

ISC Silicon NPN Power Transistor

2SC4757

DESCRIPTION

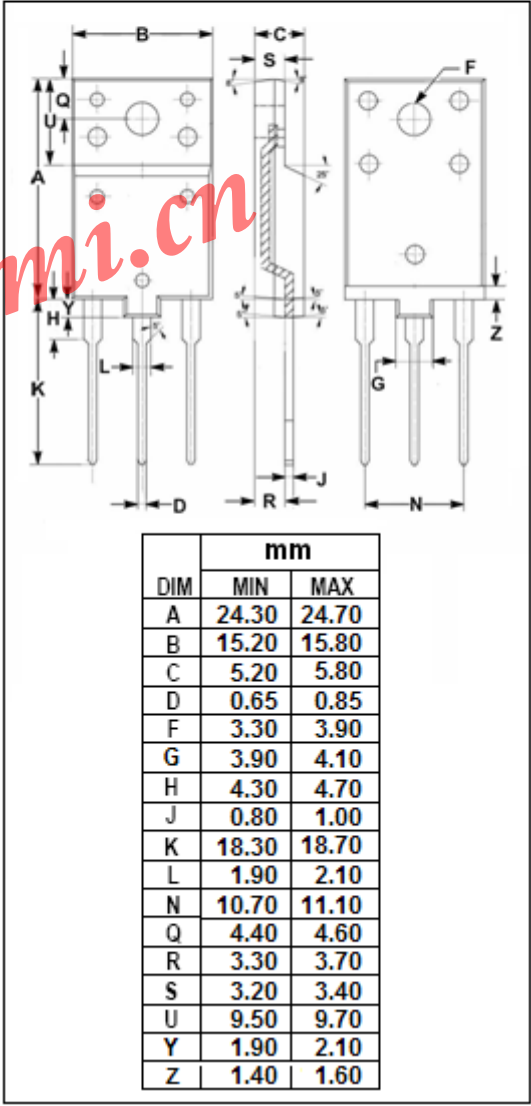
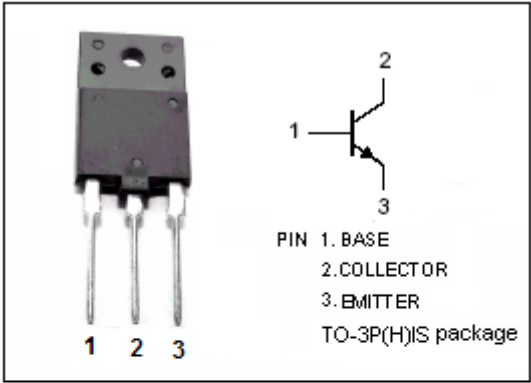
- High Breakdown Voltage-  
:  $V_{CBO}=1500V$  (Min)
- High Switching Speed
- Low Saturation Voltage

APPLICATIONS

- Horizontal deflection output for high resolution display.
- High speed switching power supply output applications

ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}C$ )

| SYMBOL    | PARAMETER                                          | VALUE   | UNIT        |
|-----------|----------------------------------------------------|---------|-------------|
| $V_{CBO}$ | Collector-Base Voltage                             | 1500    | V           |
| $V_{CEO}$ | Collector-Emitter Voltage                          | 600     | V           |
| $V_{EBO}$ | Emitter-Base Voltage                               | 5       | V           |
| $I_C$     | Collector Current- Continuous                      | 7       | A           |
| $I_{CP}$  | Collector Current-Pulse                            | 14      | A           |
| $I_B$     | Base Current- Continuous                           | 3.5     | A           |
| $P_C$     | Collector Power Dissipation<br>@ $T_C=25^{\circ}C$ | 50      | W           |
| $T_J$     | Junction Temperature                               | 150     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                          | -55~150 | $^{\circ}C$ |



