

NPN Silicon Power Transistor

V_{CEO} 250V, I_c 16A, 250W, TO-3

multicomp PRO

**RoHS
Compliant**



General Description

The are Power Base power transistors designed for high power audio, disk head positioners and other linear applications.

Features

1. High Safe Operating Area (100% Tested) 2 A@ 80 V
2. High DC Current Gain
 $h_{FE} = 15$ (Min) @ $I_c = 8$ Adc

APPLICATIONS: High power audio, disk head positioners and other linear applications

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Rating	Symbol	MJ15024	Units
Collector - Emitter Voltage	V _{CEO}	250	V DC
Collector - Base Voltage	V _{CB0}	400	V DC
Emitter Base Voltage	V _{EBO}	5	V DC
Collector - Emitter Voltage	V _{CEX}	400	V DC
Collector Current - Continuous Peak (1)	I _c	16 30	A DC
Base Current - Continuous	I _B	5	A DC
Total Power Dissipation @ TC 25°C Derate above 25°C	P _D	250 1.43	Watts W/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-65°C to +200°C	°C

Thermal Characteristics

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to case	R _{j-c}	0.7	°C/W

(1) Pulse Test: Pulse Width = 5 ms, Duty Cycle ≤ 10%

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Electrical Characteristics at T_a = 25°C unless otherwise specified)

Description	Symbol	Min	Max	Units
Off Characteristics				
Collector-Emitter Sustaining Voltage (1) (I _c = 100mADC, I _B = 0)	MJ15024	V _{CEO(sus)}	250	-
Collector Cut Off Current (V _{CE} = 250V DC, V _{BE(off)} = 1.5 V _{DC})	MJ15024	I _{CEX}	-	250
Collector Cut Off Current (V _{CE} = 200V DC, I _B = 0)	MJ15024	I _{CEO}	-	500
Emitter Cut Off Current (V _{CE} = 5V DC, I _B = 0)		I _{EBO}	-	500
Second Breakdown				
Second Breakdown Collector Current With Base Forward Biased (V _{CE} = 50V DC, t = 0.5 s (non repetitive)) (V _{CE} = 80V DC, t = 0.5 s (non repetitive))		I _{S/b}	5 2	- -
On Characteristics				
DC Current Gain (I _c = 8A DC, V _{CE} = 4 V _{DC}) (I _c = 16A DC, V _{CE} = 4 V _{DC})		h _{FE}	15 5	60 -
Collector-Emitter Saturation Voltage (I _c = 8A DC, I _B = 0.8 A _{DC}) (I _c = 16A DC, I _B = 3.2 A _{DC})		V _{CE(sat)}	- -	1.4 4
Base-Emitter on Voltage (I _c = 8A DC, V _{CE} = 4 V _{DC})		V _{BE(on)}	-	2.2
Dynamic Characteristics				
Current Gain - Bandwidth Product (I _c = 1 A _{dc} , V _{CE} = 10V dc, f _{test} = 1 MHz)		f _T	4	-
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f _{test} = 1 MHz)		C _{ob}	-	500

(1) Pulse Test: Pulse Width = 300s, Duty Cycle ≤ 2%

Typical Characteristics Curves

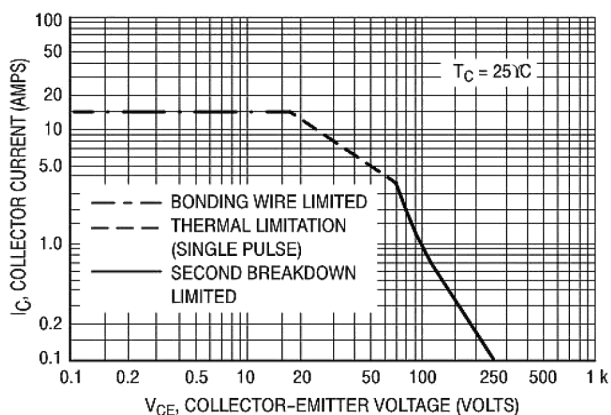


Figure 1. Active-Region Safe Operating Area

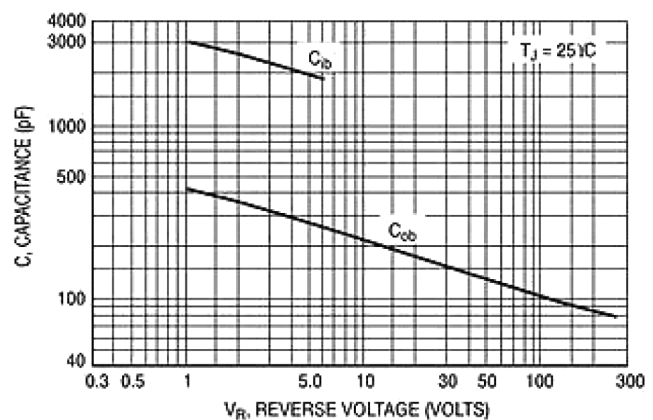


Figure 2. Capacitances

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Typical Characteristics Curves

