

Silicon NPN Power Transistors

2SC4301

DESCRIPTION

- With TO-3PML package
- High voltage switching transistor

APPLICATIONS

- Switching Regulator,
- Lighting Inverter and general purpose

PINNING

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

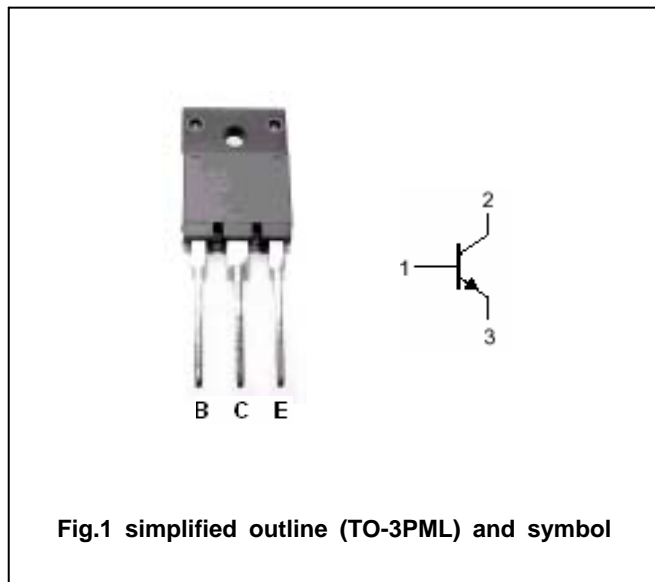


Fig.1 simplified outline (TO-3PML) and symbol

Absolute maximum ratings(Ta=25)

| 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 | 7 | V |
| I _C | Collector current | | 7 | A |
| I _{CM} | Collector current-peak | | 14 | A |
| I _B | Base current | | 3.5 | A |
| P _C | Collector power dissipation | T _C =25 | 80 | W |
| T _j | Junction temperature | | 150 | |
| T _{stg} | Storage temperature | | -55~150 | |

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CHARACTERISTICS

T_j=25 unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|-------------------------------------------|-----|------|-----|------|
| V _{(BR)CEO} | Collector-emitter breakdown voltage | I _C =10mA; I _B =0 | 800 | | | V |
| V _{CEsat} | Collector-emitter saturation voltage | I _C =3A; I _B =0.6A | | | 0.5 | V |
| V _{BEsat} | Base-emitter saturation voltage | I _C =3A; I _B =0.6A | | | 1.2 | V |
| I _{CBO} | Collector cut-off current | V _{CB} =800V; 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 =3A; V _{CE} =4V | 10 | | 30 | |
| f _T | Transition frequency | I _E =-1A; V _{CE} =12V | | 6 | | MHz |
| C _{OB} | Output capacitance | V _{CB} =10V; f=1MHz | | 105 | | pF |

Switching times

| | | | | | | |
|------------------|--------------|-----------------------------------------------------------------------------------------------------------------------|--|--|---|----|
| t _{on} | Turn-on time | I _C =3A; I _{B1} =0.45A; I _{B2} =-1.5A; R _L =83 Ω; V _{CC} =250V | | | 1 | μs |
| t _{stg} | Storage time | | | | 5 | μs |
| t _f | Fall time | | | | 1 | μs |