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

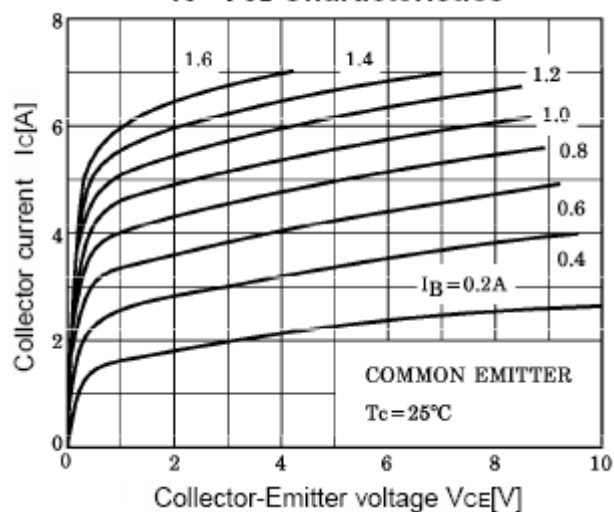
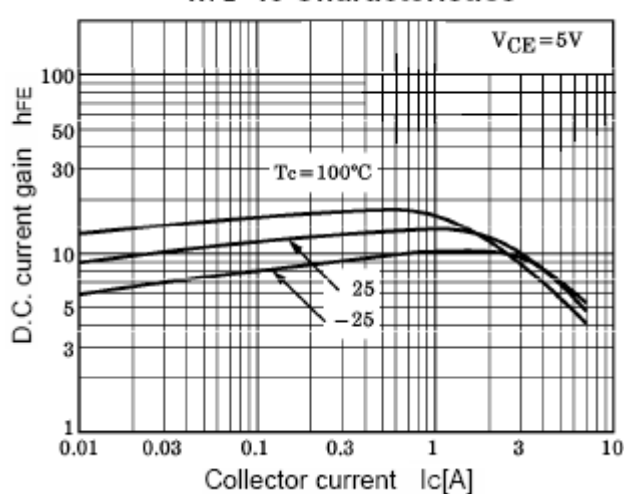
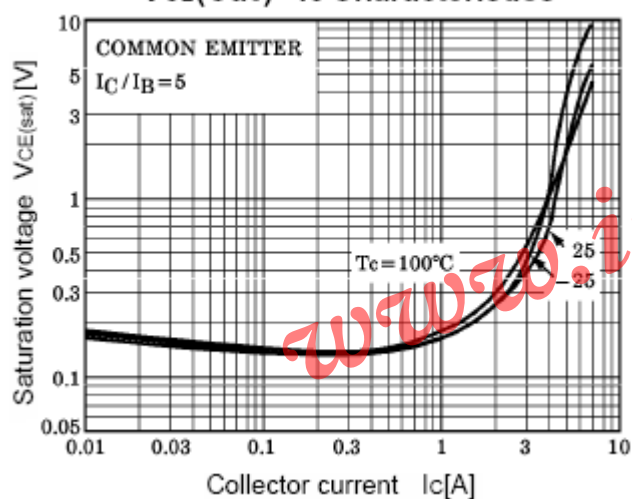
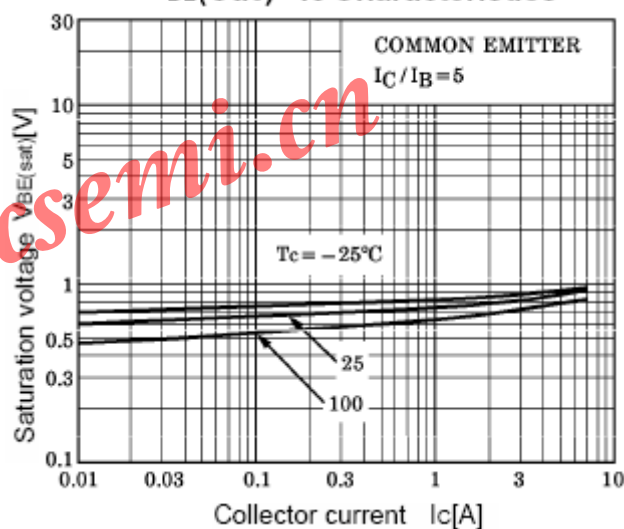
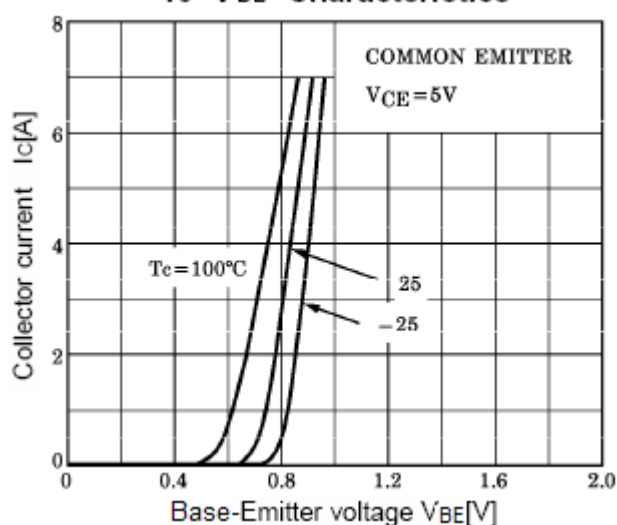
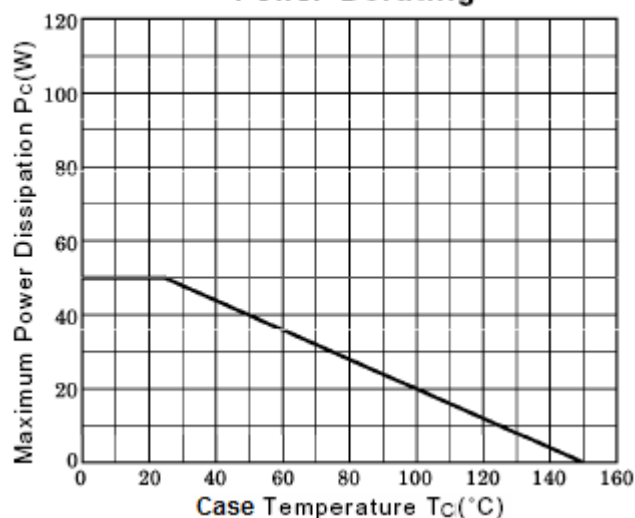
| SYMBOL        | PARAMETER                            | CONDITIONS                                               | MIN | TYP. | MAX | UNIT          |
|---------------|--------------------------------------|----------------------------------------------------------|-----|------|-----|---------------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage  | $I_C=5\text{mA}$ ; $I_B=0$                               | 600 |      |     | V             |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=5\text{A}$ ; $I_B=1.2\text{A}$                      |     |      | 5.0 | V             |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C=5\text{A}$ ; $I_B=1.2\text{A}$                      |     |      | 1.5 | V             |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB}=1500\text{V}$ ; $I_E=0$                          |     |      | 1.0 | mA            |
| $I_{EBO}$     | Emitter Cutoff Current               | $V_{EB}=5\text{V}$ ; $I_C=0$                             |     |      | 10  | $\mu\text{A}$ |
| $h_{FE-1}$    | DC Current Gain                      | $I_C=1\text{A}$ ; $V_{CE}=5\text{V}$                     | 8   |      |     |               |
| $h_{FE-2}$    | DC Current Gain                      | $I_C=5\text{A}$ ; $V_{CE}=5\text{V}$                     | 4   |      | 8   |               |
| $f_T$         | Current-Gain—Bandwidth Product       | $I_C=0.1\text{A}$ ; $V_{CE}=10\text{V}$                  | 1   | 3    |     | MHz           |
| $C_{OB}$      | Output Capacitance                   | $I_E=0$ ; $V_{CB}=10\text{V}$ ; $f_{test}=1.0\text{MHz}$ |     | 175  |     | pF            |

