

Silicon NPN Power Transistors

MJ16010

DESCRIPTION

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

APPLICATIONS

- Switching Regulators
- Inverters
- Solenoids
- Relay Drivers
- Motor Controls
- Deflection Circuits

PINNING (see Fig.2)

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

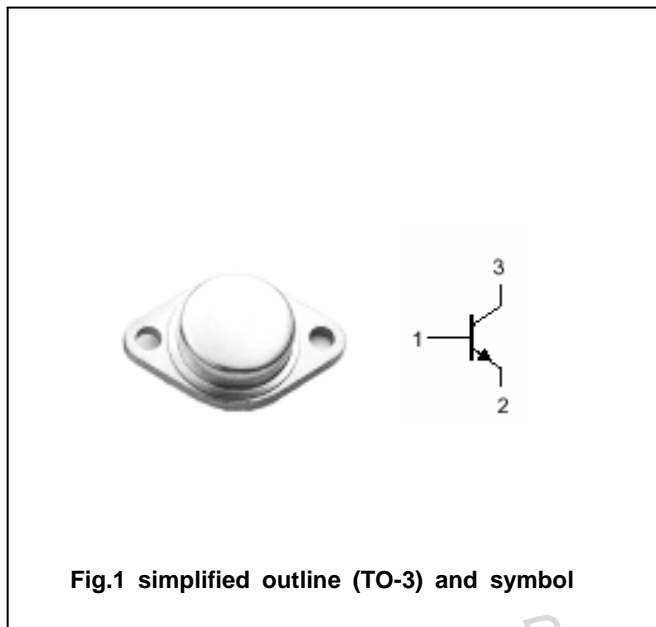


Fig.1 simplified outline (TO-3) and symbol

Absolute maximum ratings(Ta=)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------|--|----------------|------------|---------|
| V_{CBO} | Collector-base voltage | Open emitter | 850 | V |
| V_{CEO} | Collector-emitter voltage | Open base | 450 | V |
| V_{EBO} | Emitter-base voltage | Open collector | 6 | V |
| I_C | Collector current | | 15 | A |
| I_{CM} | Collector current-peak | | 20 | A |
| I_B | Base current | | 10 | A |
| I_{BM} | Base current-peak | | 15 | A |
| P_D | Total Power Dissipation Derate above 25 | $T_C=25$ | 175 1.0 | W W/ |
| T_j | Junction temperature | | 200 | |
| T_{stg} | Storage temperature | | -65~200 | |

THERMAL CHARACTERISTICS

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

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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 | I _C =0.1A ; I _B =0 | 450 | | | V |
| V _{CEsat-1} | Collector-emitter saturation voltage | I _C =5A; I _B =0.7A | | | 2.5 | V |
| V _{CEsat-2} | Collector-emitter saturation voltage | I _C =10A ; I _B =1.3A T _C =100 | | | 3.0 3.0 | V |
| V _{BEsat} | Base-emitter saturation voltage | I _C =10A ; I _B =1.3A T _C =100 | | | 1.5 1.5 | V |
| I _{CER} | Collector cut-off current | V _{CE} =850V; R _{BE} =50 ; T _C =100 | | | 2.5 | mA |
| I _{CEV} | Collector cut-off current | V _{CE} =850V; V _{BE(off)} =1.5V T _C =100 | | | 0.25 1.5 | mA |
| I _{EBO} | Emitter cut-off current | V _{EB} =6V; I _C =0 | | | 10 | mA |
| h _{FE} | DC current gain | I _C =15A ; V _{CE} =5V | 5 | | | |
| C _{OB} | Output capacitance | V _{CB} =10V, I _E =0; f=1.0KHz | | | 400 | pF |

Switching times resistive load

| | | | | | | |
|----------------|--------------|--|--|------|--|----|
| t _d | Delay time | | | 20 | | ns |
| t _r | Rise time | I _C =10A ; V _{CC} =250V I _{B1} =1.3A ; I _{B2} =2.6A | | 200 | | ns |
| t _s | Storage time | PW=30 μ s; R _{B2} =1.6 Duty Cycle 2.0% | | 1200 | | ns |
| t _f | Fall time | | | 200 | | ns |

