

isc Silicon NPN Power Transistor

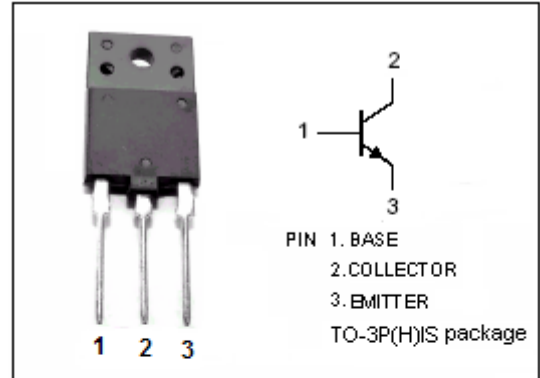
2SC4761

DESCRIPTION

- High Breakdown Voltage-
: $V_{CBO}= 1700V$ (Min)
- High Switching Speed
- Low Saturation Voltage

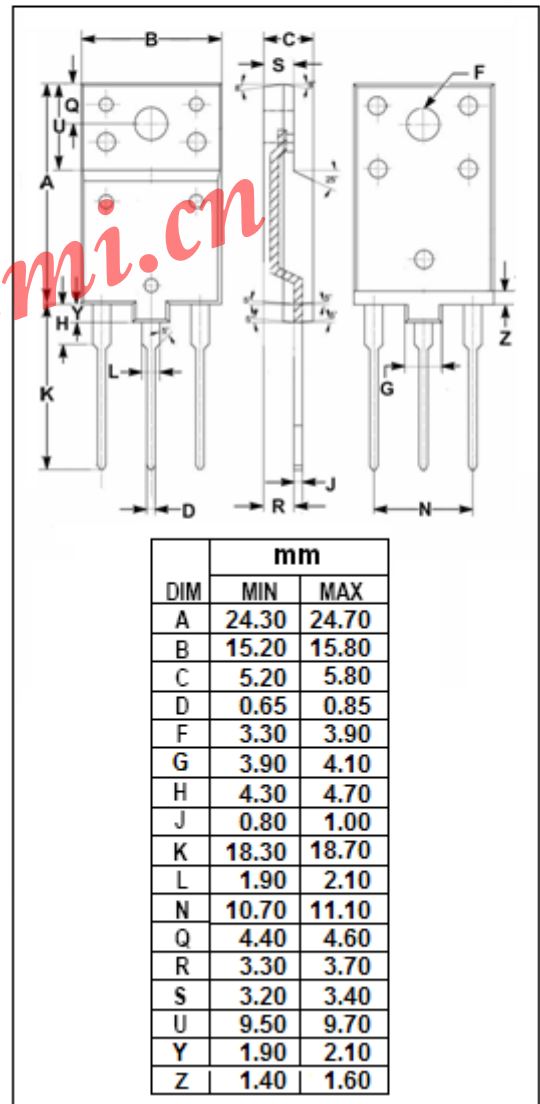
APPLICATIONS

- 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 | 1700 | V |
| V_{CEO} | Collector-Emitter Voltage | 600 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current- Continuous | 6 | A |
| I_{CP} | Collector Current-Pulse | 12 | A |
| I_B | Base Current- Continuous | 3 | A |
| P_C | Collector Power Dissipation @ $T_C=25^{\circ}C$ | 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 | $I_C=4.5\text{A}; I_B=1.3\text{A}$ | | | 5.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=4.5\text{A}; I_B=1.3\text{A}$ | | | 1.5 | V |
| I_{CBO} | Collector Cutoff Current | $V_{CB}=1700\text{V}; I_E=0$ | | | 1.0 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=5\text{V}; I_C=0$ | | | 10 | μA |
| h_{FE-1} | DC Current Gain | $I_C=1\text{A}; V_{CE}=5\text{V}$ | 8 | | | |
| h_{FE-2} | DC Current Gain | $I_C=4.5\text{A}; V_{CE}=5\text{V}$ | 3.5 | | 7.5 | |
| f_T | Current-Gain—Bandwidth Product | $I_C=0.1\text{A}; V_{CE}=10\text{V}$ | 1 | 3 | | MHz |
| C_{OB} | Output Capacitance | $I_E=0; V_{CB}=10\text{V}; f_{test}=1.0\text{MHz}$ | | 240 | | pF |

