

isc 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

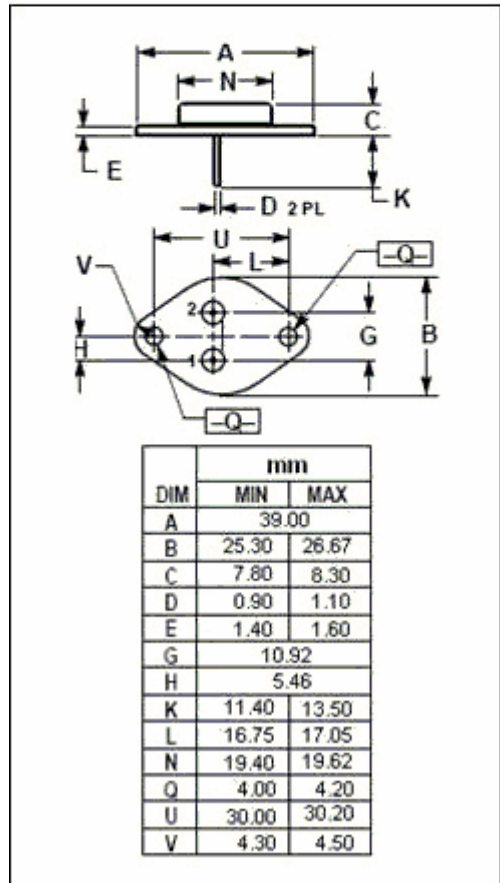
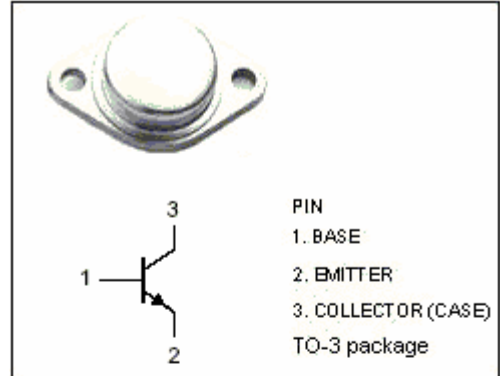
- Designed for general-purpose switching and amplifier applications

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 | $^{\circ}C/W$ |



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ELECTRICAL CHARACTERISTICS

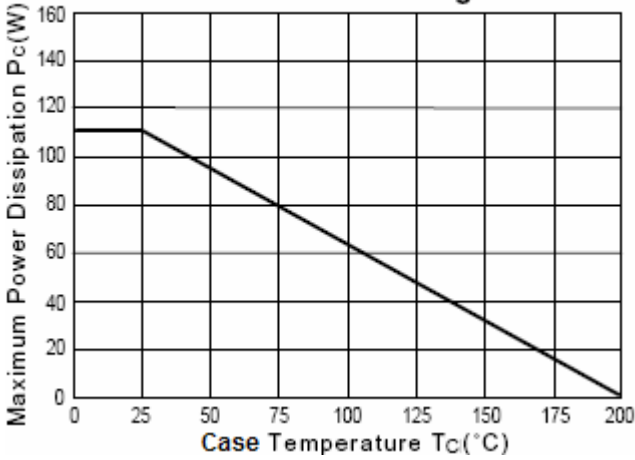
 $T_C=25^{\circ}\text{C}$ unless otherwise specified

| 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 | $V_{CE}= 100\text{V}$; $V_{BE(off)}= 1.5\text{V}$ $V_{CE}= 100\text{V}$; $V_{BE(off)}= 1.5\text{V}$, $T_C=150^{\circ}\text{C}$ | | 1.0 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 |

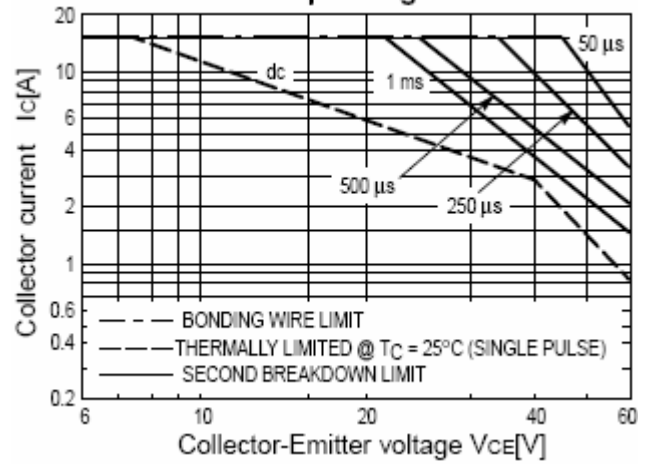
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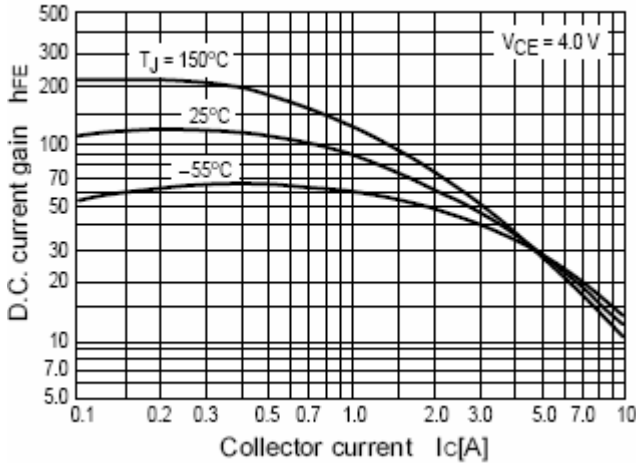
Power Derating



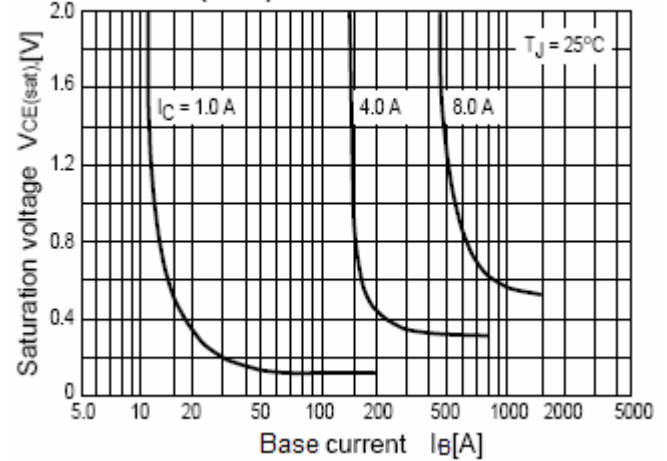
Safe Operating Area



$h_{FE}-I_c$ Characteristics



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



"On" Voltages

