

## Silicon NPN Power Transistors

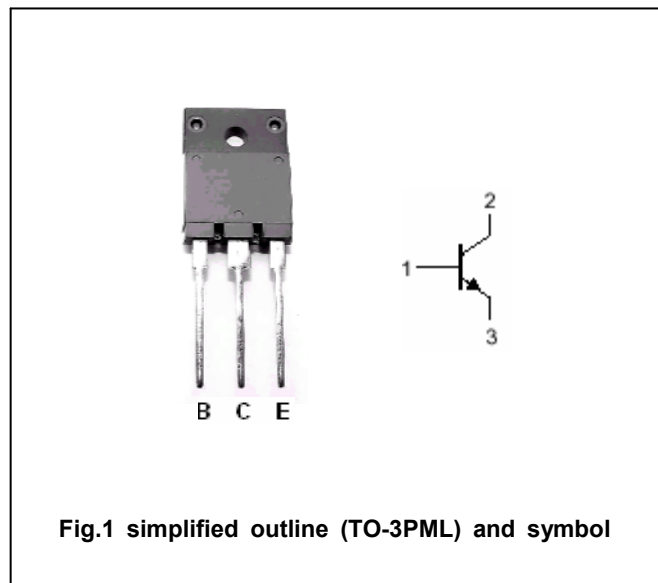
2SC4941

## DESCRIPTION

- With TO-3PML package
- Switching power transistor
- High breakdown voltage

## PINNING

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

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

| SYMBOL    | PARAMETER                 | CONDITIONS             | VALUE   | UNIT             |
|-----------|---------------------------|------------------------|---------|------------------|
| $V_{CBO}$ | Collector-base voltage    | Open emitter           | 1500    | V                |
| $V_{CEO}$ | Collector-emitter voltage | Open base              | 800     | V                |
| $V_{EBO}$ | Emitter-base voltage      | Open collector         | 7       | V                |
| $I_C$     | Collector current         |                        | 6       | A                |
| $I_{CM}$  | Collector current-Peak    |                        | 12      | A                |
| $I_B$     | Base current              |                        | 3       | A                |
| $I_B$     | Base current-Peak         |                        | 6       | A                |
| $P_T$     | Total power dissipation   | $T_C=25^\circ\text{C}$ | 65      | W                |
| $T_j$     | Junction temperature      |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature       |                        | -55~150 | $^\circ\text{C}$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                | VALUE | UNIT               |
|---------------|------------------------------------------|-------|--------------------|
| $R_{th\ j-c}$ | Thermal resistance from junction to case | 1.92  | $^\circ\text{C/W}$ |

**Silicon NPN Power Transistors****2SC4941****CHARACTERISTICS****T<sub>j</sub>=25°C unless otherwise specified**

| SYMBOL                | PARAMETER                            | CONDITIONS                                                 | MIN  | TYP. | MAX | UNIT |
|-----------------------|--------------------------------------|------------------------------------------------------------|------|------|-----|------|
| V <sub>CEO(SUS)</sub> | Collector-emitter sustaining voltage | I <sub>C</sub> =0.2A ; I <sub>B</sub> =0                   | 800  |      |     | V    |
| V <sub>CBO</sub>      | Collector-base voltage               | I <sub>C</sub> =1mA ; I <sub>E</sub> =0                    | 1500 |      |     | V    |
| V <sub>CEsat</sub>    | Collector-emitter saturation voltage | I <sub>C</sub> =3A ; I <sub>B</sub> =0.6A                  |      |      | 0.5 | V    |
| V <sub>BEsat</sub>    | Base-emitter saturation voltage      | I <sub>C</sub> =3A ; I <sub>B</sub> =0.6A                  |      |      | 1.5 | V    |
| I <sub>CBO</sub>      | Collector cut-off current            | V <sub>CB</sub> =1200V ; I <sub>E</sub> =0                 |      |      | 100 | μA   |
| I <sub>CEO</sub>      | Collector cut-off current            | V <sub>CE</sub> =RatedV <sub>CEO</sub> ; I <sub>B</sub> =0 |      |      | 100 | μA   |
| I <sub>EBO</sub>      | Emitter cut-off current              | V <sub>EB</sub> =RatedV <sub>EBO</sub> ; I <sub>C</sub> =0 |      |      | 100 | μA   |
| h <sub>FE-1</sub>     | DC current gain                      | I <sub>C</sub> =1A ; V <sub>CE</sub> =5V                   | 15   |      |     |      |
| h <sub>FE-2</sub>     | DC current gain                      | I <sub>C</sub> =1mA ; V <sub>CE</sub> =5V                  | 7    |      |     |      |
| f <sub>T</sub>        | Transition frequency                 | I <sub>C</sub> =0.6A ; V <sub>CE</sub> =10V                |      | 8    |     | MHz  |

