

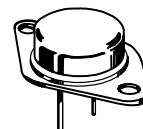
MJ4502

High-Power PNP Silicon Transistor

... for use as an output device in complementary audio amplifiers to 100-Watts music power per channel.

- High DC Current Gain — $h_{FE} = 25-100$ @ $I_C = 7.5$ A
- Excellent Safe Operating Area
- Complement to the NPN MJ802

**30 AMPERE
POWER TRANSISTOR
PNP SILICON
100 VOLTS
200 WATTS**



**CASE 1-07
TO-204AA
(TO-3)**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CER}	100	Vdc
Collector-Base Voltage	V_{CB}	100	Vdc
Collector-Emitter Voltage	V_{CEO}	90	Vdc
Emitter-Base Voltage	V_{EB}	4.0	Vdc
Collector Current	I_C	30	Adc
Base Current	I_B	7.5	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	200 1.14	Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

MAXIMUM RATINGS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	0.875	$^\circ\text{C}/\text{W}$

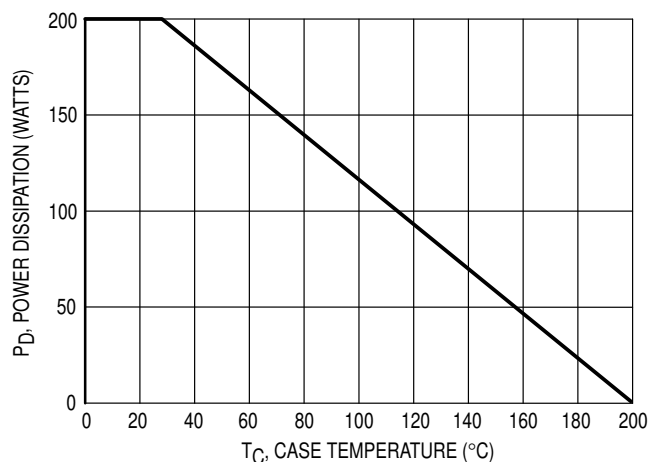


Figure 1. Power-Temperature Derating Curve

REV 7

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage ⁽¹⁾ (I _C = 200 mAdc, R _{BE} = 100 Ohms)	V _(BR) CER	100	—	Vdc
Collector–Emitter Sustaining Voltage ⁽¹⁾ (I _C = 200 mAdc)	V _{CEO(sus)}	90	—	Vdc
Collector–Base Cutoff Current (V _{CB} = 100 Vdc, I _E = 0) (V _{CB} = 100 Vdc, I _E = 0, T _C = 150°C)	I _{CBO}	—	1.0 5.0	mAdc
Emitter–Base Cutoff Current (V _{BE} = 4.0 Vdc, I _C = 0)	I _{EBO}	—	1.0	mAdc

ON CHARACTERISTICS

DC Current Gain (I _C = 7.5 Adc, V _{CE} = 2.0 Vdc)	h _{FE}	25	100	—
Base–Emitter “On” Voltage (I _C = 7.5 Adc, V _{CE} = 2.0 Vdc)	V _{BE(on)}	—	1.3	Vdc
Collector–Emitter Saturation Voltage (I _C = 7.5 Adc, I _B = 0.75 Adc)	V _{CE(sat)}	—	0.8	Vdc
Base–Emitter Saturation Voltage (I _C = 7.5 Adc, I _B = 0.75 Adc)	V _{BE(sat)}	—	1.3	Vdc

DYNAMIC CHARACTERISTICS

Current Gain — Bandwidth Product (I _C = 1.0 Adc, V _{CE} = 10 Vdc, f = 1.0 MHz)	f _T	2.0	—	MHz
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(1)Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

