

isc Silicon NPN Power Transistor

BUP22A

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 350V(\text{Min})$
- High Switching Speed

APPLICATIONS

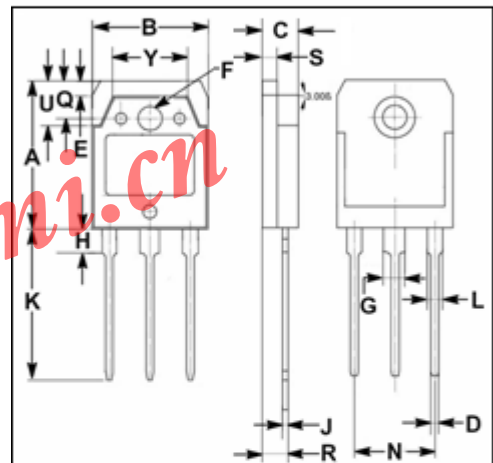
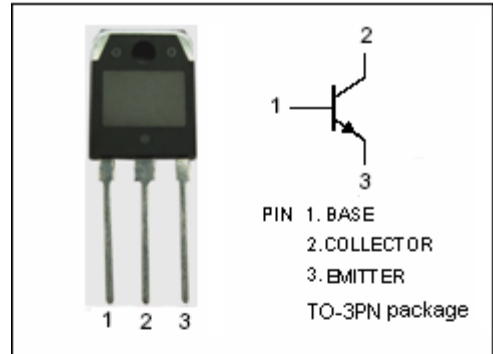
- Designed for use in converters, inverters, switching-regulators, motor control systems etc.

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------------|
| V_{CES} | Collector- Emitter Voltage $V_{BE}=0$ | 650 | V |
| V_{CEO} | Collector-Emitter Voltage | 350 | V |
| V_{EBO} | Emitter-Base Voltage | 9 | V |
| I_C | Collector Current-Continuous | 8 | A |
| I_{CM} | Collector Current-Peak | 20 | A |
| I_B | Base Current-Continuous | 4 | A |
| I_{BM} | Base Current-Peak | 6 | A |
| P_C | Collector Power Dissipation @ $T_C=25^\circ\text{C}$ | 125 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -65~150 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|--------------------------------------|-----|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.0 | $^\circ\text{C/W}$ |



| DIM | mm | |
|-----|-------|-------|
| | MIN | MAX |
| A | 19.90 | 20.10 |
| B | 15.50 | 15.70 |
| C | 4.70 | 4.90 |
| D | 0.90 | 1.10 |
| E | 1.90 | 2.10 |
| F | 3.40 | 3.60 |
| G | 2.90 | 3.10 |
| H | 3.20 | 3.40 |
| J | 0.595 | 0.605 |
| K | 20.50 | 20.70 |
| L | 1.90 | 2.10 |
| N | 10.89 | 10.91 |
| Q | 4.90 | 5.10 |
| R | 3.35 | 3.45 |
| S | 1.995 | 2.005 |
| U | 5.90 | 6.10 |
| Y | 9.90 | 10.10 |

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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 | $I_C=0.1\text{A}; I_B=0; L=25\text{mH}$ | 350 | | | V |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=6\text{A}; I_B=0.67\text{A}$ | | | 1.5 | V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=6\text{A}; I_B=0.67\text{A}$ | | | 1.5 | V |
| I_{CES} | Collector Cutoff Current | $V_{CE}=V_{CESmax}; V_{BE}=0$ $V_{CE}=V_{CESmax}; V_{BE}=0; T_J=125^\circ\text{C}$ | | | 1 2 | mA |
| I_{EBO} | Emitter Cutoff Current | $V_{EB}=9\text{V}; I_C=0$ | | | 10 | mA |
| h_{FE} | DC Current Gain | $I_C=1\text{A}; V_{CE}=5\text{V}$ | | 25 | | |

Switching Times; Resistive Load

| | | | | | | |
|----------|--------------|--|--|-----|--|---------------|
| t_{on} | Turn-On Time | $I_C=6\text{A}; I_{B1}=-I_{B2}=0.67\text{A}$ | | 0.5 | | μs |
| t_s | Storage Time | | | 3.0 | | μs |
| t_f | Fall Time | | | 0.3 | | μs |