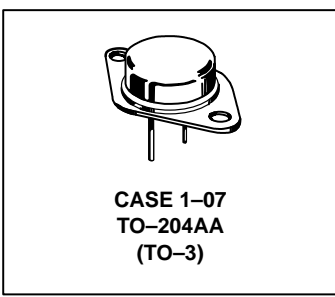


MJ15015, MJ15016
(See 2N3055A)

NPN
MJ15018
MJ15020*
PNP
MJ15019
MJ15021*

*Motorola Preferred Device

4.0 AMPERES
COMPLEMENTARY
SILICON
POWER TRANSISTORS
200 AND 250 VOLTS
150 WATTS



Advance Information

Complementary Silicon Power Transistors

... designed for use as high frequency drivers in Audio Amplifiers.

- High Gain Complementary Silicon Power Transistors
- Safe Operating Area 100% Tested
50 V, 3.0 A, 1.0 Sec.
- Excellent Frequency Response — $f_T = 20$ MHz min.

MAXIMUM RATINGS

Rating	Symbol	MJ15018 MJ15019	MJ15020 MJ15021	Unit
Collector-Emitter Voltage	V_{CEO}	200	250	Vdc
Collector-Base Voltage	V_{CBO}	200	250	Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Collector Current — Continuous	I_C	4.0		Adc
Base Current — Continuous	I_B	2.0		Adc
Emitter Current — Continuous	I_E	6.0		Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	150 0.86		Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.17	$^\circ\text{C/W}$

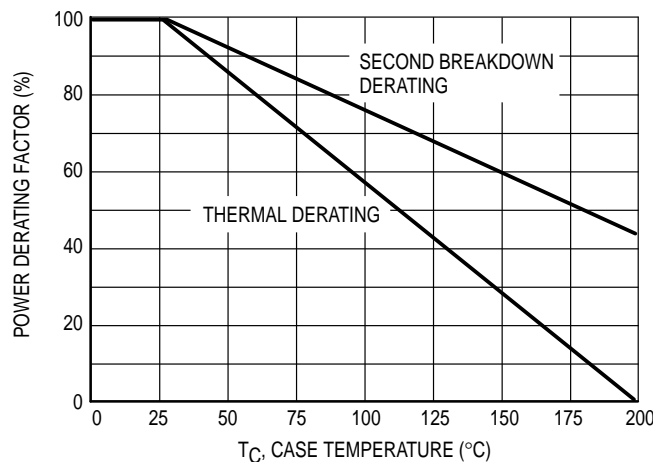


Figure 1. Power Derating

This document contains information on a new product. Specifications and information herein are subject to change without notice.

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

MJ15018 MJ15020 MJ15019 MJ15021

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Sustaining Voltage (1) ($I_C = 100\text{ mAdc}$, $I_B = 0$)	$V_{CEO(sus)}$	200 250	— —	Vdc
Collector Cutoff Current ($V_{CE} = 150\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 200\text{ Vdc}$, $I_B = 0$)	I_{CEO}	— —	500 500	μAdc
Emitter Cutoff Current ($V_{EB} = 7.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	500	μAdc

SECOND BREAKDOWN

Second Breakdown Collector Current with Base Forward–Biased ($V_{CE} = 50\text{ Vdc}$, $t = 0.5\text{ s}$ (non–repetitive))	$I_{S/b}$	3.0	—	Adc
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ON CHARACTERISTICS (1)

DC Current Gain ($I_C = 1.0\text{ Adc}$, $V_{CE} = 4.0\text{ V}$) ($I_C = 3.0\text{ Adc}$, $V_{CE} = 4.0\text{ V}$)	h_{FE}	30 10	— —	
Collector–Emitter Saturation Voltage ($I_C = 1.0\text{ Adc}$, $I_B = 0.1\text{ Adc}$)	$V_{CE(sat)}$	—	1.0	Vdc
Base–Emitter on Voltage ($I_C = 1.0\text{ Adc}$, $V_{CE} = 4.0\text{ Vdc}$)	$V_{BE(on)}$	—	2.0	Vdc

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = 0.5\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$, $f_{test} = 1.0\text{ MHz}$)	f_T	20	—	MHz
Output Capacitance ($V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $F_{test} = 1.0\text{ MHz}$)	C_{ob}	—	500	pF

(1) Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$

TYPICAL DYNAMIC CHARACTERISTICS

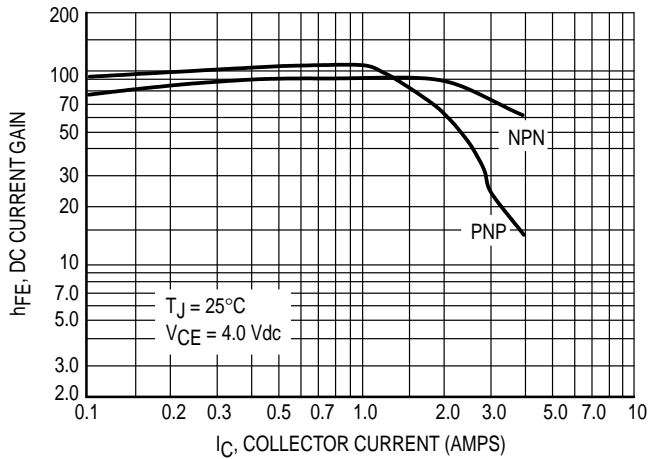


Figure 2. DC Current Gain

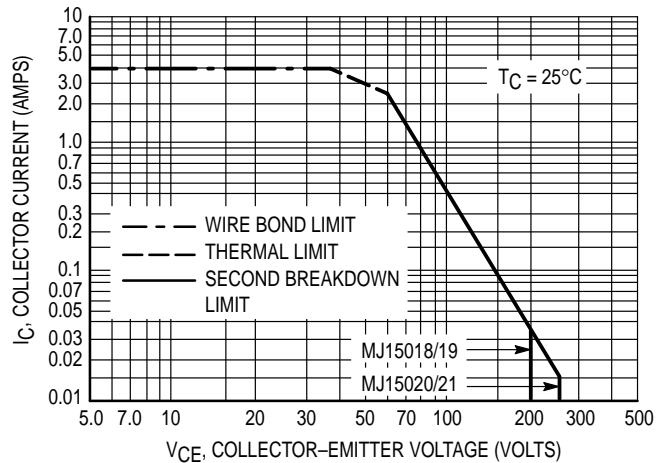
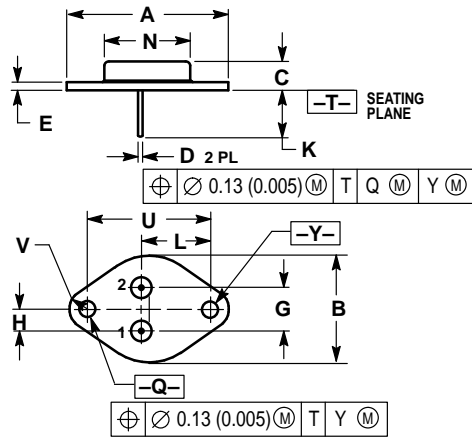


Figure 3. Maximum Rated Forward Biased Safe Operating Area

PACKAGE DIMENSIONS




- 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.

DIM	INCHES		MILLIMETERS	
	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

CASE 1-07
 TO-204AA (TO-3)
 ISSUE Z

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