

Silicon PNP Power Transistors

BD646/648/650/652

DESCRIPTION

With TO-220C package
 Complement to type BD645/647/649/651
 DARLINGTON

APPLICATIONS

For use in output stages in audio equipment ,general amplifier,and analogue switching applications

PINNING

| PIN | DESCRIPTION |
|-----|--------------------------------------|
| 1 | Base |
| 2 | Collector;connected to mounting base |
| 3 | Emitter |

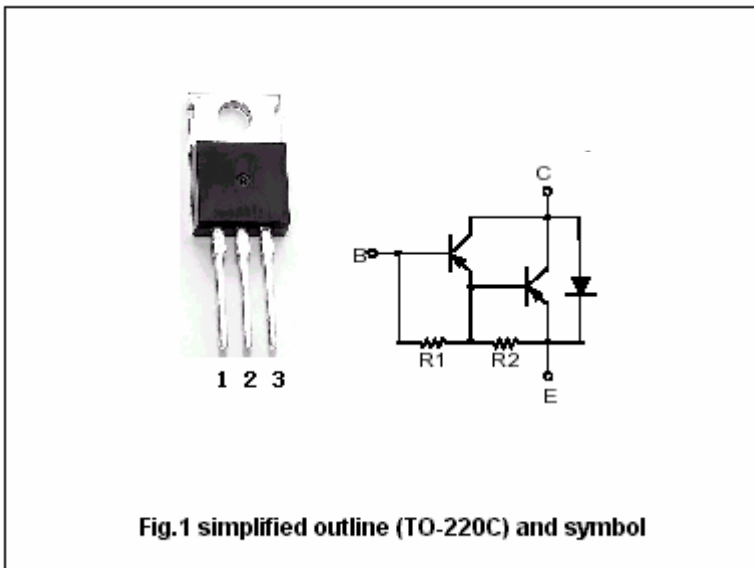


Fig.1 simplified outline (TO-220C) and symbol

Absolute maximum ratings(Ta=25°C)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT | |
|------------------|-----------------------------|----------------------|---------|------|---|
| V _{CBO} | Collector-base voltage | Open emitter | BD646 | -80 | V |
| | | | BD648 | -100 | |
| | | | BD650 | -120 | |
| | | | BD652 | -140 | |
| V _{CEO} | Collector-emitter voltage | Open base | BD646 | -60 | V |
| | | | BD648 | -80 | |
| | | | BD650 | -100 | |
| | | | BD652 | -120 | |
| V _{EBO} | Emitter-base voltage | Open collector | -5 | V | |
| I _C | Collector current-DC | | -8 | A | |
| I _{CM} | Collector current-Pulse | | -12 | A | |
| I _B | Base current | | -150 | mA | |
| P _C | Collector power dissipation | T _C =25°C | 62.5 | W | |
| T _j | Junction temperature | | 150 | °C | |
| T _{stg} | Storage temperature | | -65~150 | °C | |

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CHARACTERISTICS

T_j=25°C unless otherwise specified

| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|-------|---|--|------|------|------|
| V _{(BR)CEO} | Collector-emitter breakdown voltage | BD646 | I _C =-30mA, I _B =0 | -60 | | | V |
| | | BD648 | | -80 | | | |
| | | BD650 | | -100 | | | |
| | | BD652 | | -120 | | | |
| V _{CEsat-1} | Collector-emitter saturation voltage | | I _C =-3A, I _B =-12mA | | | -2.0 | V |
| V _{CEsat-2} | Collector-emitter saturation voltage | | I _C =-5A, I _B =-50mA | | | -2.5 | V |
| V _{BEsat} | Base-emitter saturation voltage | | I _C =-5A, I _B =-50mA | | | -3.0 | V |
| V _{BE} | Base-emitter on voltage | | I _C =-3A; V _{CE} =-3V | | | -2.5 | V |
| I _{CBO} | Collector cut-off current | BD646 | V _{CB} =-60V, I _E =0 V _{CB} =-40V, I _E =0; T _C =150°C | -0.2 | | -2.0 | mA |
| | | BD648 | | V _{CB} =-80V, I _E =0 V _{CB} =-50V, I _E =0; T _C =150°C | -0.2 | -2.0 | |
| | | BD650 | | V _{CB} =-100V, I _E =0 V _{CB} =-60V, I _E =0; T _C =150°C | -0.2 | -2.0 | |
| | | BD652 | | V _{CB} =-120V, I _E =0 V _{CB} =-70V, I _E =0; T _C =150°C | -0.2 | -2.0 | |
| I _{CEO} | Collector cut-off current | BD646 | V _{CE} =-30V, I _B =0 | | | -0.5 | mA |
| | | BD648 | | V _{CE} =-40V, I _B =0 | | | |
| | | BD650 | | V _{CE} =-50V, I _B =0 | | | |
| | | BD652 | | V _{CE} =-60V, I _B =0 | | | |
| I _{EBO} | Emitter cut-off current | | V _{EB} =-5V; I _C =0 | | | -5 | mA |
| h _{FE} | DC current gain | | I _C =-3A; V _{CE} =-3V | 750 | | | |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------------|-------------------------------------|-----|------|
| R _{th j-c} | Thermal resistance junction to case | 2.0 | °C/W |

