

Silicon NPN Power Transistors

BU323AP

DESCRIPTION

- With TO-3PN package
- DARLINGTON
- Low collector saturation voltage

APPLICATIONS

- Designed for automotive ignition, switching regulator and motor control applications.

PINNING(see fig.2)

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | Base |
| 2 | Collector |
| 3 | Emitter |

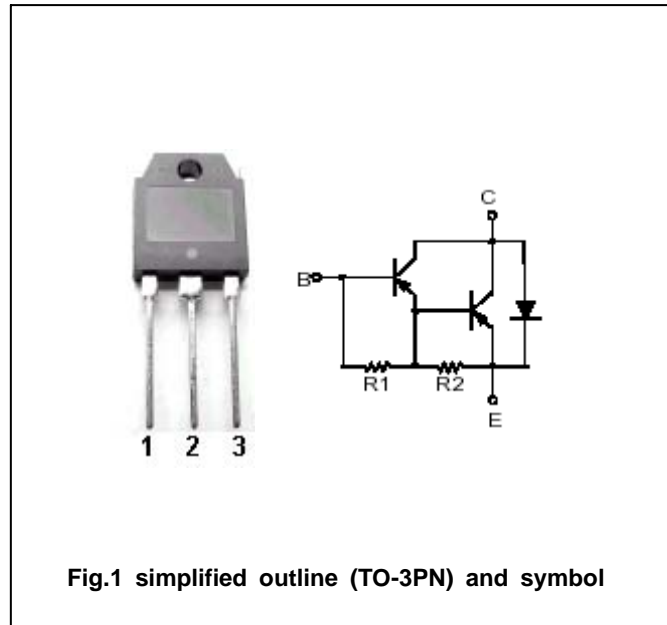


Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings (Tc=25°C)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------|---------------------------|------------------|---------|------|
| $V_{CEO(SUS)}$ | Collector-emitter voltage | Open base | 400 | V |
| V_{CEV} | Collector-emitter voltage | Open base | 475 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 6 | V |
| I_C | Collector current | | 10 | A |
| I_{CM} | Collector current-peak | | 16 | A |
| I_B | Base current | | 3 | A |
| P_D | Total power dissipation | $T_C=25^\circ C$ | 125 | W |
| T_j | Junction temperature | | -65~200 | °C |
| T_{stg} | Storage temperature | | -65~200 | °C |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|-------------------------------------|-----|------|
| $R_{th\ j-c}$ | Thermal resistance junction to case | 1.0 | °C/W |

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CHARACTERISTICS

T_j=25°C unless otherwise specified

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|-----------------------|--------------------------------------|---|-----|------|------|------|
| V _{CEO(SUS)} | Collector-emitter sustaining voltage | I _C =0.2A; I _B =0; L=10mH | 400 | | | V |
| V _{CER(SUS)} | Collector-emitter sustaining voltage | I _C =3A; R _{BE} =100Ω; L=500μH | 475 | | | V |
| V _{CEsat-1} | Collector-emitter saturation voltage | I _C =3A; I _B =60mA | | | 1.5 | V |
| V _{CEsat-2} | Collector-emitter saturation voltage | I _C =6A; I _B =120mA | | | 1.7 | V |
| V _{CEsat-3} | Collector-emitter saturation voltage | I _C =10A; I _B =300mA | | | 2.7 | V |
| V _{BEsat-1} | Base-emitter saturation voltage | I _C =6A; I _B =120mA | | | 2.2 | V |
| V _{BEsat-2} | Base-emitter saturation voltage | I _C =10A; I _B =300mA | | | 3 | V |
| I _{CER} | Collector cut-off current | V _{CE} =Rated; V _{BE} =100Ω | | | 1 | mA |
| I _{EBO} | Emitter cut-off current | V _{EB} =6V; I _C =0 | | | 40 | mA |
| I _{CBO} | Collector cut-off current | V _{CB} =Rated; I _E =0 | | | 1 | mA |
| h _{FE-1} | DC current gain | I _C =3A; V _{CE} =6V | 300 | 550 | | |
| h _{FE-2} | DC current gain | I _C =6A; V _{CE} =6V | 150 | 350 | 2000 | |
| h _{FE-3} | DC current gain | I _C =10A; V _{CE} =6V | 50 | 150 | | |
| V _{BE} | Base-emitter on voltage | I _C =10A; V _{CE} =6V | | | 2.5 | V |
| V _F | Diode forward voltage | I _F =10A | | 2 | 3.5 | V |
| C _{ob} | Output capacitance | V _{CB} =10V; I _E =0; f _T =100kHz | | 165 | 350 | pF |

