

## Silicon NPN Power Transistor

## 2N3055



### DESCRIPTION

- Excellent Safe Operating Area
- DC Current Gain- $h_{FE}=20-70@I_C = 4A$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)}= 1.1 V(Max)@ I_C = 4A$
- Complement to Type MJ2955

### APPLICATIONS

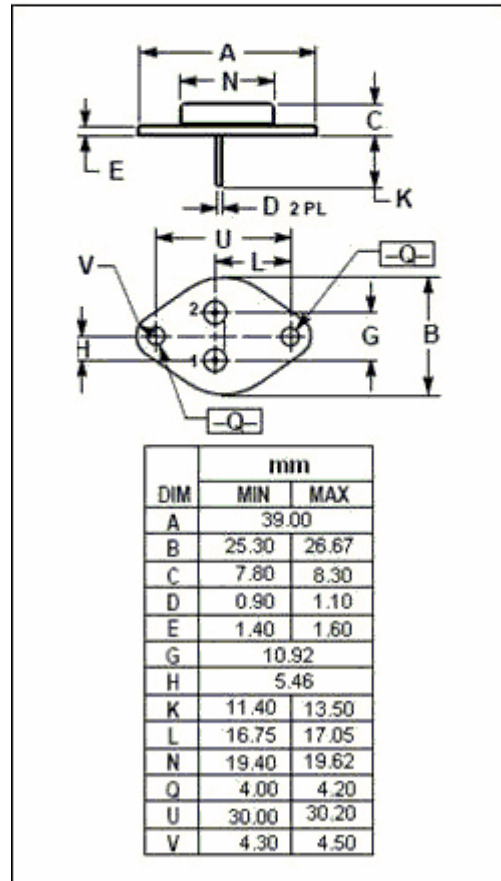
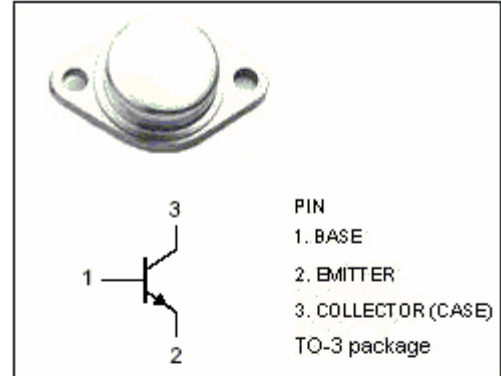
- Designed for general-purpose switching and amplifier applications

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

| SYMBOL    | PARAMETER                                      | VALUE   | UNIT        |
|-----------|--|---------|-------------|
| $V_{CBO}$ | Collector-Base Voltage                         | 100     | V           |
| $V_{CER}$ | Collector-Emitter Voltage                      | 70      | V           |
| $V_{CEO}$ | Collector-Emitter Voltage                      | 60      | V           |
| $V_{EBO}$ | Emitter-Base Voltage                           | 7       | V           |
| $I_C$     | Collector Current-Continuous                   | 15      | A           |
| $I_B$     | Base Current                                   | 7       | A           |
| $P_C$     | Collector Power Dissipation@ $T_C=25^{\circ}C$ | 115     | W           |
| $T_J$     | Junction Temperature                           | 200     | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature                            | -65~200 | $^{\circ}C$ |

### THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX  | UNIT          |
|---------------|--------------------------------------|------|---------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.52 | $^{\circ}C/W$ |

