

# MJ15022 / MJ15024

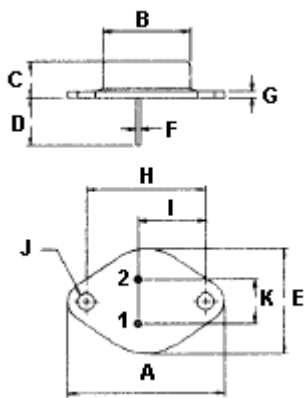
## Power Transistors



The MJ15022 and MJ15024 are silicon power base power transistors designed for high power audio, disk head positioners and other linear applications.

### Features:

- High Safe Operating Area.
- High DC Current Gain  
 $h_{FE} = 15$  (Minimum) at  $I_C = 8.0A$ ,  $V_{CE} = 4.0V$ .



Pin 1. Base  
 2. Emitter  
 Collector(Case)

Dimensions	Minimum	Maximum
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

Dimensions : Millimetres

**NPN**  
**MJ15022**  
**MJ15024**

16 Ampere  
 Silicon Power  
 Transistors  
 200 - 250 Volts  
 250 Watts



**TO-3**

### Maximum Ratings

Characteristic	Symbol	MJ15022	MJ15024	Unit
Collector-Emitter Voltage	$V_{CEO}$	200	250	V
Collector-Base Voltage	$V_{CBO}$	350	400	
Emitter-Base Voltage	$V_{EBO}$	5.0		
Collector-Emitter Voltage	$V_{CEX}$	400		A
Collector Current-Continuous -Peak	$I_C$ $I_{CM}$	16 30		
Base Current-Continuous	$I_B$	5		
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	$P_D$	250 1.43		W W/ $^\circ C$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +200		$^\circ C$

### Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	0.7	$^\circ C/W$

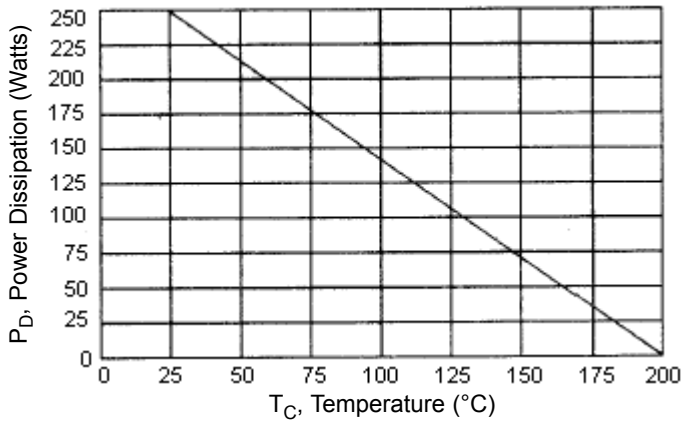


# MJ15022 / MJ15024

## Power Transistors



Figure - 1 Power Derating



### Electrical Characteristics ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Minimum	Maximum	Unit
<b>OFF Characteristics</b>				
Collector-Emitter Sustaining Voltage (1) ( $I_C = 100\text{mA}$ , $I_B = 0$ )	MJ15022 MJ15024 $V_{CEO(sus)}$	200 250	-	V
Collector Cut off Current ( $V_{CE} = 200\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ ) ( $V_{CE} = 250\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ )	MJ15022 MJ15024 $I_{CEX}$	-	250 250	$\mu\text{A}$
Collector Cut off Current ( $V_{CE} = 150\text{V}$ , $I_B = 0$ ) ( $V_{CE} = 200\text{V}$ , $I_B = 0$ )	MJ15022 MJ15024 $I_{CEO}$	-	500 500	$\mu\text{A}$
Emitter Cut off Current ( $V_{EB} = 5.0\text{V}$ , $I_B = 0$ )	$I_{EBO}$	-	500	$\mu\text{A}$
<b>ON Characteristics (1)</b>				
DC Current Gain ( $I_C = 8.0\text{A}$ , $V_{CE} = 4.0\text{V}$ ) ( $I_C = 16\text{A}$ , $V_{CE} = 4.0\text{V}$ )	$h_{FE}$	15 5	60	-
Collector-Emitter Saturation Voltage ( $I_C = 8.0\text{A}$ , $I_B = 0.8\text{A}$ ) ( $I_C = 16\text{A}$ , $I_B = 3.2\text{A}$ )	$V_{CE(sat)}$	-	1.4 4.0	V
Base-Emitter On Voltage ( $I_C = 8.0\text{A}$ , $V_{CE} = 4.0\text{V}$ )	$V_{BE(on)}$	-	2.2	
<b>Dynamic Characteristics</b>				
Current Gain-Bandwidth Product (2) ( $I_C = 1.0\text{A}$ , $V_{CE} = 10\text{V}$ , $f = 1.0\text{MHz}$ )	$f_T$	4.0	-	MHz
Output Capacitance ( $V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1.0\text{MHz}$ )	$C_{ob}$	-	500	pF

