

Silicon NPN Power Transistors

MJ15022 MJ15024

DESCRIPTION

- With TO-3 package
 - Complement to type MJ15023; MJ15025
 - Excellent safe operating area
 - High DC current gain
- $h_{FE} = 15 \text{ (Min) @ } I_C = 8 \text{ A dc}$

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

SYMBOL	PARAMETER		CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	MJ15022	Open emitter	350	V
		MJ15024		400	
V_{CEO}	Collector-emitter voltage	MJ15022	Open base	200	V
		MJ15024		250	
V_{EBO}	Emitter-base voltage		Open collector	5	V
I_C	Collector current			16	A
I_{CM}	Collector current-peak			30	A
I_B	Base current			5	A
P_D	Total power dissipation		$T_C=25^\circ\text{C}$	250	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	0.70	$^\circ\text{C/W}$

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CHARACTERISTICS

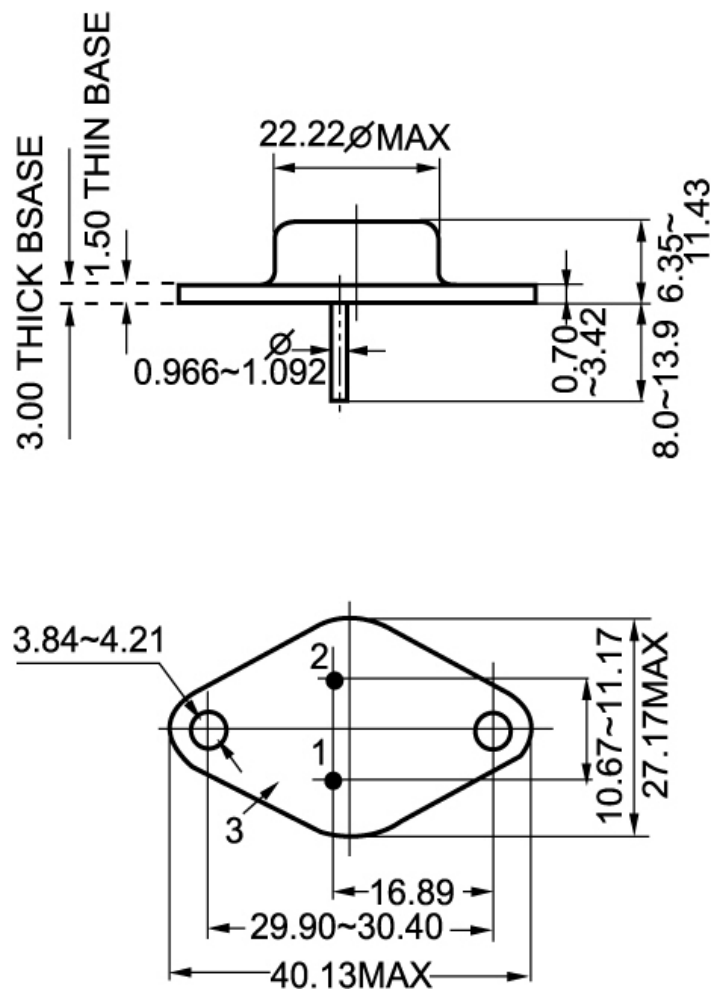
Tj=25°C unless otherwise specified

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

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PACKAGE OUTLINE

Fig.2 outline dimensions (unindicated tolerance: $\pm 0.1\text{mm}$)

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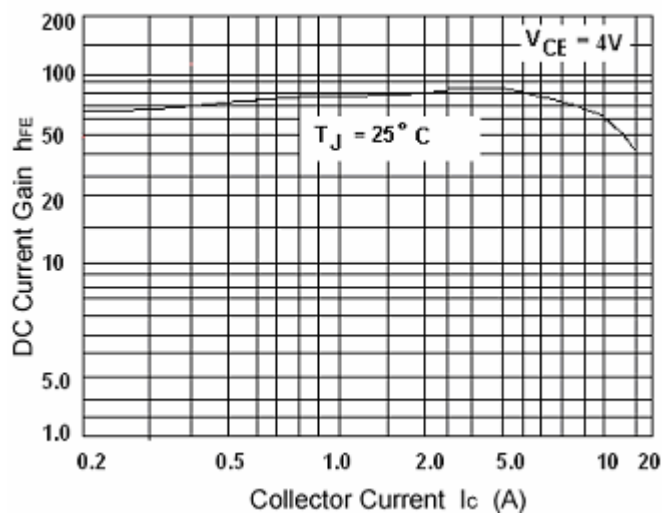


Fig.3 DC current Gain

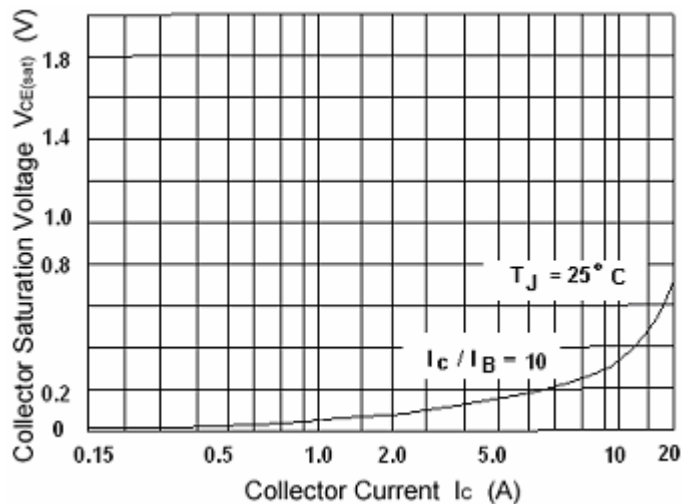


Fig.4 Collector-Emitter Saturation Voltage

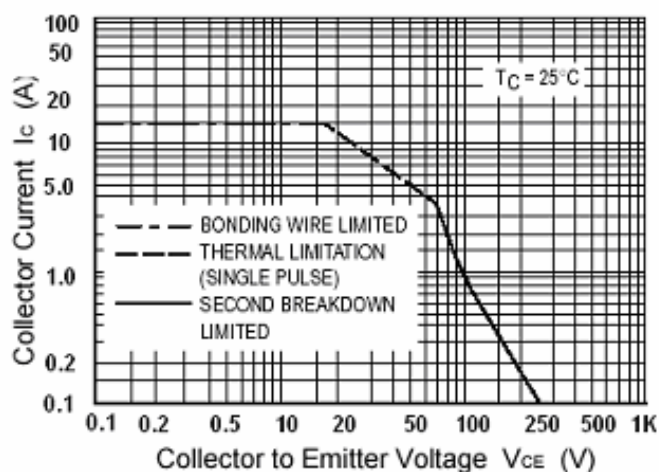


Fig.5 Safe Operating Area