

isc Silicon NPN Power Transistor

BUV24

DESCRIPTION

- Low Collector Saturation Voltage-
: $V_{CE(sat)} = 0.6V$ (Max.) @ $I_C = 6A$
- High Power Dissipation
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 400V$ (Min.)

APPLICATIONS

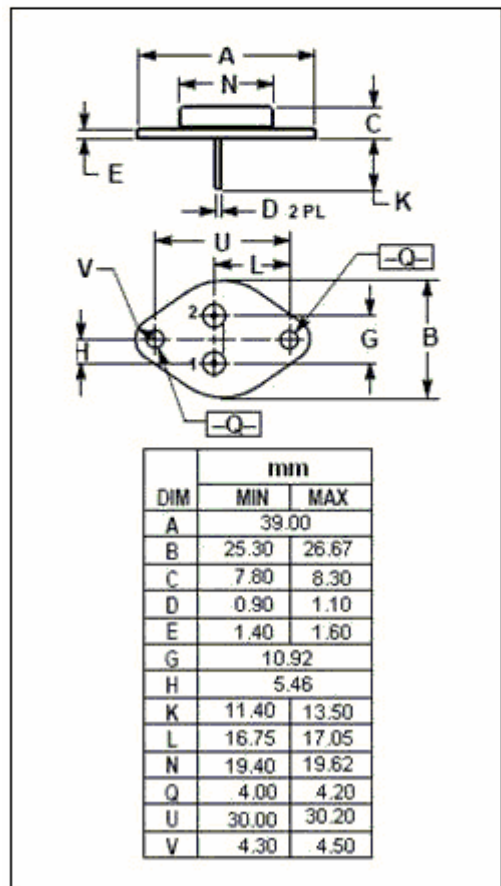
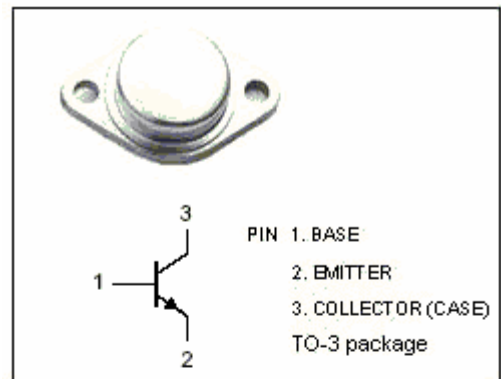
- Designed for use in power switching applications in military and industrial equipments.

Absolute maximum ratings($T_a=25^\circ C$)

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------|
| V_{CBO} | Collector-Base Voltage | 450 | V |
| V_{CER} | Collector-Emitter Voltage $R_{BE} = 100 \Omega$ | 440 | V |
| V_{CEX} | Collector-Emitter Voltage $V_{BE} = -1.5V$ | 450 | V |
| V_{CEO} | Collector-Emitter Voltage | 400 | V |
| V_{EBO} | Emitter-Base Voltage | 7 | V |
| I_C | Collector Current-Continuous | 20 | A |
| I_{CM} | Collector Current-Peak | 30 | A |
| I_B | Base Current-Continuous | 4 | A |
| P_C | Collector Power Dissipation @ $T_C = 25^\circ C$ | 250 | W |
| T_j | Junction Temperature | 200 | $^\circ C$ |
| T_{stg} | Storage Temperature Range | -65~200 | $^\circ C$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|--------------|--------------------------------------|-----|--------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case | 0.7 | $^\circ C/W$ |



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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 | $I_C=0.2\text{A}$; $L=25\text{mH}$ | 400 | | | 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 | $I_C=6\text{A}$; $I_B=1.2\text{A}$ | | | 0.6 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C=12\text{A}$; $I_B=2.4\text{A}$ | | | 1.0 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=12\text{A}$; $I_B=2.4\text{A}$ | | | 1.15 | V |
| I_{CEO} | Collector Cutoff Current | $V_{CE}=320\text{V}$; $I_B=0$ | | | 3.0 | mA |
| I_{CEX} | Collector Cutoff Current | $V_{CE}=V_{CEX}$; $V_{BE}=-1.5\text{V}$ $V_{CE}=V_{CEX}$; $V_{BE}=-1.5\text{V}$; $T_C=125^{\circ}\text{C}$ | | | 3.0 12 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=5\text{V}$; $I_C=0$ | | | 1.0 | mA |
| h_{FE-1} | DC Current Gain | $I_C=6\text{A}$; $V_{CE}=4\text{V}$ | 15 | | 60 | |
| h_{FE-2} | DC Current Gain | $I_C=12\text{A}$; $V_{CE}=4\text{V}$ | 8 | | | |
| f_T | Current-Gain—Bandwidth Product | $I_C=2\text{A}$; $V_{CE}=15\text{V}$, $f_{test}=10\text{MHz}$ | 8 | | | MHz |

Switching Times

| | | | | | | |
|----------|--------------|---|--|--|-----|---------------|
| t_{on} | Turn-on Time | $I_C=12\text{A}$; $I_{B1}=-I_{B2}=2.4\text{A}$ | | | 1.6 | μs |
| t_s | Storage Time | | | | 3.0 | μs |
| t_f | Fall Time | | | | 1.4 | μs |