

isc Silicon NPN Power Transistor

BUX41

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 200V(\text{Min})$
- High Current Capability
- Good Linearity of h_{FE}

APPLICATIONS

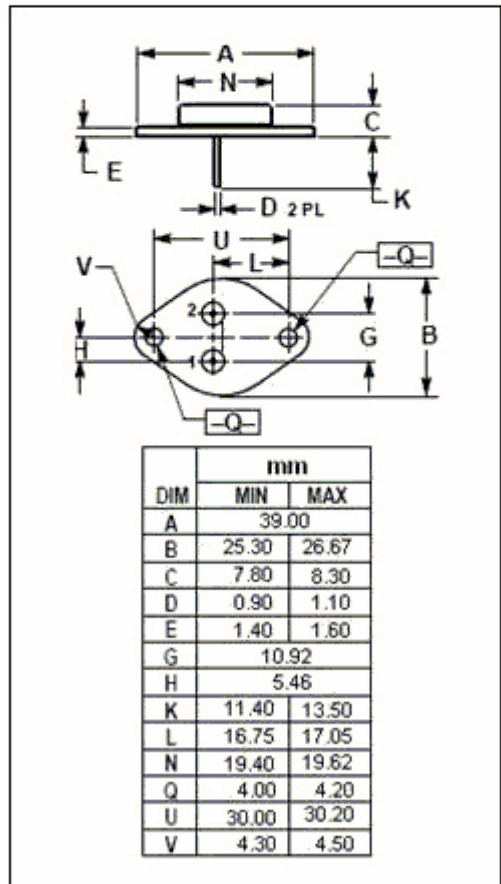
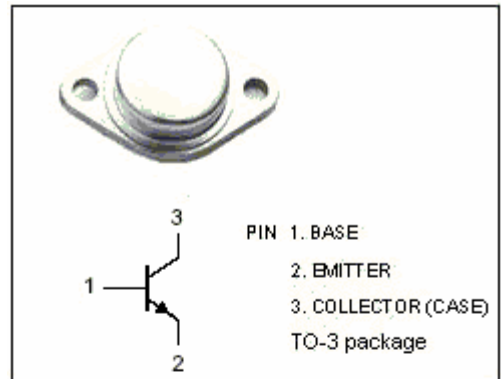
- Designed for high speed, high current, high power applications.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|----------------|--|---------|------------------|
| V_{CBO} | Collector-Base Voltage | 250 | V |
| $V_{CEO(SUS)}$ | Collector-Emitter Voltage | 200 | V |
| V_{CEX} | Collector-Emitter Voltage $V_{BE} = -2.5V$ | 250 | V |
| V_{CER} | Collector-Emitter Voltage $R_{BE} = 100\ \Omega$ | 240 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current-Continuous | 15 | A |
| I_{CM} | Collector Current-Peak | 20 | A |
| I_B | Base Current-Continuous | 3 | A |
| P_C | Collector Power Dissipation @ $T_C=100^\circ\text{C}$ | 120 | W |
| T_J | Junction Temperature | 200 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature | -65~200 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|--------------------------------------|------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.46 | $^\circ\text{C/W}$ |



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ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|-----------------|--------------------------------------|--|-----|------|------------|------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C=200\text{mA}$; $I_B=0$, $L=25\text{mH}$ | 200 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E=50\text{mA}$; $I_C=0$ | 7 | | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C=5\text{A}$; $I_B=0.5\text{A}$ | | | 1.2 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C=8\text{A}$; $I_B=1\text{A}$ | | | 1.6 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=8\text{A}$; $I_B=1\text{A}$ | | | 2.0 | V |
| I_{CEO} | Collector Cutoff Current | $V_{CE}=160\text{V}$; $I_B=0$ | | | 1.0 | mA |
| I_{CEX} | Collector Cutoff Current | $V_{CE}=250\text{V}$; $V_{BE}=-1.5\text{V}$ $V_{CE}=250\text{V}$; $V_{BE}=-1.5\text{V}$; $T_C=125^{\circ}\text{C}$ | | | 1.0 5.0 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=5\text{V}$; $I_C=0$ | | | 1.0 | mA |
| h_{FE-1} | DC Current Gain | $I_C=5\text{A}$; $V_{CE}=4\text{V}$ | 15 | | 45 | |
| h_{FE-2} | DC Current Gain | $I_C=8\text{A}$; $V_{CE}=4\text{V}$ | 8 | | | |
| f_T | Current-Gain—Bandwidth Product | $I_C=1\text{A}$; $V_{CE}=15\text{V}$ | 8 | | | MHz |

Switching Times; Resistive Load

| | | | | | | |
|----------|--------------|--|--|--|-----|---------------|
| t_{on} | Turn-on Time | $I_C=8\text{A}$; $I_{B1}=-I_{B2}=1\text{A}$; $V_{CC}=150\text{V}$; $R_C=18.75\ \Omega$ | | | 0.6 | μs |
| t_s | Storage Time | | | | 1.5 | μs |
| t_f | Fall Time | | | | 0.4 | μs |