Switching times

| | | | | | | |
|----------------|--------------|--|--|-----|----|----|
| t _s | Storage time | I _C =6A; I _{B1} =I _{B2} =0.3A V _{CC} =12V; | | 7.5 | 15 | μs |
| t _f | Fall time | | | 5.2 | 15 | μs |

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PACKAGE OUTLINE

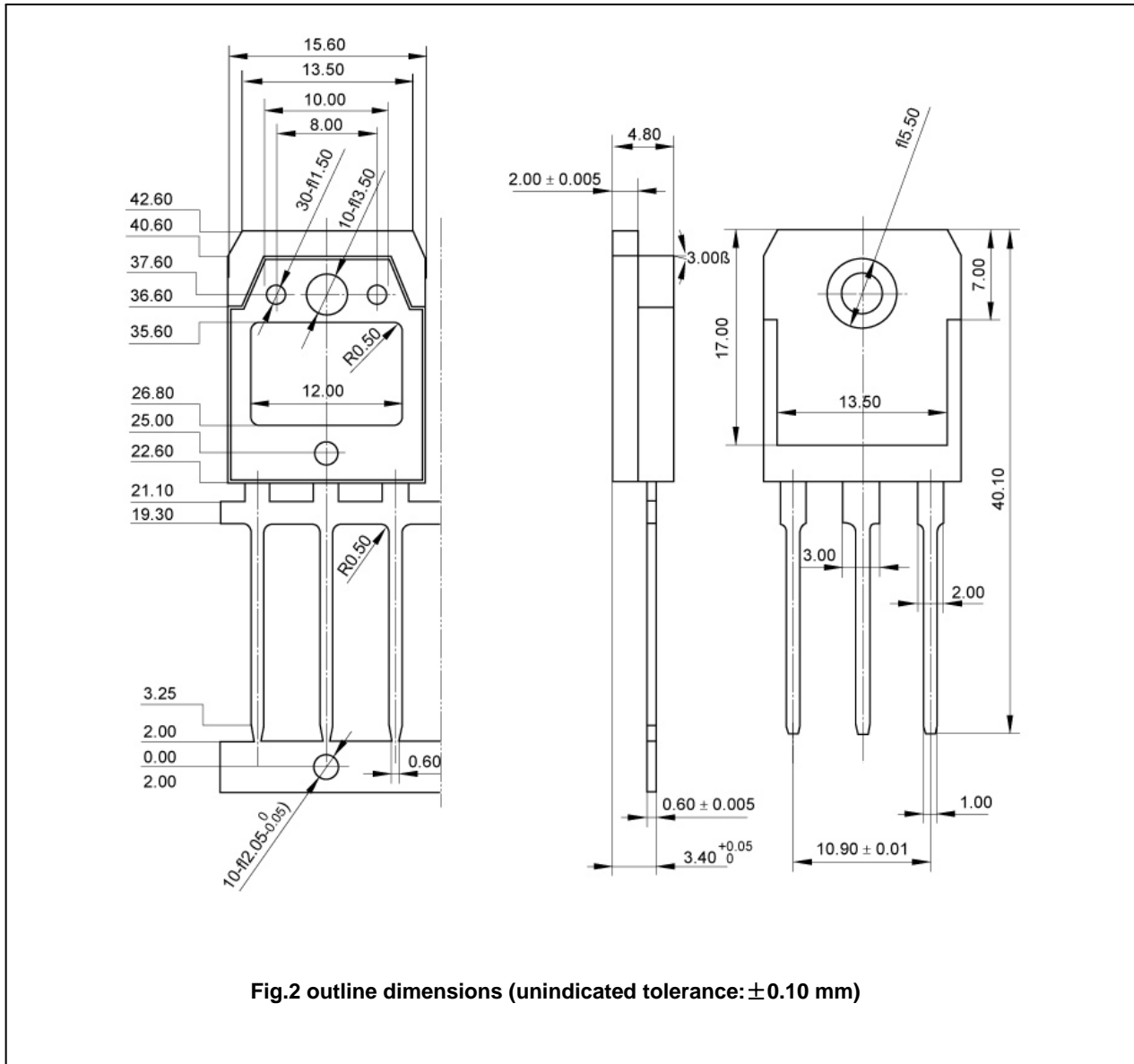


Fig.2 outline dimensions (unindicated tolerance: ± 0.10 mm)