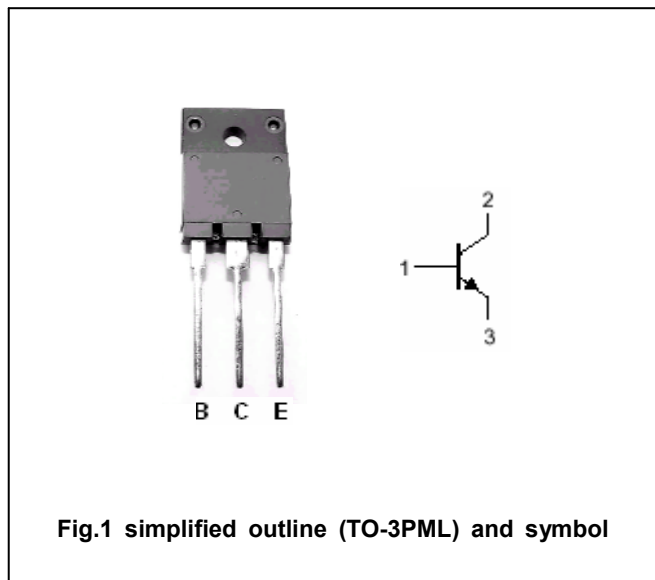


Fig.1 simplified outline (TO-3PML) and symbol

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

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------|-----------------------------|------------------------|---------|------------------|
| V_{CBO} | Collector-base voltage | Open emitter | 500 | V |
| V_{CEO} | Collector-emitter voltage | Open base | 400 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 7 | V |
| I_C | Collector current | | 12 | A |
| I_{CM} | Collector current-peak | | 25 | A |
| I_B | Base current | | 4 | A |
| P_C | Collector power dissipation | $T_C=25^\circ\text{C}$ | 55 | W |
| | | $T_a=25^\circ\text{C}$ | 3 | |
| T_j | Junction temperature | | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | -55~150 | $^\circ\text{C}$ |

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CHARACTERISTICS

T_j=25 °C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|-----------------------|--------------------------------------|---|-----|------|-----|------|
| V _{(BR)CBO} | Collector-base breakdown voltage | I _C =1mA; I _E =0 | 500 | | | V |
| V _{(BR)CEO} | Collector-emitter breakdown voltage | I _C =5mA; R _{BE} =∞ | 400 | | | V |
| V _{(BR)EBO} | Emitter-base breakdown voltage | I _E =1mA; I _C =0 | 7 | | | V |
| V _{CEX(SUS)} | Collector-emitter sustaining voltage | I _C =6A; I _{B1} =0.6A; I _{B2} =-2.4A; L=500μH | 400 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =8A; I _B =1.6 A | | | 0.8 | V |
| V _{BEsat} | Base-emitter saturation voltage | I _C =8A; I _B =1.6 A | | | 1.5 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =400V; I _E =0 | | | 10 | μA |
| I _{EBO} | Emitter cut-off current | V _{EB} =5V; I _C =0 | | | 10 | μA |
| h _{FE-1} | DC current gain | I _C =1.6A ; V _{CE} =5V | 15 | | 50 | |
| h _{FE-2} | DC current gain | I _C =8A ; V _{CE} =5V | 10 | | | |
| h _{FE-3} | DC current gain | I _C =10mA ; V _{CE} =5V | 10 | | | |
| f _T | Transition frequency | I _C =1.6A ; V _{CE} =10V | | 20 | | MHz |
| C _{OB} | Output capacitance | V _{CB} =10V; f=1MHz | | 160 | | pF |

Switching times

| | | | | | | |
|------------------|--------------|---|--|--|-----|----|
| t _{on} | Turn-on time | I _C =10A; R _L =20Ω I _{B1} =2A; I _{B2} =4A V _{CC} =200V | | | 0.5 | μs |
| t _{stg} | Storage time | | | | 2.5 | μs |
| t _f | Fall time | | | | 0.3 | μs |

◆ h_{FE-1} classifications

| L | M | N |
|-------|-------|-------|
| 15-30 | 20-40 | 30-50 |

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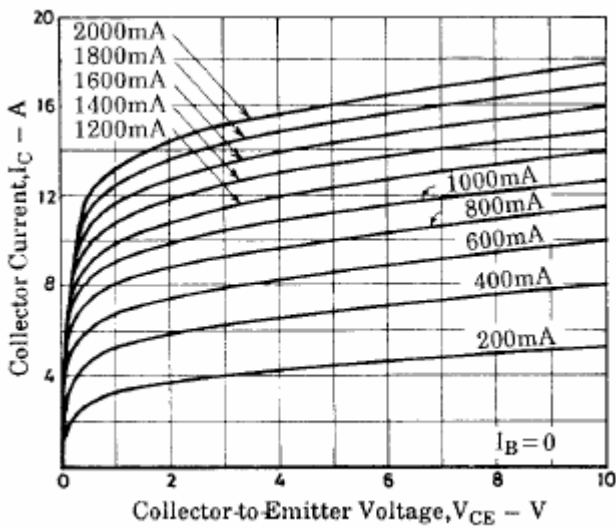


