

**Silicon NPN Power Transistors**

**MJ15022 MJ15024**

**DESCRIPTION**

- With TO-3 package
- Complement to type MJ15023 MJ15025
- Excellent Safe Operating Area
- High DC Current Gain  
 $h_{FE} = 15$  (Min) @  $I_C = 8$  Adc

**APPLICATIONS**

- Designed for high power audio, disk head positioners and other linear applications

**PINNING(see Fig.2)**

PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

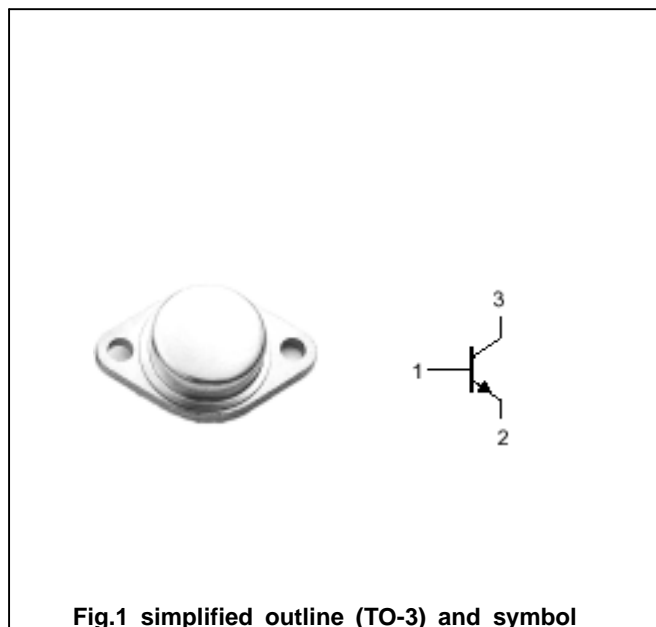


Fig.1 simplified outline (TO-3) and symbol

**Absolute maximum ratings(Ta= )**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	MJ15022	350	V
		MJ15024	400	
V <sub>CEO</sub>	Collector-emitter voltage	MJ15022	200	V
		MJ15024	250	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	5	V
I <sub>C</sub>	Collector current		16	A
I <sub>CM</sub>	Collector current-peak		30	A
I <sub>B</sub>	Base current		5	A
P <sub>D</sub>	Total power dissipation	T <sub>C</sub> =25	250	W
T <sub>j</sub>	Junction temperature		150	
T <sub>stg</sub>	Storage temperature		-65~200	

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
R <sub>thj-c</sub>	Thermal resistance junction to case	0.70	/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE(SUS)</sub>	Collector-emitter sustaining voltage	MJ15022	I <sub>C</sub> =0.1A ; I <sub>B</sub> =0	200			V
		MJ15024		250			
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =8A ; I <sub>B</sub> =0.8A			1.4	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =16A ; I <sub>B</sub> =3.2A			4.0	V
V <sub>BE</sub>	Base-emitter on voltage		I <sub>C</sub> =8A ; V <sub>CE</sub> =4V			2.2	V
I <sub>CEO</sub>	Collector cut-off current	MJ15022	V <sub>CE</sub> =150V ; I <sub>B</sub> =0			0.5	mA
		MJ15024	V <sub>CE</sub> =200V ; I <sub>B</sub> =0				
I <sub>CEx</sub>	Collector cut-off current	MJ15022	V <sub>CE</sub> =200V ; V <sub>BE(off)</sub> =1.5V			0.25	mA
		MJ15024	V <sub>CE</sub> =250V ; V <sub>BE(off)</sub> =1.5V				
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =5V ; I <sub>C</sub> =0			0.5	mA
h <sub>FE-1</sub>	DC current gain		I <sub>C</sub> =8A ; V <sub>CE</sub> =4V	15		60	
h <sub>FE-2</sub>	DC current gain		I <sub>C</sub> =16A ; V <sub>CE</sub> =4V	5			
I <sub>s/b</sub>	Second breakdown collector current With base forward biased		V <sub>CE</sub> =50Vdc, t=0.5 s, V <sub>CE</sub> =80Vdc, t=0.5 s, Nonrepetitive	5.0 2.0			A
C <sub>OB</sub>	Output capacitance		I <sub>E</sub> =0 ; V <sub>CB</sub> =10V ; f=1.0MHz			500	pF
f <sub>T</sub>	Transition frequency		I <sub>C</sub> =1A ; V <sub>CE</sub> =10V ; f=1.0MHz	4			MHz

