# Silicon PNP Power Transistors MJ15016

## DESCRIPTION

·With TO-3 package
·Complement to type MJ15015
·Excellent safe operating area

## APPLICATIONS

·For high power audio ,stepping
motor and other linear applications
·Relay or solenoid drviers
·DC-DC converters inverters




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

## PINNING(see Fig.2)

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

## ABSOLUTE MAXIMUM RATINGS($T_C$=25□)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $V_{CBO}$ | Collector-base voltage | Open emitter | -200 | V |
| $V_{CEO}$ | Collector-emitter voltage | Open base | -120 | V |
| $V_{EBO}$ | Emitter-base voltage | Open collector | -7 | V |
| $I_C$ | Collector current | | -15 | A |
| $I_B$ | Base current | | -7 | A |
| $P_C$ | Collector power dissipation | $T_C$=25□ | 180 | W |
| $T_j$ | Junction temperature | | 150 | □ |
| $T_{stg}$ | Storage temperature | | -65~200 | □ |

## THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---|---|---|---|
| $R_{th\ j\text{-}c}$ | Thermal resistance junction to case | 0.98 | □/W |

## CHARACTERISTICS

**Tj=25□ unless otherwise specified**

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-emitter sustaining voltage | $I_C$=-0.2A ;$I_B$=0 | -120 | | | V |
| $V_{CE(sat)-1}$ | Collector-emitter saturation voltage | $I_C$=-4A; $I_B$=-0.4A | | | -1.1 | V |
| $V_{CE(sat)-2}$ | Collector-emitter saturation voltage | $I_C$=-10A; $I_B$=-3.3A | | | -3.0 | V |
| $V_{CE(sat)-3}$ | Collector-emitter saturation voltage | $I_C$=-15A; $I_B$=-7.0A | | | -5.0 | V |
| $V_{BE}$ | Base-emitter on voltage | $I_C$=-4A ; $V_{CE}$=-4V | | | -1.8 | V |
| $I_{CEO}$ | Collector cut-off current | $V_{CE}$=-60V; $V_{BE(off)}$=0 | | | -0.1 | mA |
| $I_{CEV}$ | Collector cut-off current | $V_{CE}$=Rated Value; $V_{BE(off)}$=1.5V<br>$T_C$=150□ | | | -1.0<br>-6.0 | mA |
| $I_{EBO}$ | Emitter cut-off current | $V_{EB}$=-7V; $I_C$=0 | | | -0.2 | mA |
| $h_{FE-1}$ | DC current gain | $I_C$=-4A ; $V_{CE}$=-2V | 10 | | 70 | |
| $h_{FE-2}$ | DC current gain | $I_C$=-4A ; $V_{CE}$=-4V | 20 | | 70 | |
| $h_{FE-3}$ | DC current gain | $I_C$=-10A ; $V_{CE}$=-4V | 5 | | | |
| $I_{s/b}$ | Second breakdown collector current With base forward biased | $V_{CE}$=-60Vdc,t=0.5 s, Nonrepetitive | -3.0 | | | A |
| $C_{OB}$ | Output capacitance | $I_E$=0 ; $V_{CB}$=-10V;f=1.0MHz | 60 | | 600 | pF |
| $f_T$ | Transition frequency | $I_C$=-1A ; $V_{CE}$=-4V;f=1.0MHz | 2.2 | | | MHz |