**Switching times**

|                 |              |                                                                                                                     |  |  |     |    |
|-----------------|--------------|---------------------------------------------------------------------------------------------------------------------|--|--|-----|----|
| t <sub>on</sub> | Turn-on time | I <sub>C</sub> =3A<br>I <sub>B1</sub> =0.6A ; I <sub>B2</sub> =-1.2A<br>V <sub>BB2</sub> =4V<br>R <sub>L</sub> =85Ω |  |  | 0.5 | μs |
| t <sub>s</sub>  | Storage time |                                                                                                                     |  |  | 3.5 | μs |
| t <sub>f</sub>  | Fall time    |                                                                                                                     |  |  | 0.3 | μs |

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## PACKAGE OUTLINE

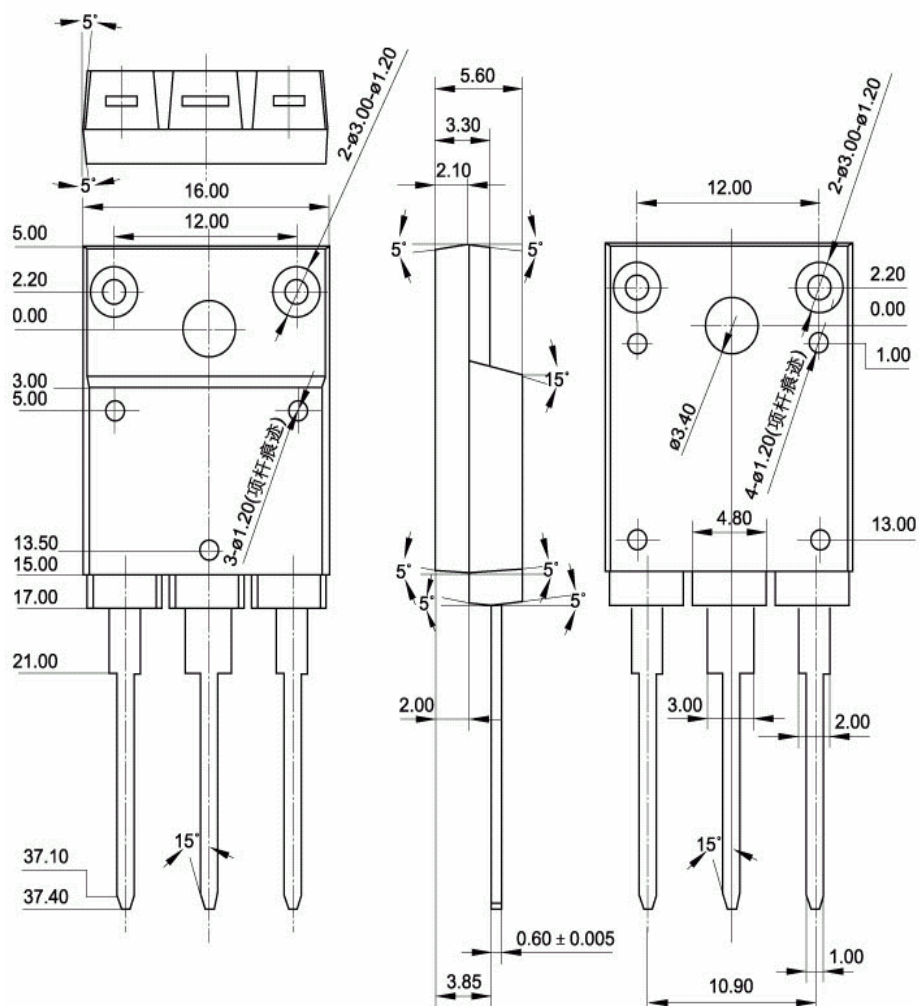


Fig.2 Outline dimensions (unindicated tolerance:±0.10 mm)