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PACKAGE OUTLINE

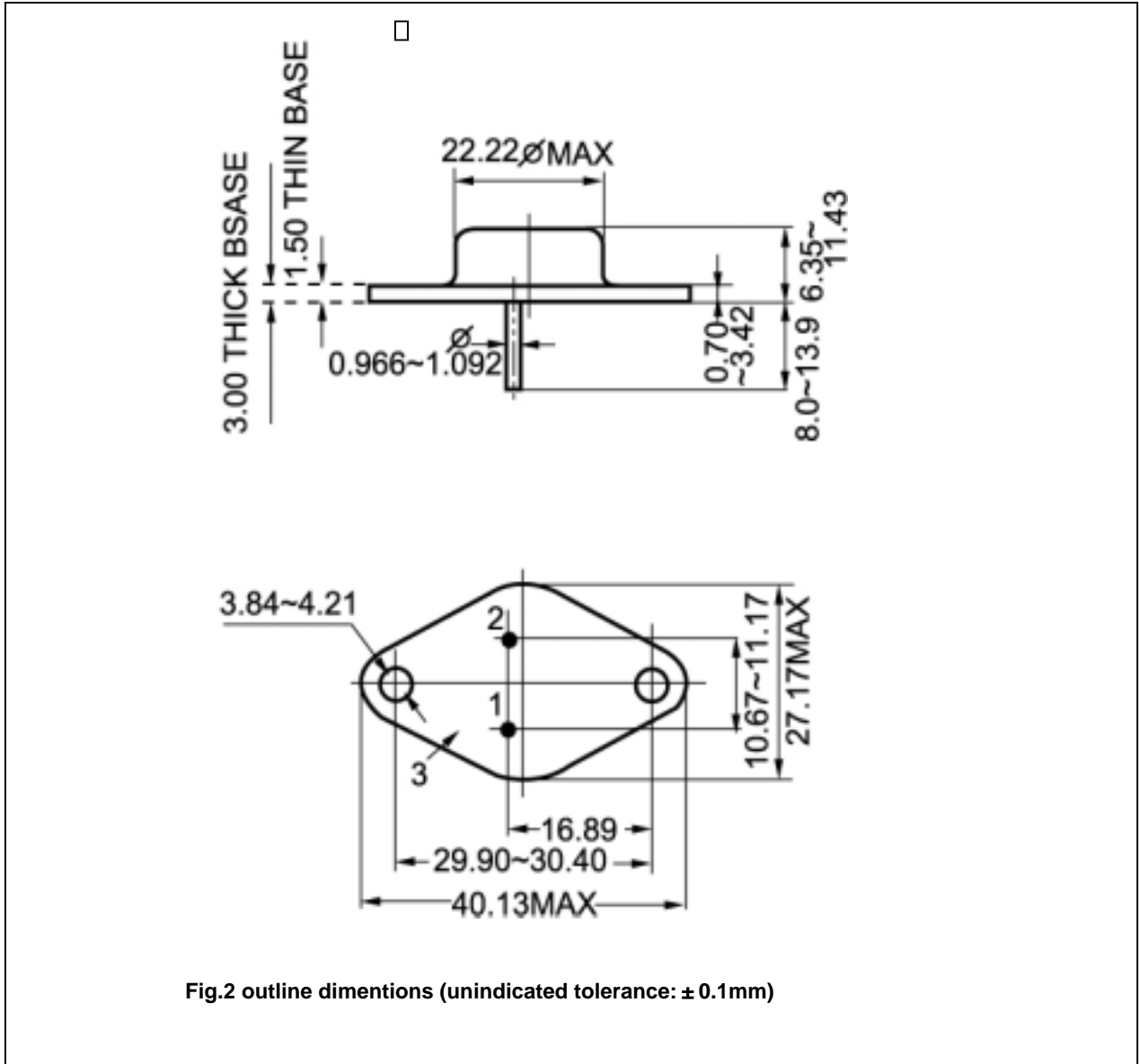


Fig.2 outline dimensions (unindicated tolerance: ± 0.1mm)

