

## Silicon NPN Power Transistors

2SC3886

## DESCRIPTION

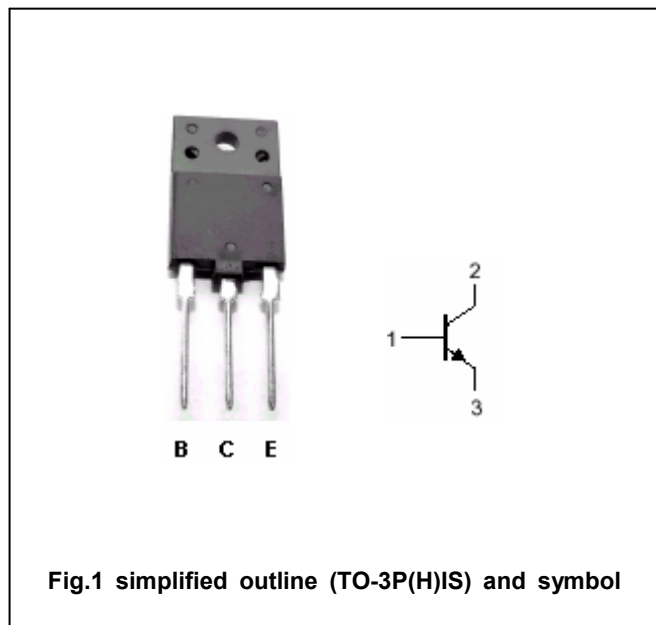
- With TO-3P(H)IS package
- High speed
- High voltage

## APPLICATIONS

- Horizontal deflection output for high resolution display
- High speed switching regulator output applications

## 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           | 1400    | V                |
| $V_{CEO}$ | Collector-emitter voltage | Open base              | 600     | V                |
| $V_{EBO}$ | Emitter-base voltage      | Open collector         | 5       | V                |
| $I_C$     | Collector current         |                        | 8       | A                |
| $I_{CM}$  | Collector current-peak    |                        | 15      | A                |
| $I_B$     | Base current              |                        | 4       | A                |
| $P_T$     | Total power dissipation   | $T_C=25^\circ\text{C}$ | 50      | W                |
| $T_j$     | Junction temperature      |                        | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage temperature       |                        | -55~150 | $^\circ\text{C}$ |

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## CHARACTERISTICS

Tj=25°C unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS                        | MIN | TYP. | MAX | UNIT |
|---------------|--------------------------------------|-----------------------------------|-----|------|-----|------|
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage  | $I_C=5mA$ ; $I_B=0$               | 600 |      |     | V    |
| $V_{CEsat}$   | Collector-emitter saturation voltage | $I_C=6A$ ; $I_B=1.5A$             |     |      | 5   | V    |
| $V_{BEsat}$   | Base-emitter saturation voltage      | $I_C=6A$ ; $I_B=1.5A$             |     |      | 5   | V    |
| $I_{CBO}$     | Collector cut-off current            | $V_{CB}=1400V$ ; $I_E=0$          |     |      | 1.0 | mA   |
| $I_{EBO}$     | Emitter cut-off current              | $V_{EB}=5V$ ; $I_C=0$             |     |      | 10  | μA   |
| $h_{FE}$      | DC current gain                      | $I_C=1A$ ; $V_{CE}=5V$            | 8   | 15   |     |      |
| $C_{ob}$      | Collector output capacitance         | $I_E=0$ ; $V_{CB}=10V$ , $f=1MHz$ |     | 150  |     | pF   |
| $f_T$         | Transition frequency                 | $I_E=0.1A$ ; $V_{CE}=10V$         |     | 3    | 8   | MHz  |