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PACKAGE OUTLINE

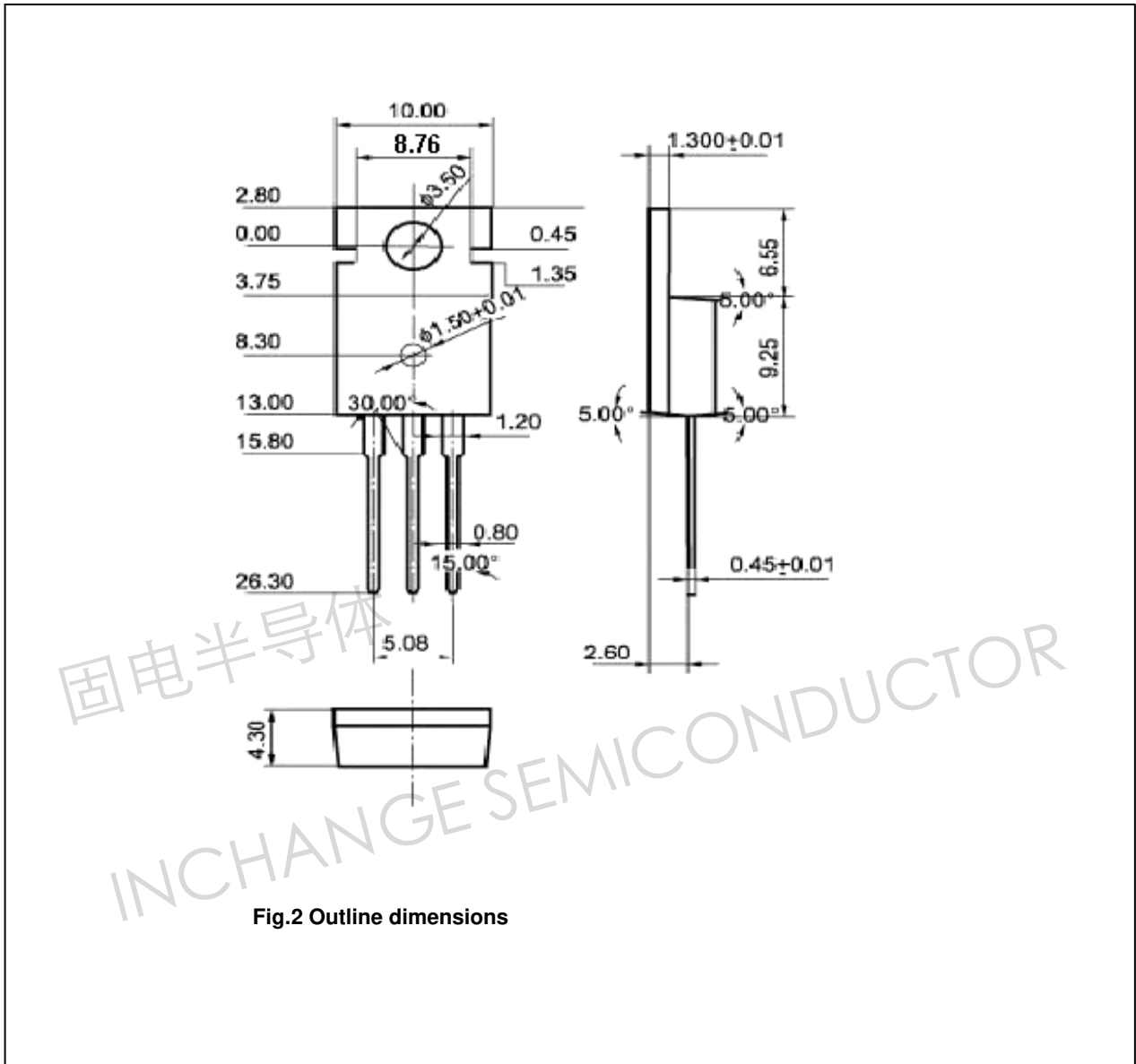


Fig.2 Outline dimensions