PACKAGE OUTLINE

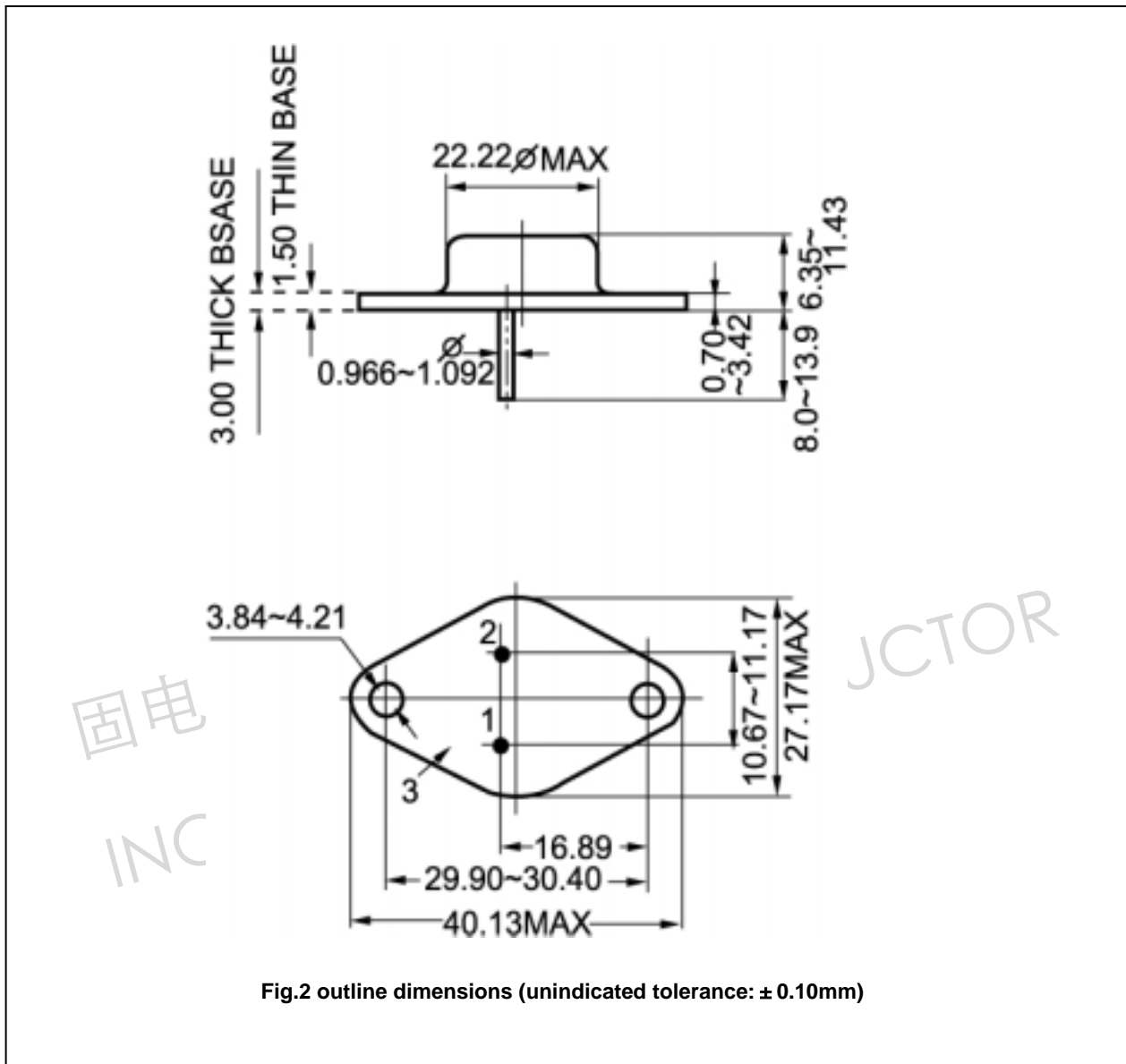


Fig.2 outline dimensions (unindicated tolerance: $\pm 0.10\text{mm}$)