NPN - MJ15022, MJ15024*

***MJ15024 is a Preferred Device**

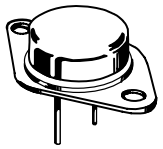
Silicon Power Transistors

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

Features

- High Safe Operating Area (100% Tested) − 2 A @ 80 V
- High DC Current Gain − h_{FE} = 15 (Min) @ I_C = 8 Adc
- Pb−Free Packages are Available*

16 AMPERES
SILICON POWER TRANSISTORS
200 − 250 VOLTS, 250 WATTS



TO−204AA (TO−3)
CASE 1−07
STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector−Emitter Voltage MJ15022 MJ15024	V_{CEO}	 200 250	Vdc
Collector−Base Voltage MJ15022 MJ15024	V_{CBO}	 350 400	Vdc
Emitter−Base Voltage	V_{EBO}	5	Vdc
Collector−Emitter Voltage	V_{CEX}	400	Vdc
Collector Current − Continuous − Peak (Note 1)	I_C	16 30	Adc
Base Current − Continuous	I_B	5	Adc
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	250 1.43	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	0.70	°C/W

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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

MARKING DIAGRAM

MJ1502x = Device Code
x = 2 or 4
G = Pb−Free Package
A = Assembly Location
Y = Year
WW = Work Week
MEX = Country of Origin

ORDERING INFORMATION

Device	Package	Shipping
MJ15022	TO−204	100 Units / Tray
MJ15022G	TO−204 (Pb−Free)	100 Units / Tray
MJ15024	TO−204	100 Units / Tray
MJ15024G	TO−204 (Pb−Free)	100 Units / Tray

Preferred devices are recommended choices for future use and best overall value.

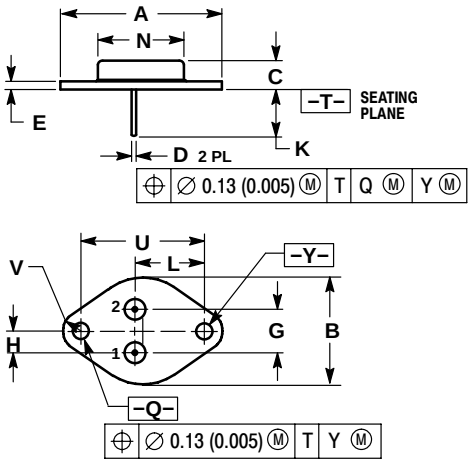
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector−Emitter Sustaining Voltage (Note 2)		$V_{CEO(sus)}$			−
(I_C = 100 mAdc, I_B = 0)	MJ15022		200	−	
	MJ15024		250	−	
Collector Cutoff Current		I_{CEX}			μAdc
(V_{CE} = 200 Vdc, $V_{BE(off)}$ = 1.5 Vdc)	MJ15022		−	250	
(V_{CE} = 250 Vdc, $V_{BE(off)}$ = 1.5 Vdc)	MJ15024		−	250	
Collector Cutoff Current		I_{CEO}			μAdc
(V_{CE} = 150 Vdc, I_B = 0)	MJ15022		−	500	
(V_{CE} = 200 vdc, I_B = 0)	MJ15024		−	500	
Emitter Cutoff Current		I_{EBO}	−	500	μAdc
(V_{CE} = 5 Vdc, I_B = 0)					
SECOND BREAKDOWN					
Second Breakdown Collector Current with Base Forward Biased		$I_{S/b}$			Adc
(V_{CE} = 50 Vdc, t = 0.5 s (non−repetitive))			5	−	
(V_{CE} = 80 Vdc, t = 0.5 s (non−repetitive))			2	−	
ON CHARACTERISTICS					
DC Current Gain		h_{FE}			−
(I_C = 8 Adc, V_{CE} = 4 Vdc)			15	60	
(I_C = 16 Adc, V_{CE} = 4 Vdc)			5	−	
Collector−Emitter Saturation Voltage		$V_{CE(sat)}$			Vdc
(I_C = 8 Adc, I_B = 0.8 Adc)			−	1.4	
(I_C = 16 Adc, I_B = 3.2 Adc)			−	4.0	
Base−Emitter On Voltage		$V_{BE(on)}$	−	2.2	Vdc
(I_C = 8 Adc, V_{CE} = 4 Vdc)					
DYNAMIC CHARACTERISTICS					
Current−Gain − Bandwidth Product		f_T	4	−	MHz
(I_C = 1 Adc, V_{CE} = 10 Vdc, f_{test} = 1 MHz)					
Output Capacitance		C_{ob}	−	500	pF
(V_{CB} = 10 Vdc, I_E = 0, f_{test} = 1 MHz)					

2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2%.

PACKAGE DIMENSIONS

TO−204 (TO−3)
CASE 1−07
ISSUE Z



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH REFERENCED TO−204AA OUTLINE SHALL APPLY.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	1.550 REF		39.37 REF	
B	---	1.050	---	26.67
C	0.250	0.335	6.35	8.51
D	0.038	0.043	0.97	1.09
E	0.055	0.070	1.40	1.77
G	0.430 BSC		10.92 BSC	
H	0.215 BSC		5.46 BSC	
K	0.440	0.480	11.18	12.19
L	0.665 BSC		16.89 BSC	
N	---	0.830	---	21.08
Q	0.151	0.165	3.84	4.19
U	1.187 BSC		30.15 BSC	
V	0.131	0.188	3.33	4.77

STYLE 1:
PIN 1. BASE
2. EMITTER
CASE: COLLECTOR