Fig.3 Static Characteristic

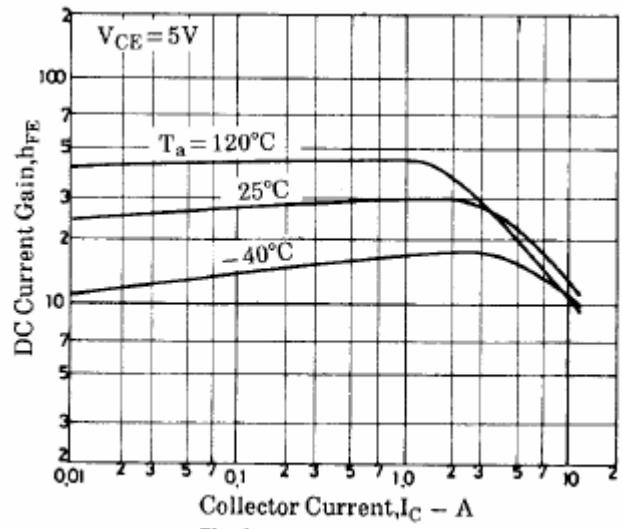


Fig.4 DC current Gain

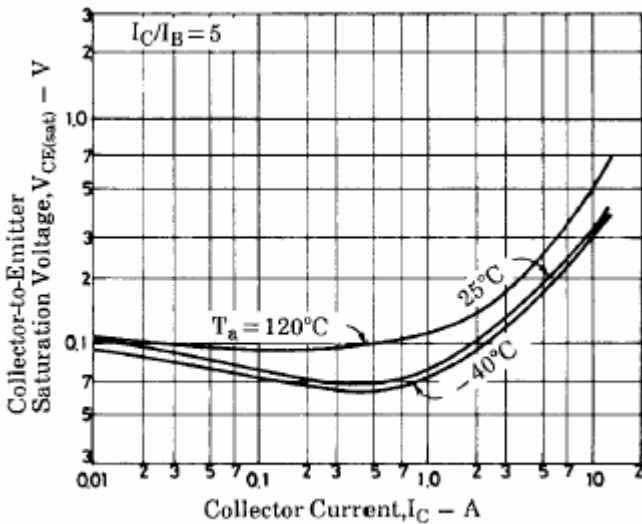


Fig.5 Collector-Emmitter Saturation Voltage

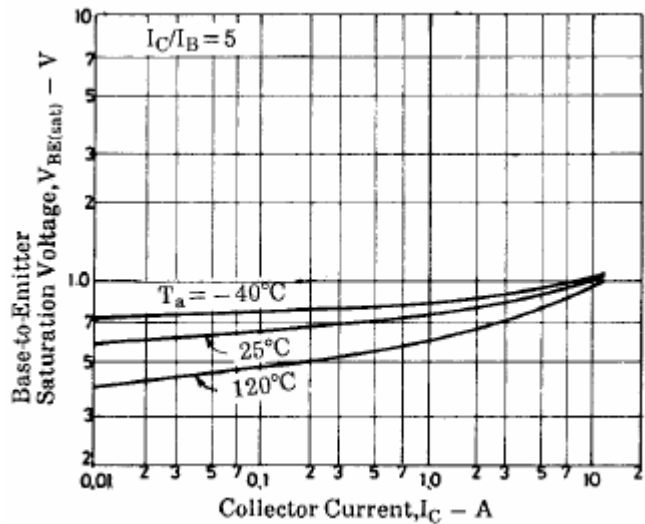


Fig.6 Base-Emmitter Saturation Voltage

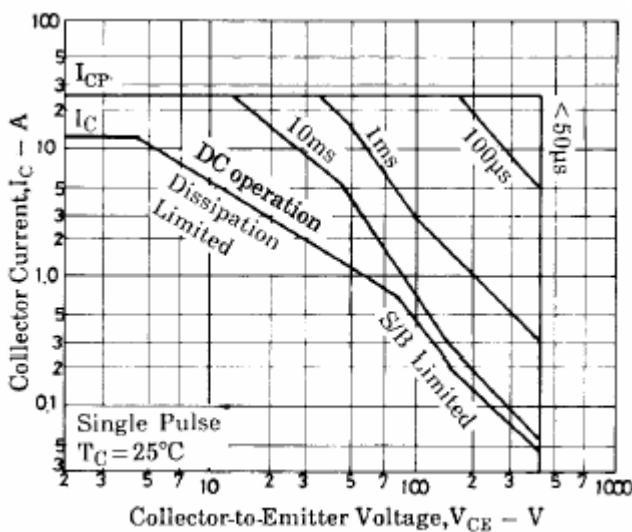


Fig.7 Safe Operating Area