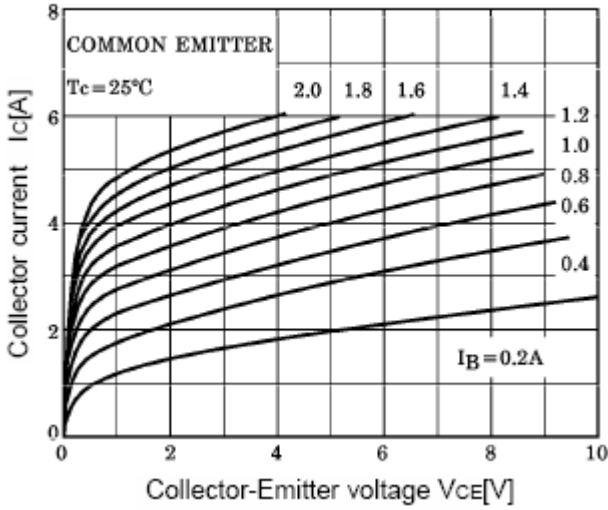
Switching times; Resistive load

| | | | | | | |
|-----------|--------------|--|--|--|-----|---------------|
| t_{stg} | Storage Time | $I_C=4.5\text{A}, I_{B1}=0.9\text{A}; I_{B2}=-1.8\text{A}$ $R_L=43\ \Omega$ | | | 3.0 | μs |
| t_f | Fall Time | | | | 0.2 | μs |

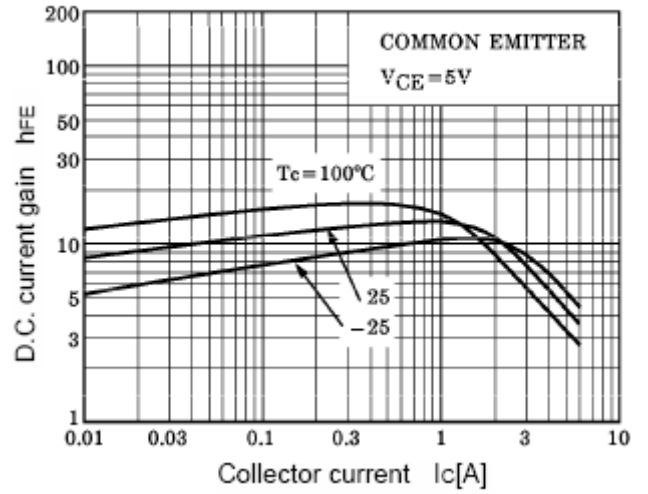
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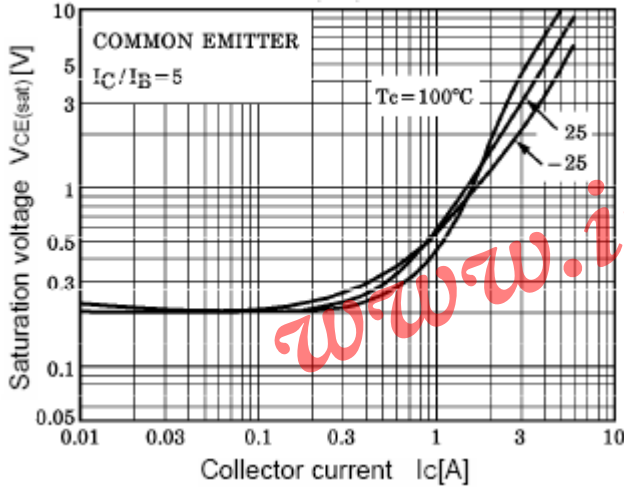
I_C-V_{CE} Characteristics