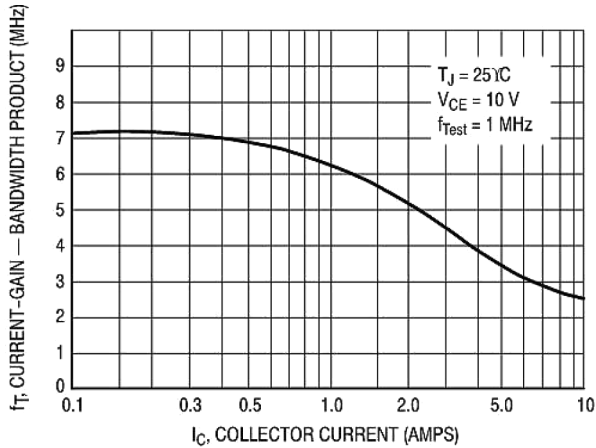


Figure 3. Current-Gain — Bandwidth Product

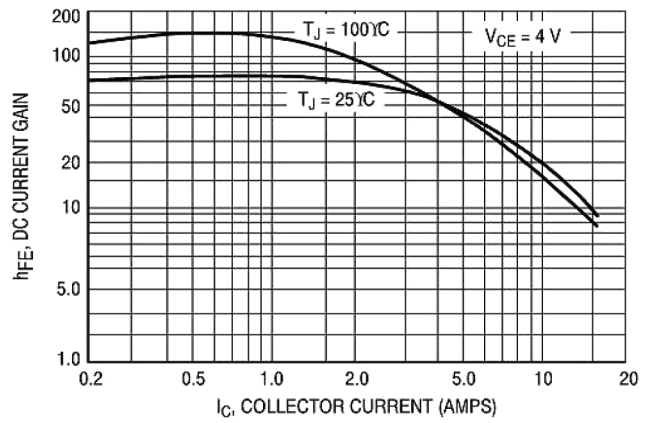


Figure 4. DC Current Gain

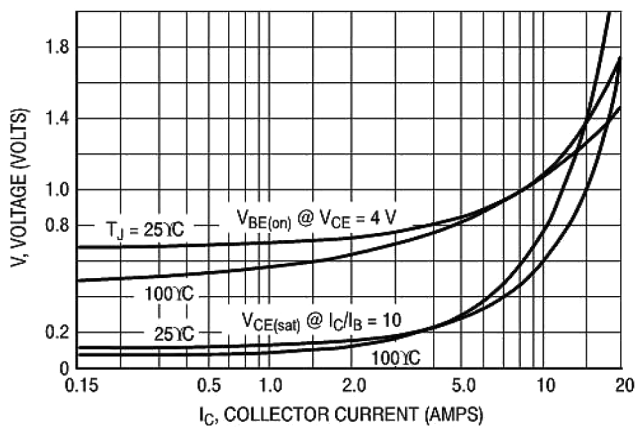


Figure 5. "On" Voltage

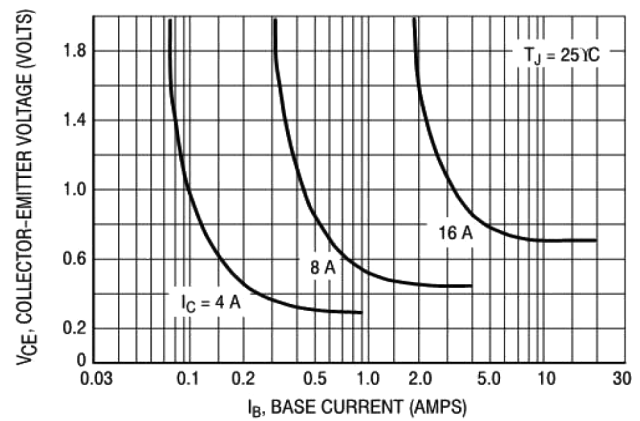


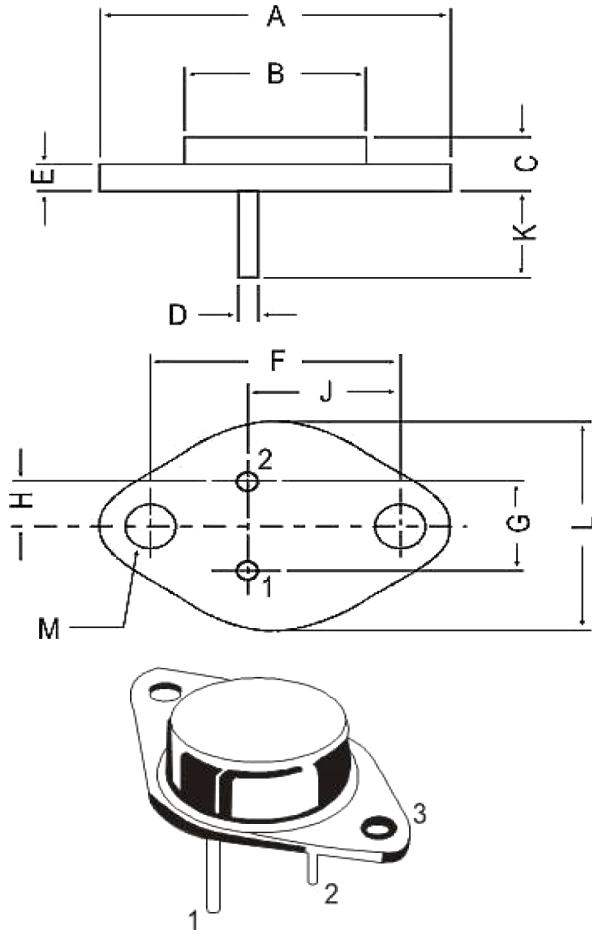
Figure 6. Collector Saturation Region

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Package Details



Dimensions : Millimetres

Dim	Min.	Max.
A	-	39.37
B	-	22.22
C	6.35	8.5
D	0.96	1.09
E	-	1.77
F	29.9	30.4
G	10.69	11.18
H	5.2	5.72
J	16.64	17.15
K	11.15	12.25
L	-	26.67
M	3.84	4.19

PIN CONFIGURATION

1. BASE
2. EMITTER
3. COLLECTOR

Part Number Table

Description	Part Number
Silicon Power Transistor, NPN, 250V, 16A, TO-3	MJ15024

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