

## Silicon NPN Power Transistors

MJ15015

## DESCRIPTION

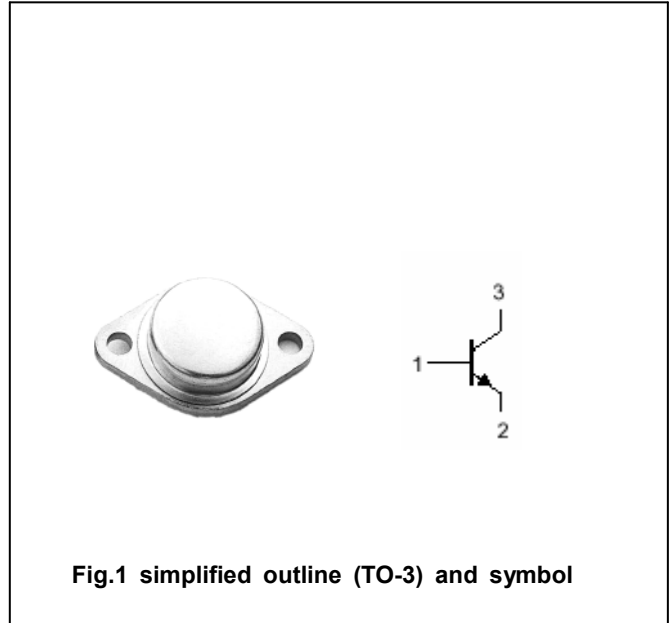
- With TO-3 package
- Complement to type MJ15016
- Excellent safe operating area

## APPLICATIONS

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

## PINNING(see Fig.2)

PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

ABSOLUTE MAXIMUM RATINGS( $T_C=25^\circ\text{C}$ )

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	$T_C=25^\circ\text{C}$	180	W
$T_j$	Junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-65~200	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

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

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## CHARACTERISTICS

T<sub>j</sub>=25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =0.2A; I <sub>B</sub> =0	120			V
V <sub>CE(sat)-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =4A; I <sub>B</sub> =0.4A			1.1	V
V <sub>CE(sat)-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =10A; I <sub>B</sub> =3.3A			3.0	V
V <sub>CE(sat)-3</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =15A; I <sub>B</sub> =7.0A			5.0	V
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =4A; V <sub>CE</sub> =4V			1.8	V
I <sub>CEO</sub>	Collector cut-off current	V <sub>CE</sub> =60V; V <sub>BE(off)</sub> =0			0.1	mA
I <sub>CEV</sub>	Collector cut-off current	V <sub>CE</sub> =Rated Value; V <sub>BE(off)</sub> =1.5V T <sub>C</sub> =150 °C			1.0 6.0	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =7V; I <sub>C</sub> =0			0.2	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =4A; V <sub>CE</sub> =2V	10		70	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =4A; V <sub>CE</sub> =4V	20		70	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =10A; V <sub>CE</sub> =4V	5			
I <sub>s/b</sub>	Second breakdown collector current With base forward biased	V <sub>CE</sub> =60Vdc, t=0.5 s, Nonrepetitive	3.0			A
C <sub>OB</sub>	Output capacitance	I <sub>E</sub> =0; V <sub>CB</sub> =10V; f=1.0MHz	60		600	pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1A; V <sub>CE</sub> =4V; f=1.0MHz	0.8			MHz