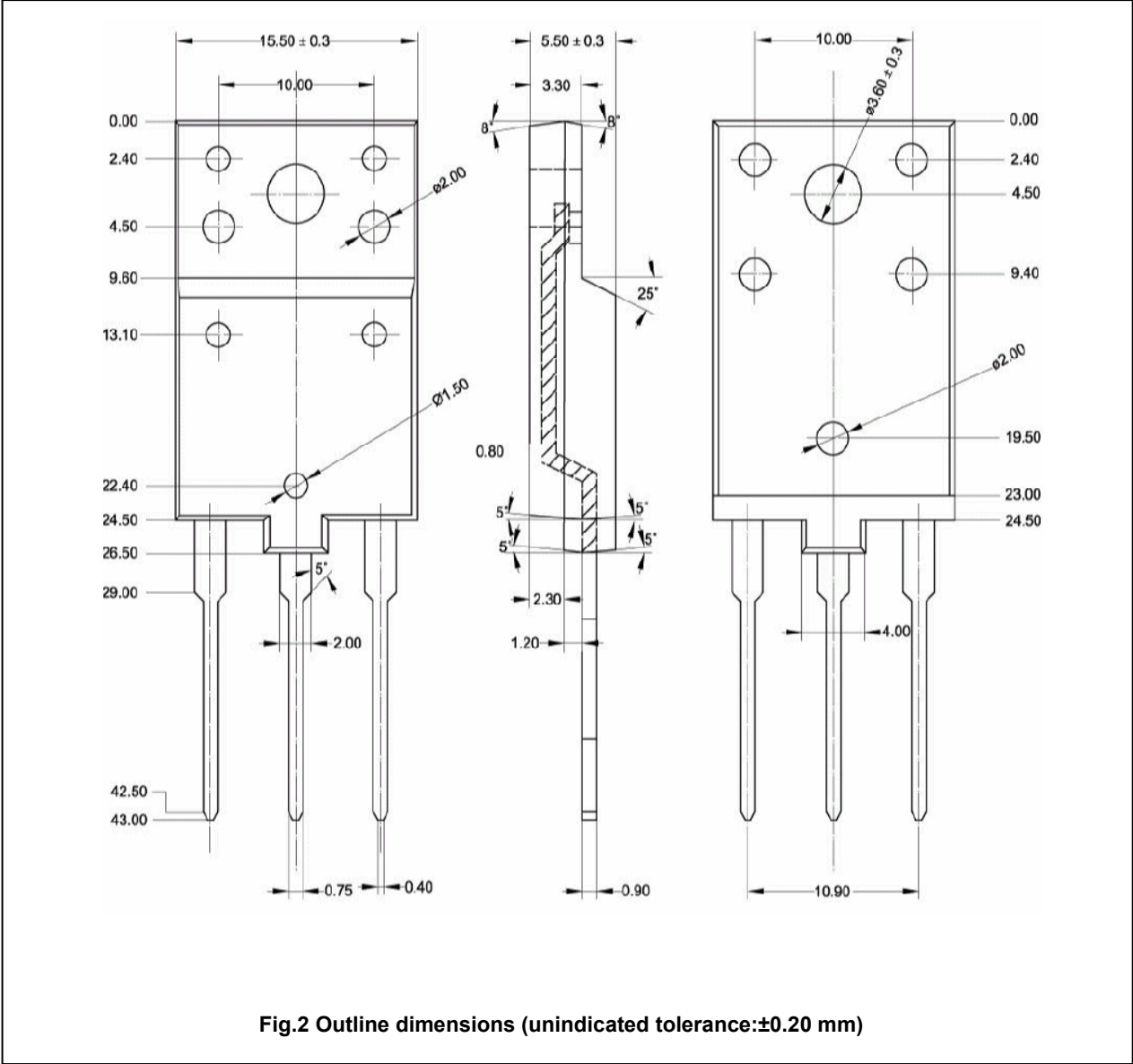
Switching times inductive load

|       |              |                                                                             |  |     |     |    |
|-------|--------------|-----------------------------------------------------------------------------|--|-----|-----|----|
| $t_s$ | Storage time | $I_{CP}=6A$ ; $I_{B1}=1.2A$<br>$f_H=64kHz$<br>$L_Y=120\mu H$ ; $C_Y=7500pF$ |  | 2.5 | 4.0 | μs |
| $t_f$ | Fall time    |                                                                             |  | 0.1 | 0.5 | μs |

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PACKAGE OUTLINE



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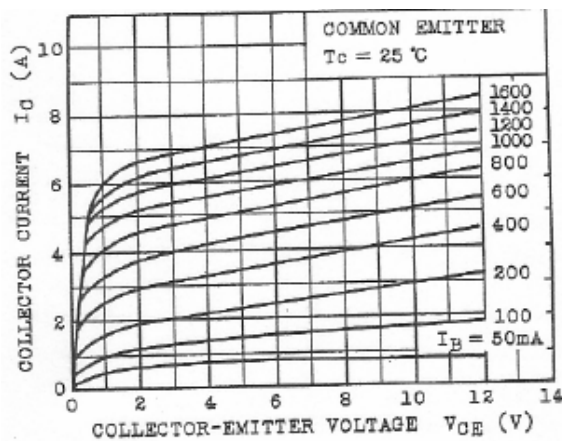


