

isc Silicon Darlington NPN Power Transistor
BU323AP
DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 400V(\text{Min.})$
- High Reliability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

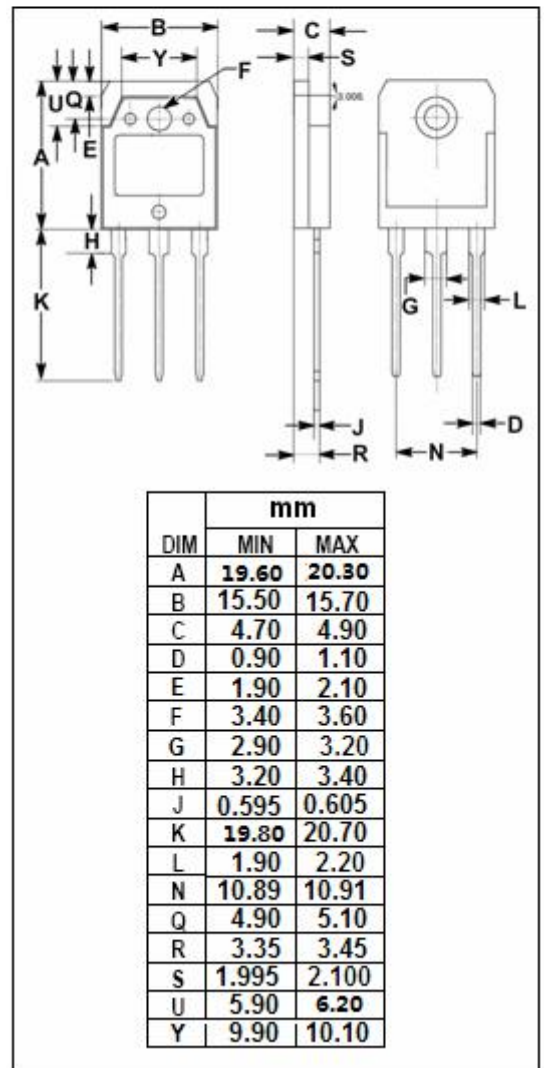
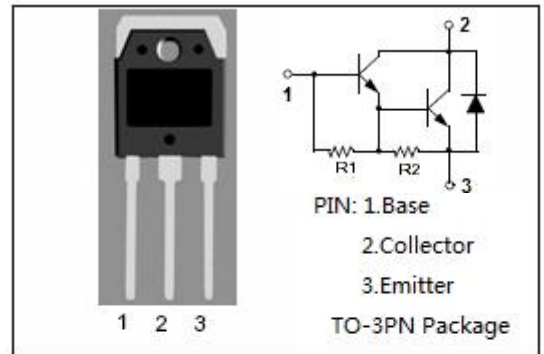
- Automotive ignition
- Switching regulator
- Motor control applications

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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------------|
| V_{CER} | Collector-Emitter Voltage | 475 | V |
| V_{CEO} | Collector-Emitter Voltage | 400 | V |
| V_{EBO} | Emitter-Base Voltage | 6 | V |
| I_C | Collector Current- Continuous | 10 | A |
| I_{CM} | Collector Current-Peak | 16 | A |
| I_B | Base Current | 3 | 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 | $^\circ\text{C/W}$ |



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|------------------------|--------------------------------------|---|-----|-----|------|------|
| V _{CEO(SUS)} | Collector-Emitter Sustaining Voltage | I _C = 50mA; I _B = 0 | 400 | | | V |
| V _{CE(sat)-1} | Collector-Emitter Saturation Voltage | I _C = 3A; I _B = 60mA | | | 1.5 | V |
| V _{CE(sat)-2} | Collector-Emitter Saturation Voltage | I _C = 6 A; I _B = 120mA | | | 1.7 | V |
| V _{CE(sat)-3} | Collector-Emitter Saturation Voltage | I _C = 10 A; I _B = 300mA | | | 2.7 | V |
| V _{BE(sat)-1} | Base-Emitter Saturation Voltage | I _C = 6 A; I _B = 120mA | | | 2.2 | V |
| V _{BE(sat)-2} | Base-Emitter Saturation Voltage | I _C = 10 A; I _B = 300mA | | | 3.0 | V |
| V _{BE(on)} | Base-Emitter On Voltage | I _C = 10 A ; V _{CE} = 6V | | | 2.5 | V |
| I _{CBO} | Collector Cutoff Current | V _{CB} = RatedV _{CB0} ; I _E = 0 | | | 1.0 | mA |
| I _{EBO} | Emitter Cutoff Current | V _{EB} = 6V; I _C = 0 | | | 40 | mA |
| h _{FE-1} | DC Current Gain | I _C = 3A ; V _{CE} = 6V | 300 | | | |
| h _{FE-2} | DC Current Gain | I _C = 6A ; V _{CE} = 6V | 150 | | 2000 | |
| h _{FE-3} | DC Current Gain | I _C = 10A ; V _{CE} = 6V | 50 | | | |
| V _{ECF} | C-E Diode Forward Voltage | I _F = 10A | | | 3.5 | V |
| C _{OB} | Output Capacitance | I _E = 0; V _{CB} = 10V; f= 100kHz | | 165 | | pF |
| Switching Times | | | | | | |
| t _s | Storage Time | V _{CC} = 12V; I _C = 6A, I _{B1} = -I _{B2} = 0.3A | | | 15 | μs |
| t _f | Fall Time | | | | 15 | μs |

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