PACKAGE OUTLINE

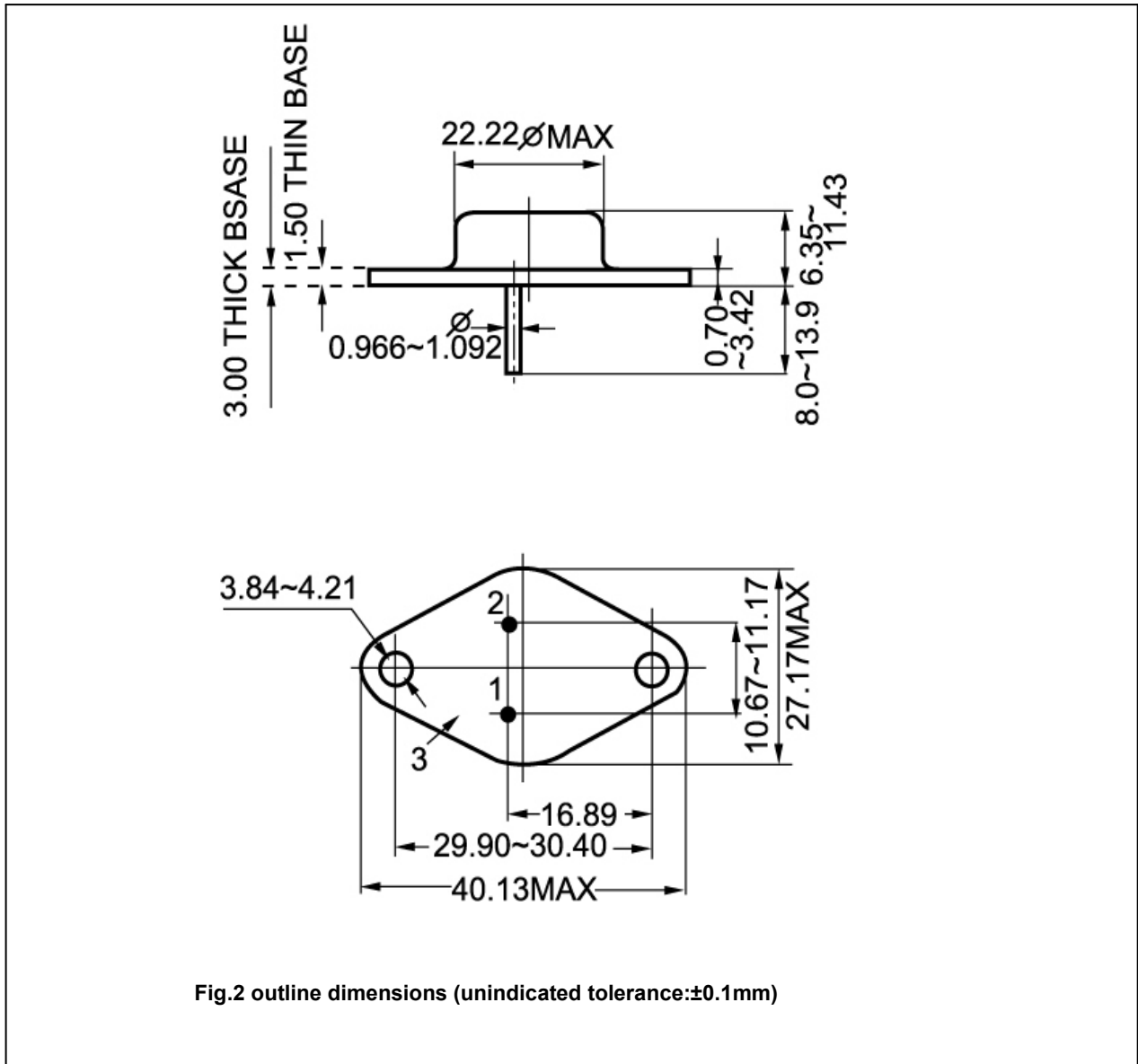


Fig.2 outline dimensions (unindicated tolerance:±0.1mm)

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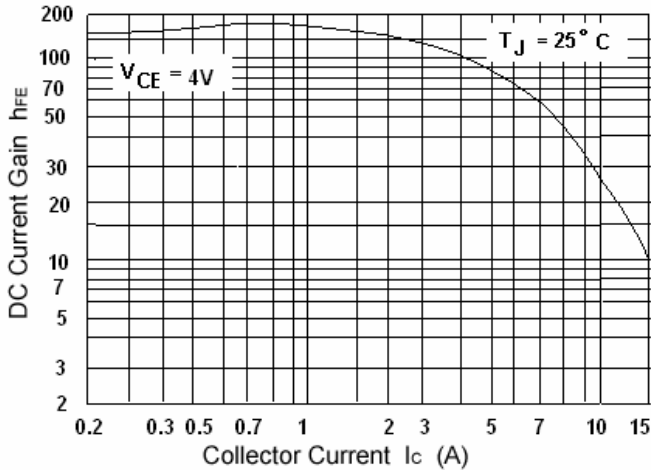


Fig.3 DC current Gain

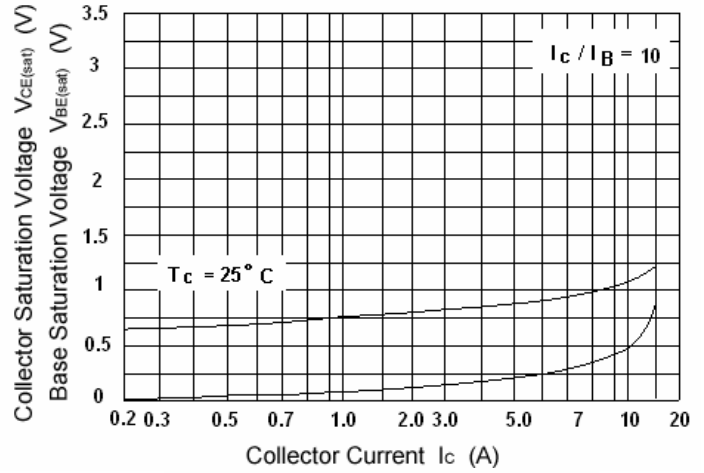


Fig.4 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

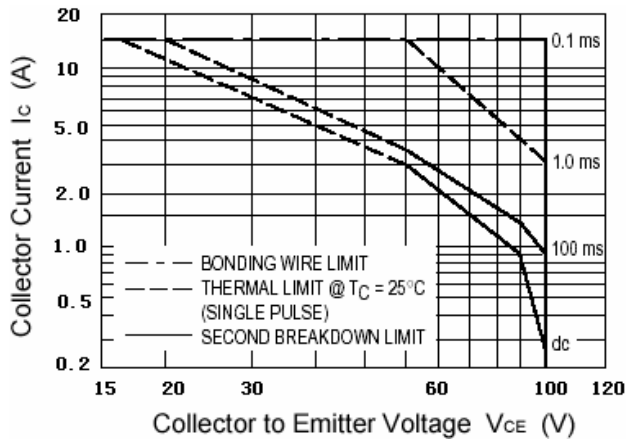


Fig.5 Safe Operating Area