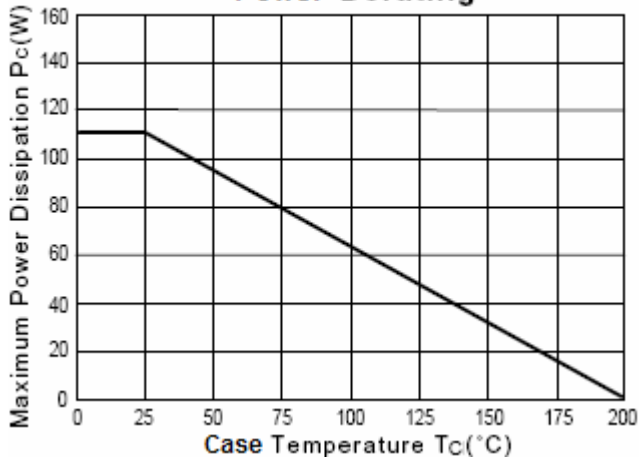


**ELECTRICAL CHARACTERISTICS**

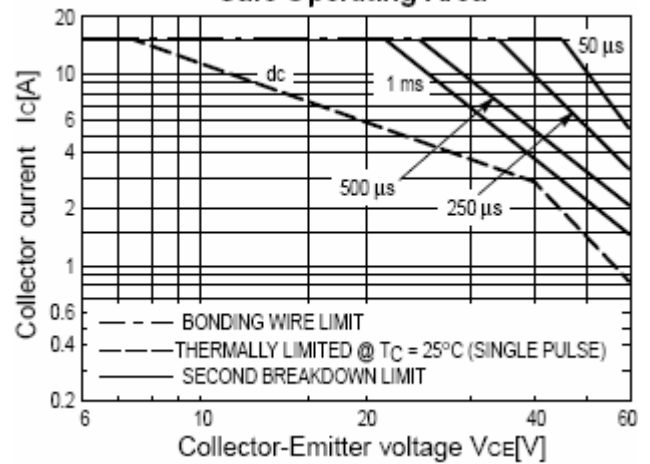
$T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL          | PARAMETER   | CONDITIONS   | MIN  | MAX        | UNIT |
|-----------------|---|--|------|------------|------|
| $V_{CEO(SUS)}$  | Collector-Emitter Sustaining Voltage                        | $I_C=200\text{mA}$ ; $I_B=0$   | 60   |            | V    |
| $V_{CER(SUS)}$  | Collector-Emitter Sustaining Voltage                        | $I_C=200\text{mA}$ ; $R_{BE}=100\ \Omega$  | 70   |            | V    |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage                        | $I_C= 4\text{A}$ ; $I_B= 0.4\text{A}$  |      | 1.1        | V    |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage                        | $I_C= 10\text{A}$ ; $I_B= 3.3\text{A}$   |      | 3.0        | V    |
| $V_{BE(on)}$    | Base-Emitter On Voltage                                     | $I_C= 4\text{A}$ ; $V_{CE}= 4\text{V}$   |      | 1.5        | V    |
| $I_{CEO}$       | Collector Cutoff Current                                    | $V_{CE}= 30\text{V}$ ; $I_B=0$   |      | 0.7        | mA   |
| $I_{CEX}$       | Collector Cutoff Current                                    | $V_{CE}= 100\text{V}$ ; $V_{BE(off)}= 1.5\text{V}$<br>$V_{CE}= 100\text{V}$ ; $V_{BE(off)}= 1.5\text{V}$ , $T_C=150^{\circ}\text{C}$ |      | 1.0<br>5.0 | mA   |
| $I_{EBO}$       | Emitter Cutoff Current                                      | $V_{EB}= 7.0\text{V}$ ; $I_C=0$  |      | 5.0        | mA   |
| $h_{FE-1}$      | DC Current Gain   | $I_C= 4\text{A}$ ; $V_{CE}= 4\text{V}$   | 20   | 70         |      |
| $h_{FE-2}$      | DC Current Gain   | $I_C= 10\text{A}$ ; $V_{CE}= 4\text{V}$  | 5.0  |            |      |
| $I_{S/b}$       | Second Breakdown Collector Current with Base Forward Biased | $V_{CE}= 40\text{V}$ , $t= 1.0\text{s}$ , Nonrepetitive  | 2.87 |            | A    |
| $f_T$           | Current Gain-Bandwidth Product                              | $I_C= 0.5\text{A}$ ; $V_{CE}= 10\text{V}$ ; $f=1.0\text{MHz}$  | 2.5  |            | MHz  |

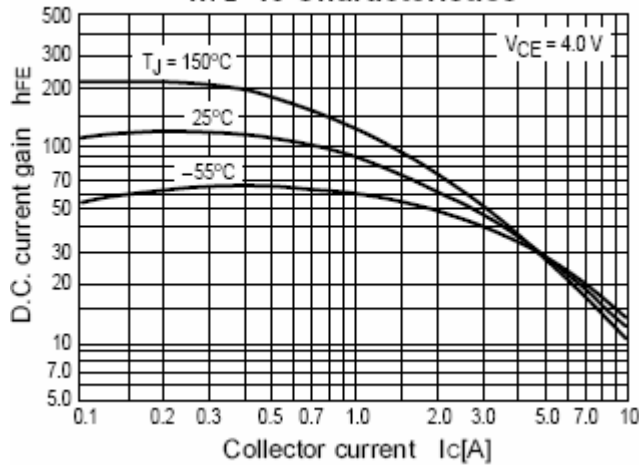
Power Derating



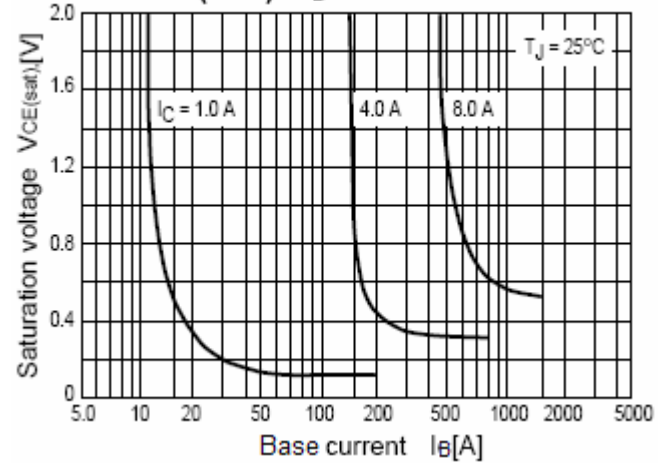
Safe Operating Area



$h_{FE}$ - $I_c$  Characteristics



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



"On" Voltages