Switching times Resistive load

|           |              |                                                                                 |  |  |     |               |
|-----------|--------------|---------------------------------------------------------------------------------|--|--|-----|---------------|
| $t_{stg}$ | Storage Time | $I_{CP}=5\text{A}$ , $I_{B1}=1\text{A}$ ; $I_{B2}=-2\text{A}$<br>$R_L=39\Omega$ |  |  | 2.5 | $\mu\text{s}$ |
| $t_f$     | Fall Time    |                                                                                 |  |  | 0.2 | $\mu\text{s}$ |

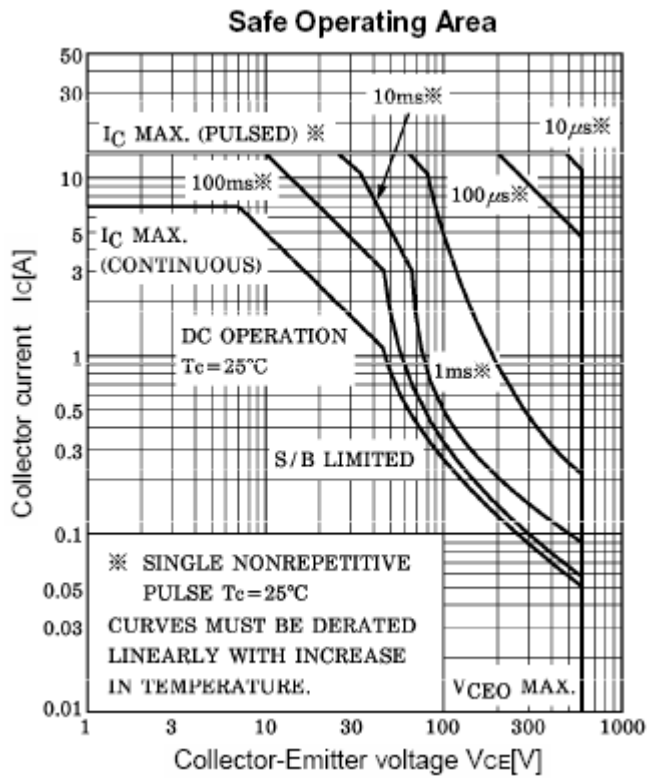
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 **$I_C$ – $V_{CE}$  Characteristics** **$h_{FE}$ – $I_C$  Characteristics** **$V_{CE(sat)}$ – $I_C$  Characteristics** **$V_{BE(sat)}$ – $I_C$  Characteristics** **$I_C$ – $V_{BE}$  Characteristics****Power Derating**

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