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PACKAGE OUTLINE

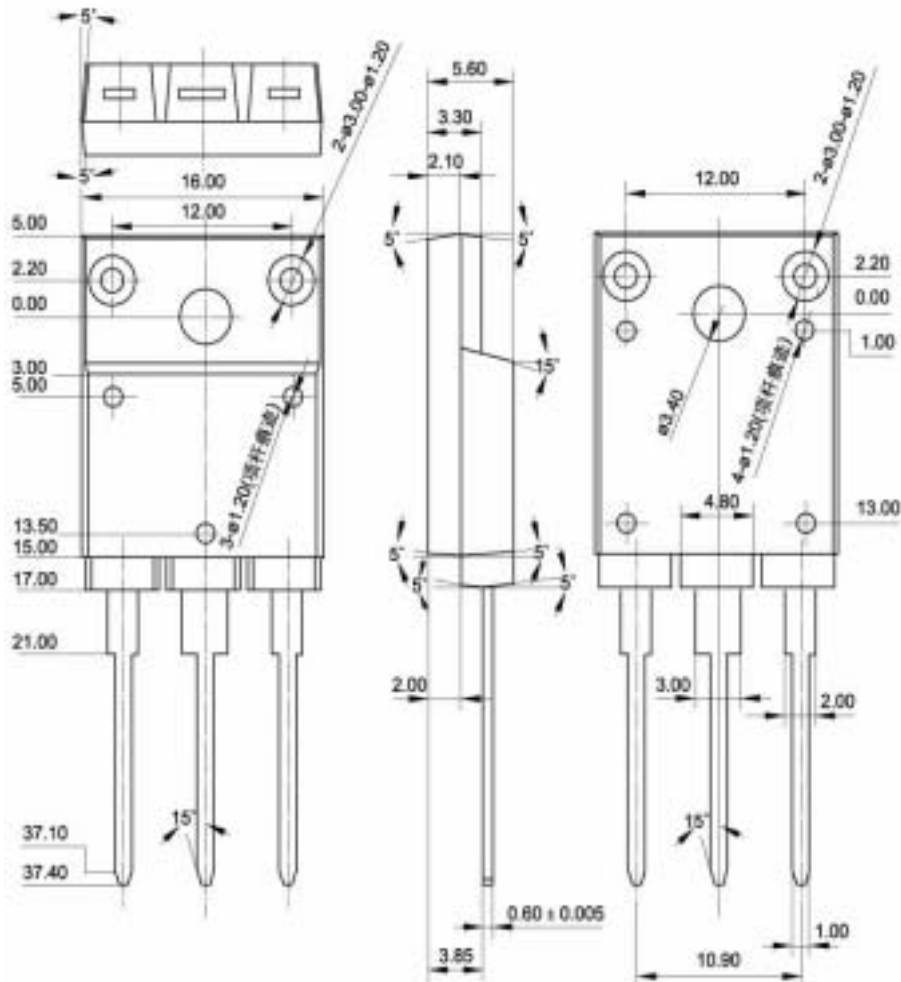


Fig.2 Outline dimensions

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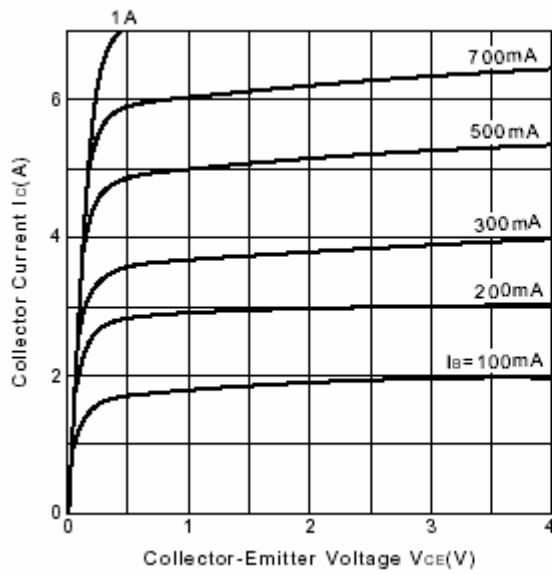


