

Silicon NPN Power Transistors

2N6542 2N6543

DESCRIPTION

- With TO-3 package
- High voltage,high speed

APPLICATIONS

- Switching regulators
- PWM inverters and motor controls
- Solenoid and relay drivers
- Deflection circuits

PINNING

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

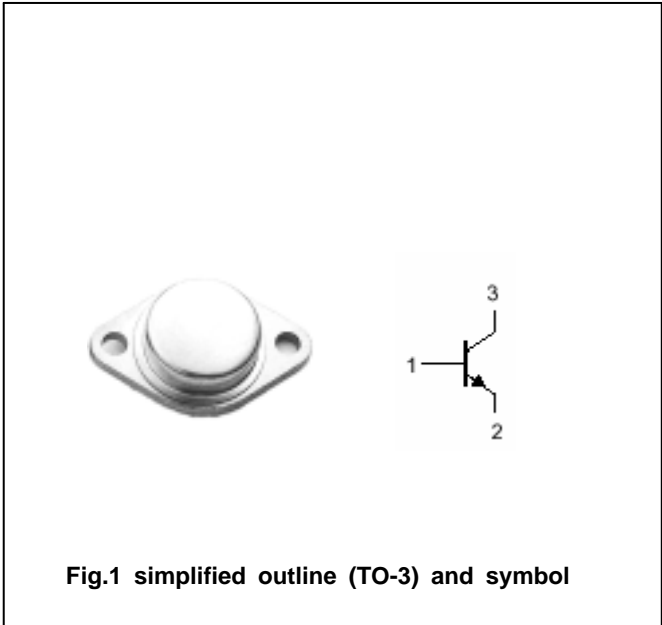


Fig.1 simplified outline (TO-3) and symbol

Absolute maximum ratings(Ta=)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|------------------|---------------------------|--------------------|---------|------|
| V _{CBO} | Collector-base voltage | 2N6542 | 650 | V |
| | | 2N6543 | 850 | |
| V _{CEO} | Collector-emitter voltage | 2N6542 | 300 | V |
| | | 2N6543 | 400 | |
| V _{EBO} | Emitter-base voltage | Open collector | 8 | V |
| I _C | Collector current | | 5 | A |
| I _{CM} | Collector current-peak | | 10 | A |
| I _B | Base current | | 5 | A |
| I _E | Emitter current | | 10 | A |
| I _{EM} | Emitter current-peak | | 20 | A |
| P _D | Total Power Dissipation | T _C =25 | 100 | W |
| T _j | Junction temperature | | 200 | |
| T _{stg} | Storage temperature | | -65~200 | |

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CHARACTERISTICS

T_j=25 unless otherwise specified

| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP. | MAX | UNIT |
|-----------------------|--------------------------------------|--------|--|-----|------|------------|------|
| V _{CEO(SUS)} | Collector-emitter sustaining voltage | 2N6542 | I _C =0.1A ; I _B =0 | 300 | | | V |
| | | 2N6543 | | 400 | | | |
| V _{CEsat-1} | Collector-emitter saturation voltage | | I _C =3A; I _B =0.6A | | | 1.0 | V |
| V _{CEsat-2} | Collector-emitter saturation voltage | | I _C =5A; I _B =1.0A | | | 5.0 | V |
| V _{BEsat} | Base-emitter saturation voltage | | I _C =3A; I _B =0.6A | | | 1.4 | V |
| I _{CEV} | Collector cut-off current | 2N6542 | V _{CE} =650V; V _{BE(off)} =1.5V T _C =100 | | | 0.5 3.0 | mA |
| | | 2N6543 | V _{CE} =850V; V _{BE(off)} =1.5V T _C =100 | | | 0.5 3.0 | |
| I _{EBO} | Emitter cut-off current | | V _{EB} =8V; I _C =0 | | | 1.0 | mA |
| h _{FE-1} | DC current gain | | I _C =1.5A ; V _{CE} =2V | 12 | | 60 | |
| h _{FE-2} | DC current gain | | I _C =3A ; V _{CE} =2V | 7 | | 35 | |
| f _T | Transistion frequency | | I _C =0.2A ; V _{CE} =10V;f=1MHz | 6 | | 35 | MHz |

Switching times

| | | | | | | |
|------------------|--------------|---|--|--|------|----|
| t _d | Delay time | V _{CC} =250V; I _C =3.0A I _{B1} =-I _{B2} =0.6A; t _p =0.1ms | | | 0.05 | μs |
| t _r | Rise time | | | | 0.7 | μs |
| t _{stg} | Storage time | | | | 4.0 | μs |
| t _f | Fall time | | | | 0.8 | μs |

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------------|-------------------------------------|-------|------|
| R _{th j-c} | Thermal resistance junction to case | 1.75 | /W |

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PACKAGE OUTLINE

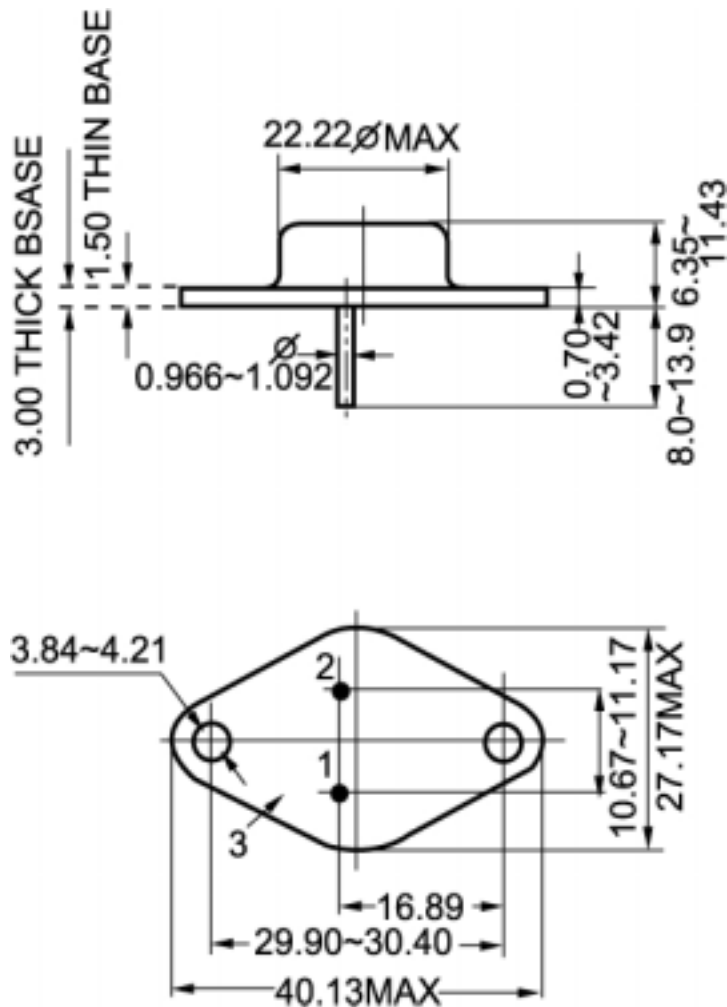


Fig.2 outline dimensions (unindicated tolerance: ± 0.10 mm)