**PACKAGE OUTLINE**

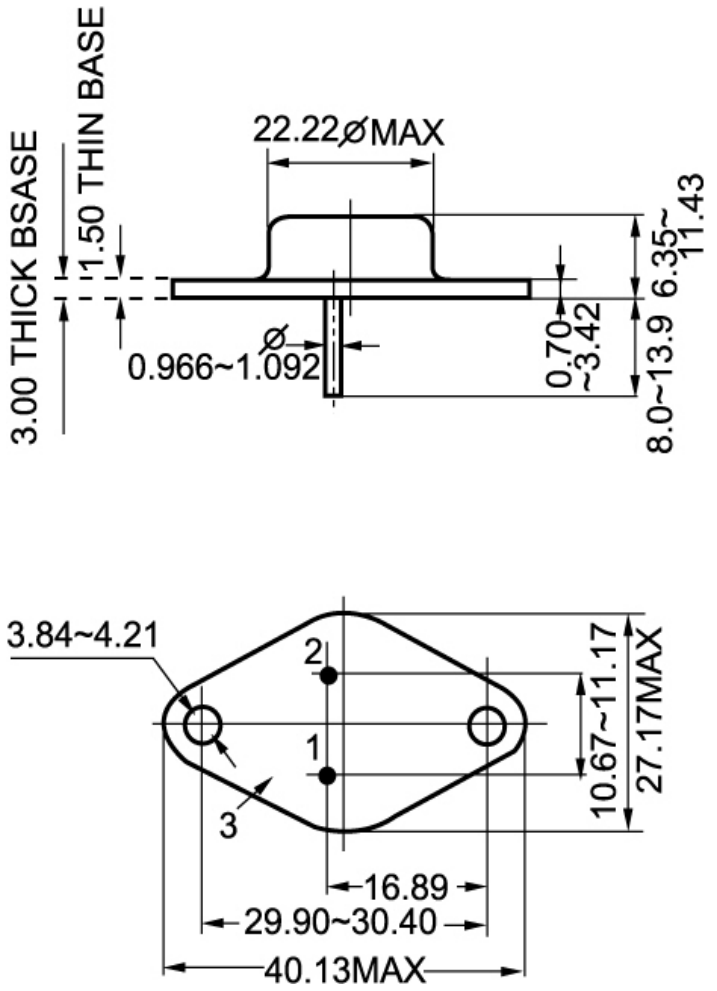



**Fig.2 outline dimensions (unindicated tolerance:±0.1mm)**

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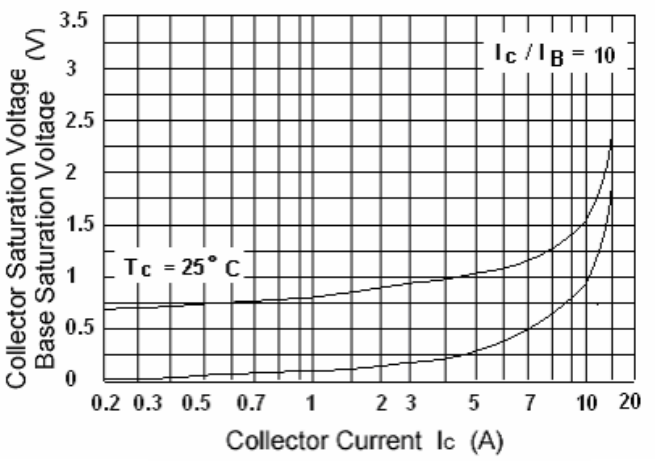



**Fig.3** Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

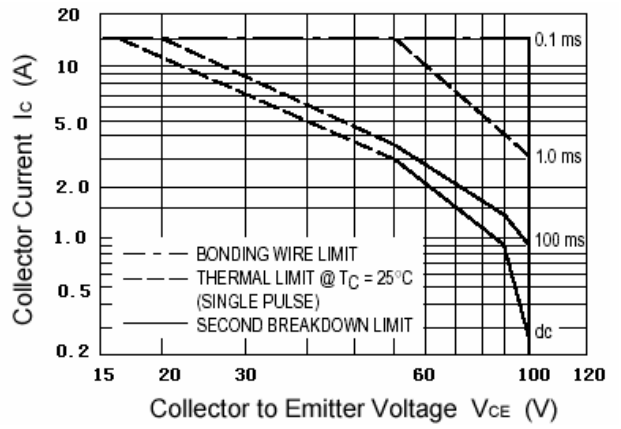



**Fig.4** Safe Operating Area

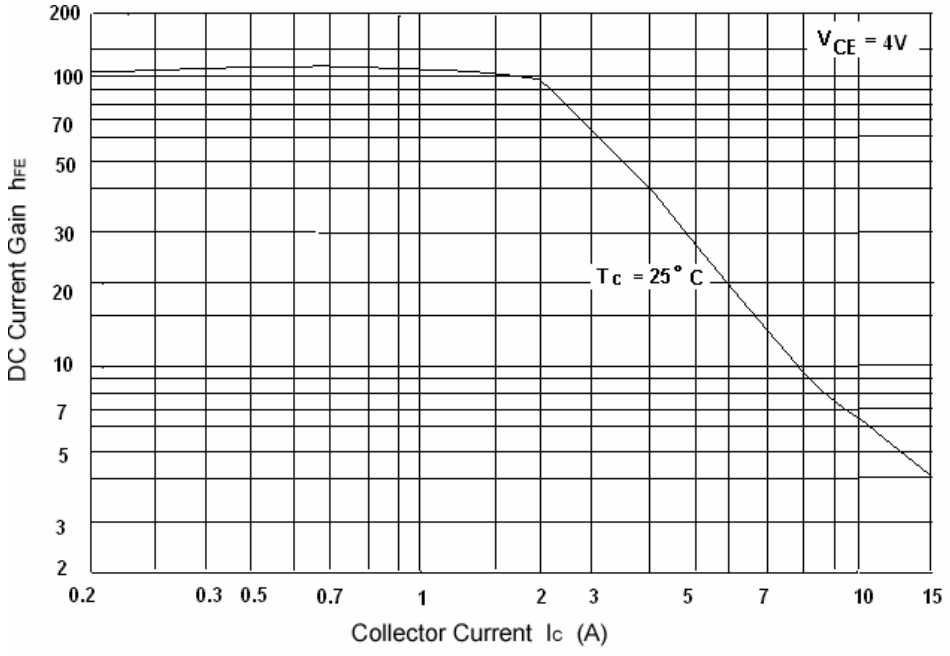



**Fig.5** DC current Gain