

isc Silicon NPN Power Transistors

BUS133/A

DESCRIPTION

- High Switching Speed
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 450V$ (Min)-BUS133
500V (Min)-BUS133A

APPLICATIONS

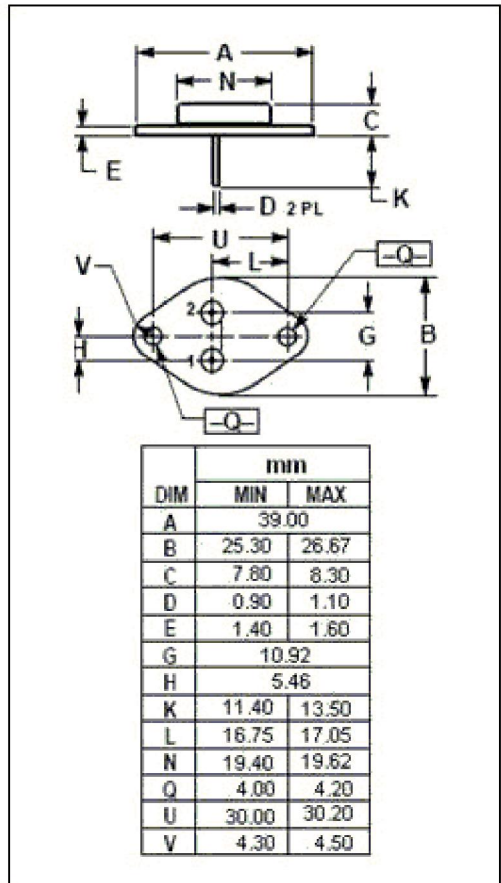
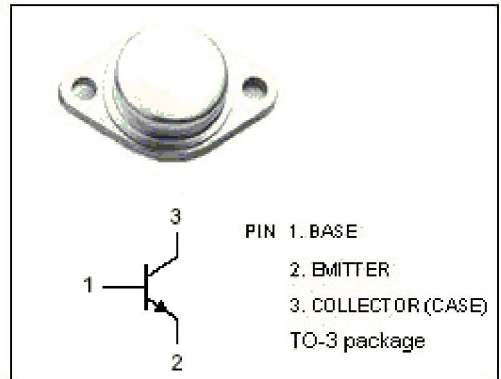
- Designed for use in very fast switching applications in inductive circuits.

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

| SYMBOL | PARAMETER | MAX | UNIT | |
|-----------|--|---------|------------|---|
| V_{CES} | Collector- Emitter Voltage($V_{BE} = 0$) | BUS133 | 850 | V |
| | | BUS133A | 1000 | |
| V_{CEO} | Collector-Emitter Voltage | BUS133 | 450 | V |
| | | BUS133A | 500 | |
| V_{EBO} | Emitter-Base Voltage | 9 | V | |
| I_C | Collector Current-Continuous | 15 | A | |
| I_{CM} | Collector Current-Peak | 20 | A | |
| I_B | Base Current | 10 | A | |
| I_{BM} | Base Current-Peak | 15 | A | |
| P_C | Collector Power Dissipation @ $T_C=25^\circ C$ | 175 | 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 | 1.0 | $^\circ C/W$ |



isc Silicon NPN Power Transistors

BUS133/A

ELECTRICAL CHARACTERISTICS

T_c=25°C unless otherwise specified

| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP. | MAX | UNIT |
|------------------------|--------------------------------------|---------|---|-----|------|-------------|------|
| V _{CEO(SUS)} | Collector-Emitter Sustaining Voltage | BUS133 | I _C = 0.1A; I _B = 0; L= 10mH | | | | V |
| | | BUS133A | | | | | |
| V _{CE(sat)-1} | Collector-Emitter Saturation Voltage | BUS133 | I _C = 5A; I _B = 0.7A | | | 2.5 | V |
| | | BUS133A | I _C = 5A; I _B = 1A | | | | |
| V _{CE(sat)-2} | Collector-Emitter Saturation Voltage | BUS133 | I _C = 10A; I _B = 1.3A | | | 3.0 | V |
| | | BUS133A | I _C = 10A; I _B = 2A | | | | |
| V _{BE(sat)} | Base-Emitter Saturation Voltage | BUS133 | I _C = 10A; I _B = 1.3A | | | 1.5 | V |
| | | BUS133A | I _C = 10A; I _B = 2A | | | | |
| I _{CEV} | Collector Cutoff Current | | V _{CE} =V _{CESMmax} ; V _{BE} =-1.5V V _{CE} =V _{CESMmax} ; V _{BE} =-1.5V; T _J =100°C | | | 0.25 1.5 | mA |
| I _{EBO} | Emitter Cutoff Current | | V _{EB} = 6V; I _C = 0 | | | 1 | mA |
| h _{FE} | DC Current Gain | | I _C = 15A; V _{CE} = 5V | 5 | | | |
| C _{OB} | Output Capacitance | | I _E = 0; V _{CB} = 10V; f _{test} = 1kHz | | | 400 | pF |

Switching Times , Resistive Load

| | | | | | | | | | | | |
|------------------|--------------|---------|--|--|--|-----|-----|------|--|------|-----|
| t _{on} | Turn-On Time | BUS133 | I _C = 10A ; I _{B1} = 1.3A; I _{B2} = -2.6A | | | 0.4 | μ s | | | | |
| | | BUS133A | | | | | | 0.45 | | | |
| t _{stg} | Storage Time | | | | | | | | | 1.3 | μ s |
| t _f | Fall Time | | | | | | | | | 0.15 | μ s |