Fig.3 Static Characteristic

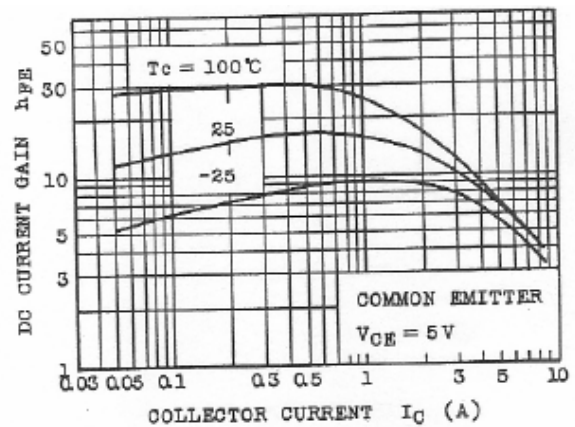


Fig.4 DC current Gain

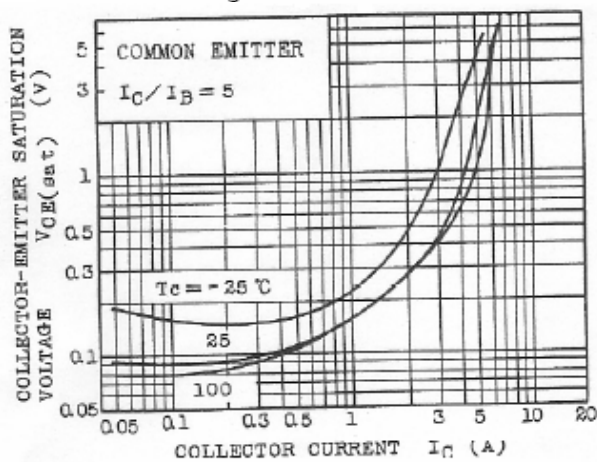


Fig.5 Collector-Emitter Saturation Voltage

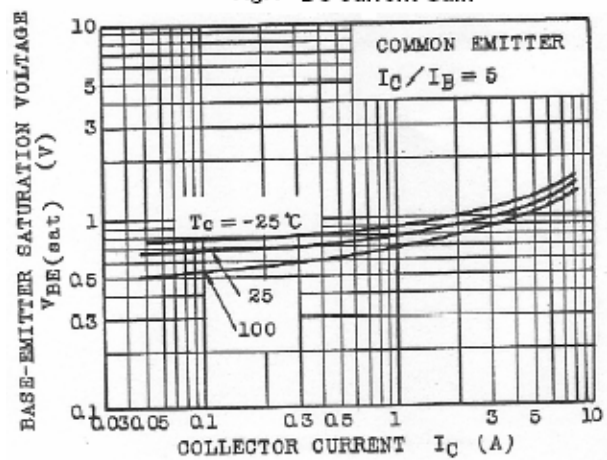


Fig.6 Base-Emitter Saturation Voltage

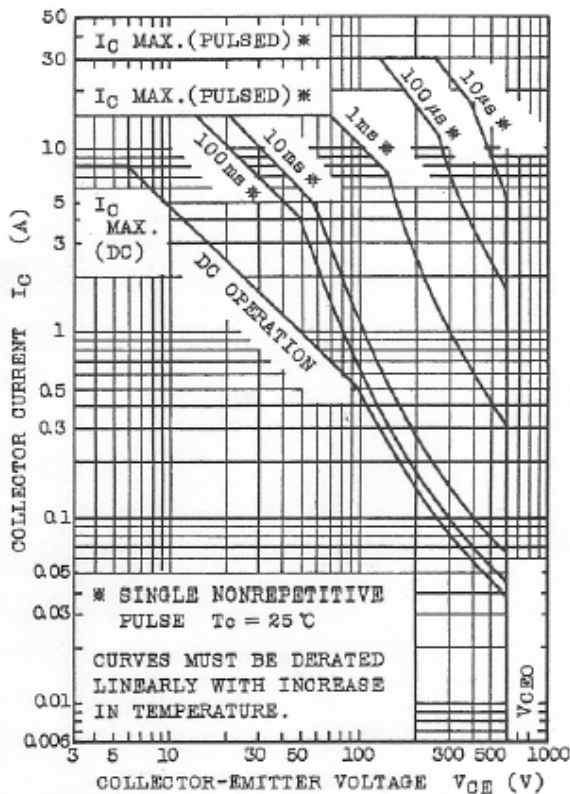


Fig.7 Safe Operating Area