(1) Pulse Test : Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

(2)  $f_T = |h_{fe}| \cdot f_{test}$

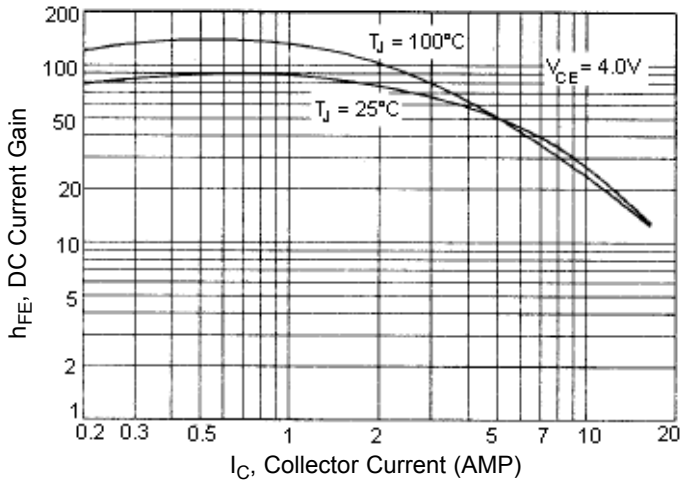


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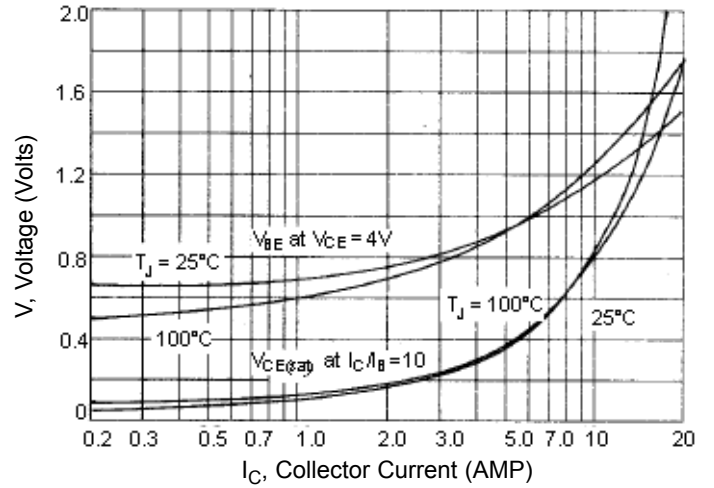
## Power Transistors