Fig.3 Static Characteristic

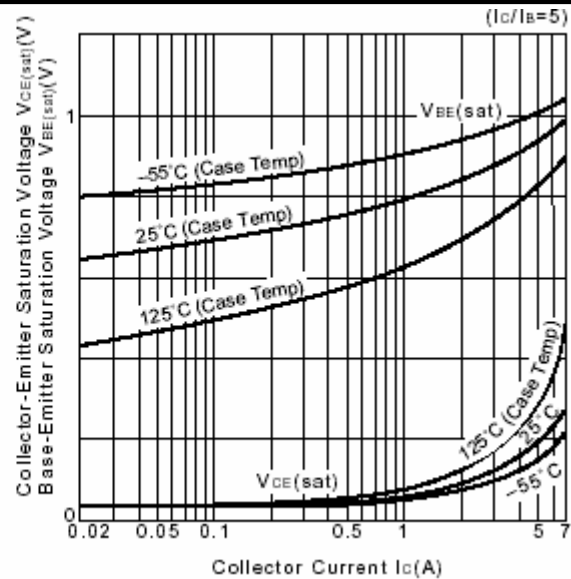


Fig.4 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

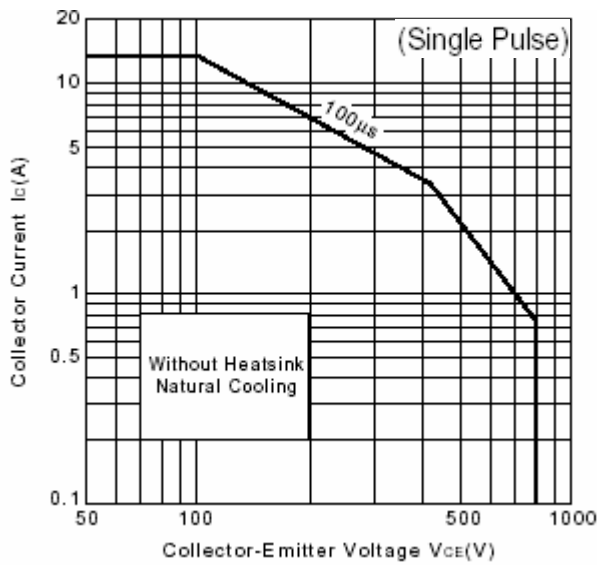


Fig.5 Safe Operating Area

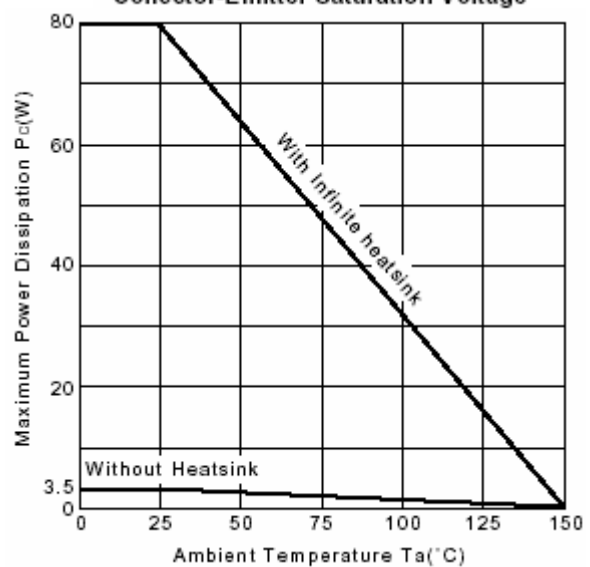


Fig.6 P_c - T_a Derating

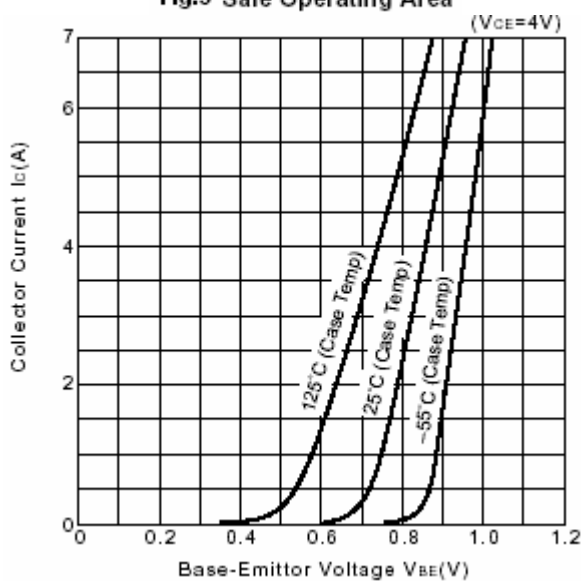


Fig.7 I_c - V_{BE}

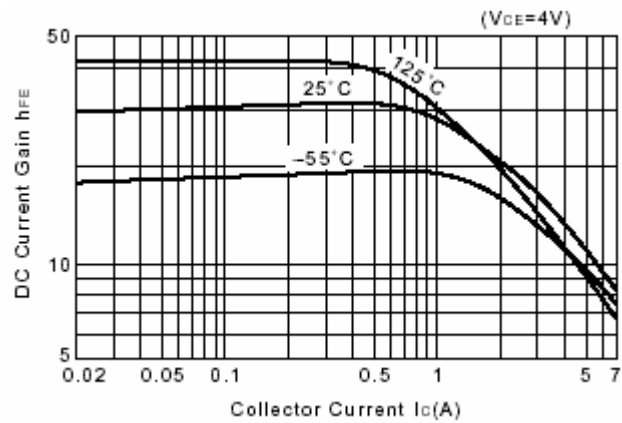


Fig.8 DC current Gain