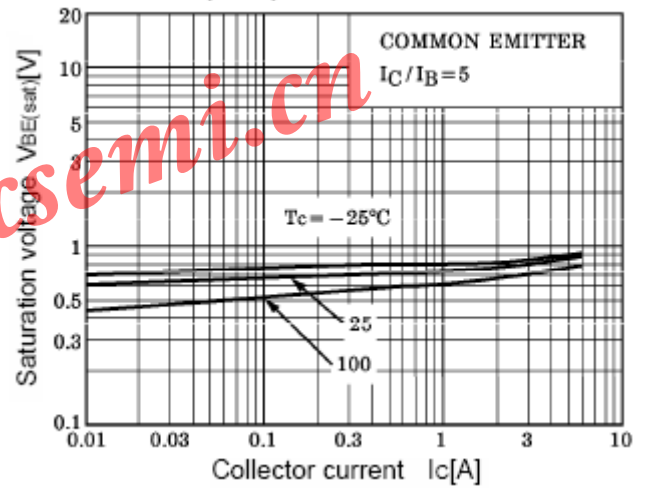
$h_{FE}-I_C$ Characteristics



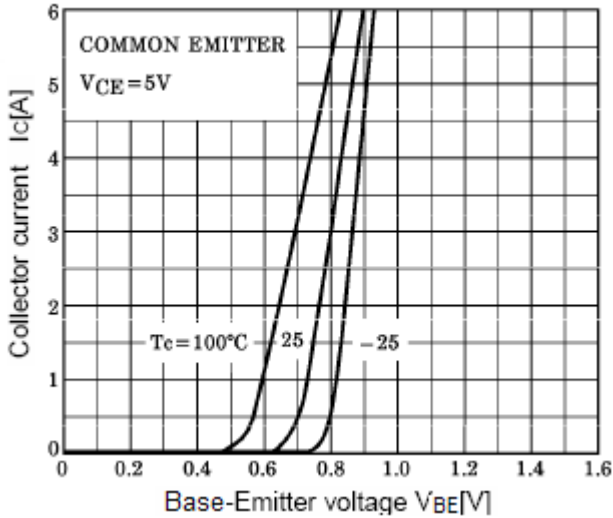
$V_{CE(sat)}-I_C$ Characteristics



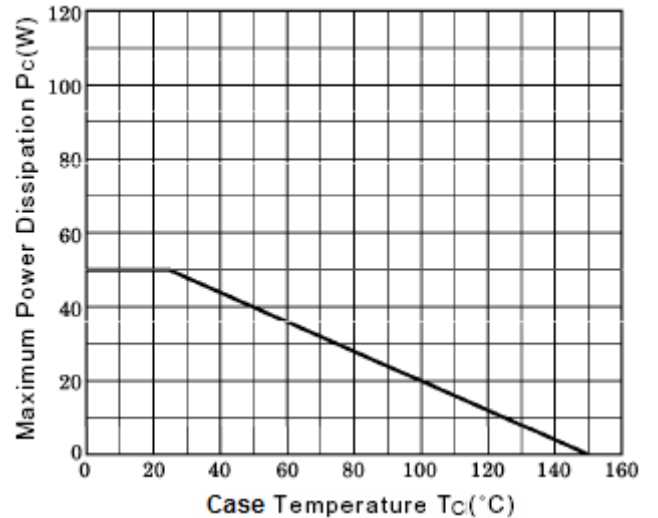
$V_{BE(sat)}-I_C$ Characteristics

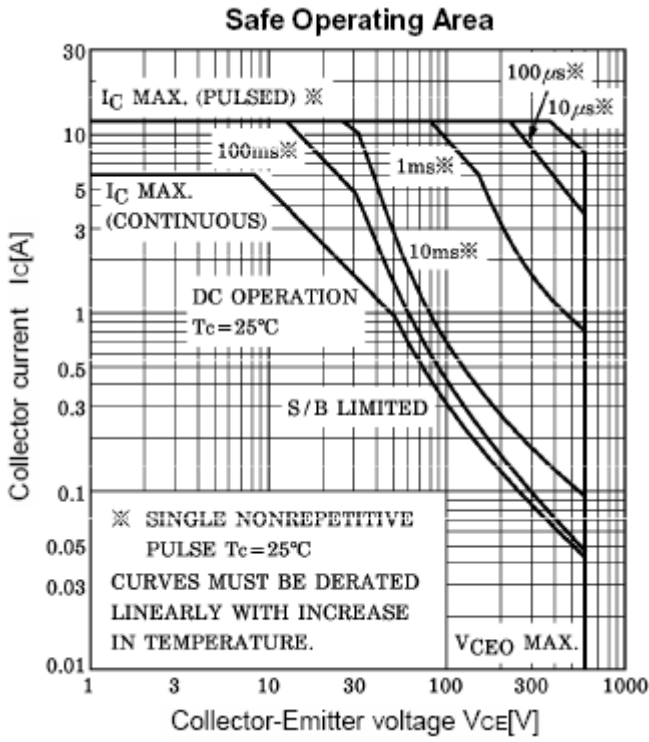


I_C-V_{BE} Characteristics



Power Derating





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