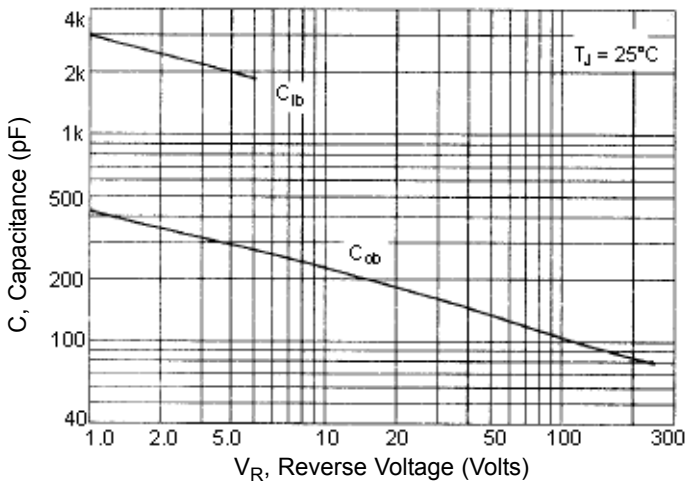
DC Current Gain



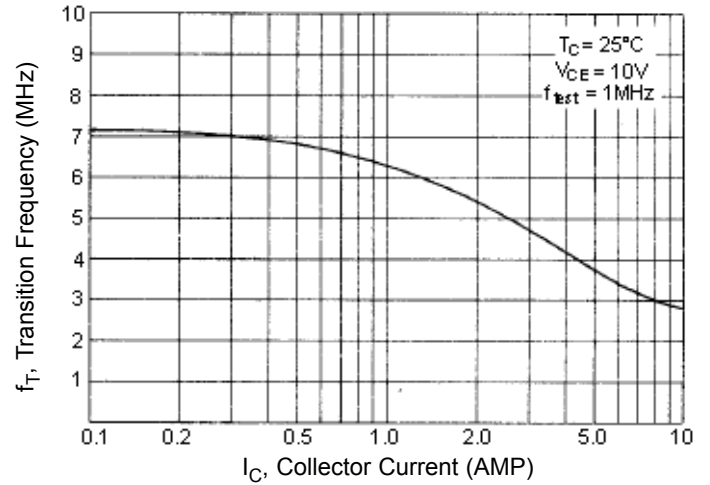
"ON" Voltage



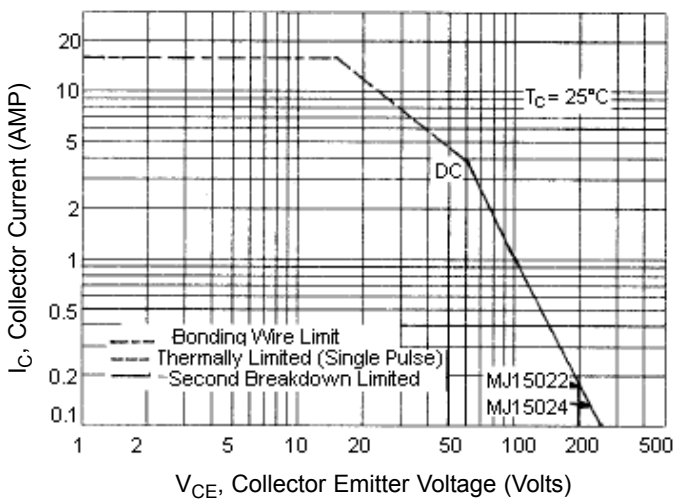
Capacitances



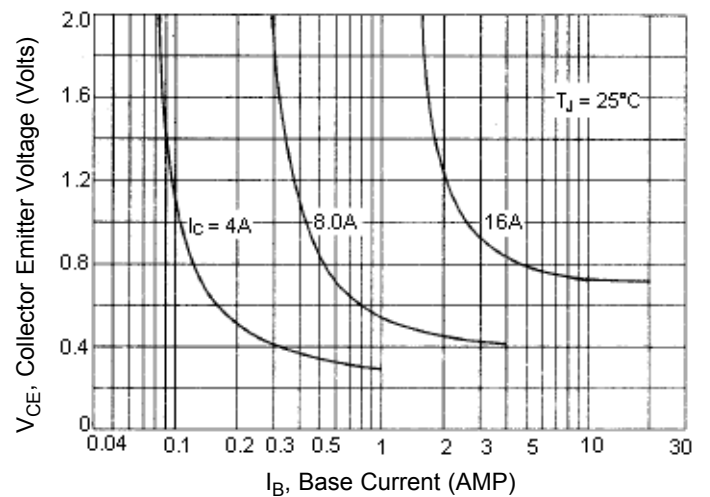
Current Gain-Bandwidth Product



Active-Region Safe Operating Area



Collector Saturation Region



# MJ15022 / MJ15024

## Power Transistors



### Specifications

$I_{C(av)}$ maximum (V)	$V_{CE0}$ maximum (V)	$h_{FE}$ minimum at $I_C = 8A$	$P_{tot}$ at 25°C (W)	Package	Type	Part Number
16	200	15	250	TO-3	NPN	MJ15022
	250					MJ15024

### Notes:

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