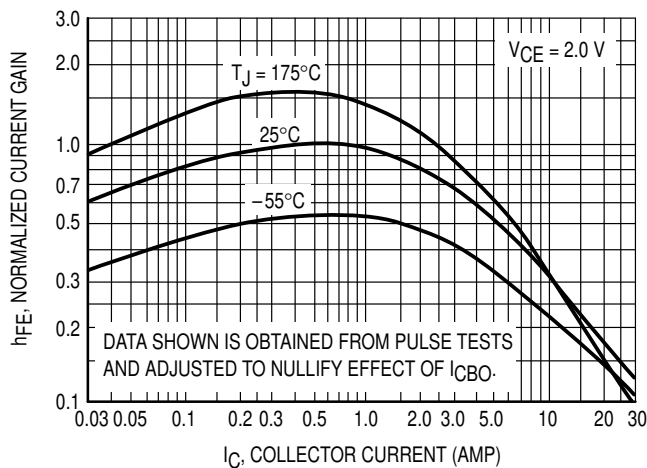


Figure 2. DC Current Gain

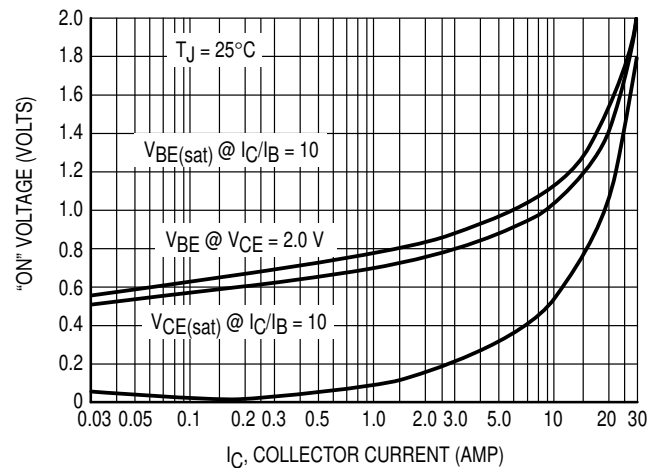


Figure 3. “On” Voltages

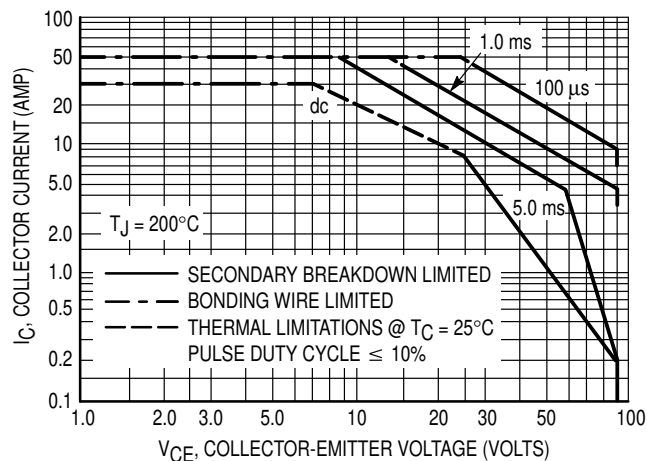
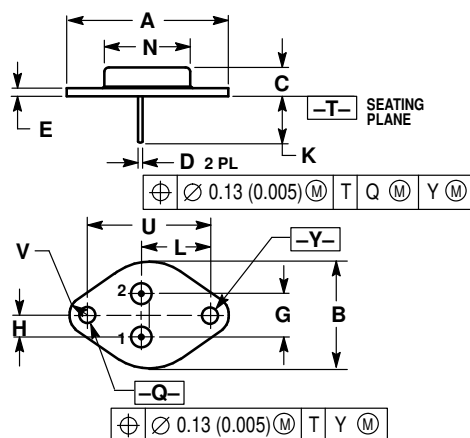


Figure 4. Active Region Safe Operating Area

The Safe Operating Area Curves indicate I_C – V_{CE} limits below which the device will not enter secondary breakdown. Collector load lines for specific circuits must fall within the applicable Safe Area to avoid causing a catastrophic failure. To insure operation below the maximum T_J, power–temperature derating must be observed for both steady state and pulse power conditions.

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
 - EMITTER
- CASE: COLLECTOR

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

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