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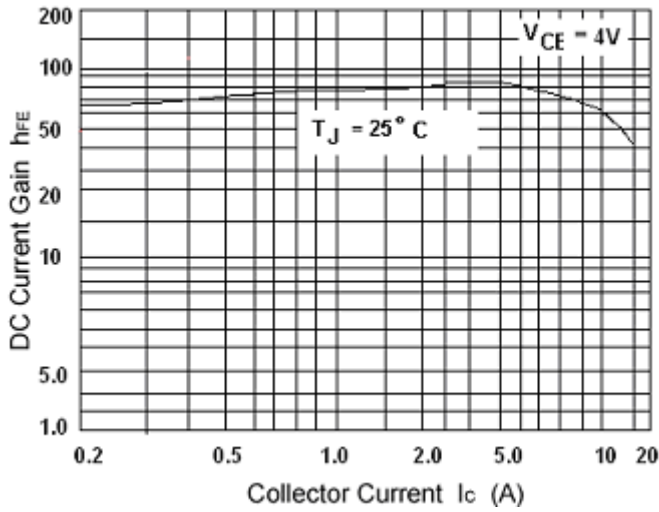


Fig.3  $h_{FE} - I_C$

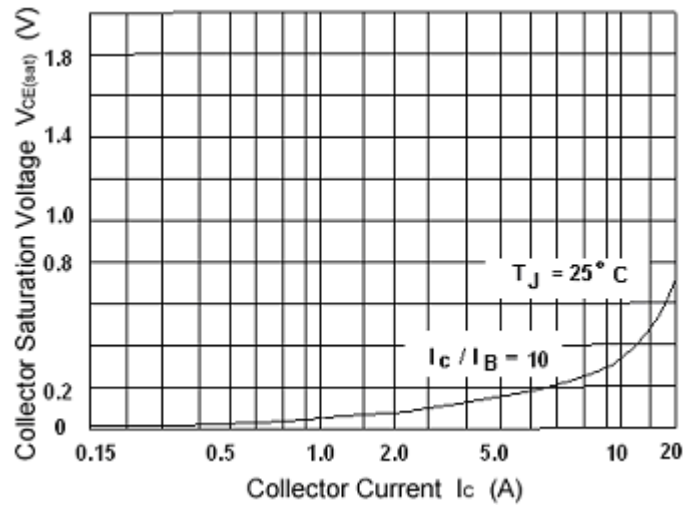


Fig.4  $V_{CE(sat)} - I_C$

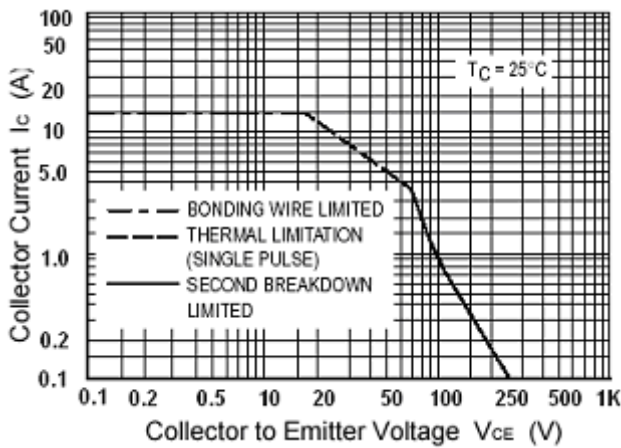


Fig.5 SAFE OPERATING AREA