

HIGH-POWER NPN SILICON TRANSISTOR

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

FEATURES

- * Continuous Collector Current- $I_C = 30A$
- * High DC Current Gain- $hFE = 25-100 @ I_C = 7.5A$
- * Excellent Safe Operating Area
 $V_{CE(sat)} = 0.8V(\text{Max}) @ I_C = 7.5A, I_B = 750mA$
- * Complement to the PNP MJ4502

MAXIMUM RATINGS

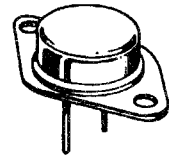
Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CER}	100	V
Collector-Emitter Voltage	V_{CEO}	90	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current - Continuous	I_C	30	A
Base Current-Continuous	I_B	7.5	A
Total Power Dissipation @ $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	200 1.14	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +200	$^\circ C$

THERMAL CHARACTERISTICS

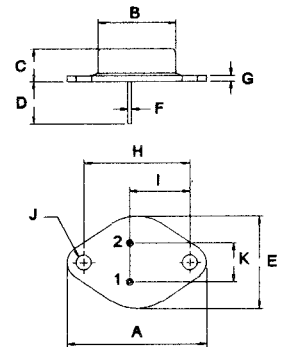
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	0.875	$^\circ C/W$

**NPN
MJ802**

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



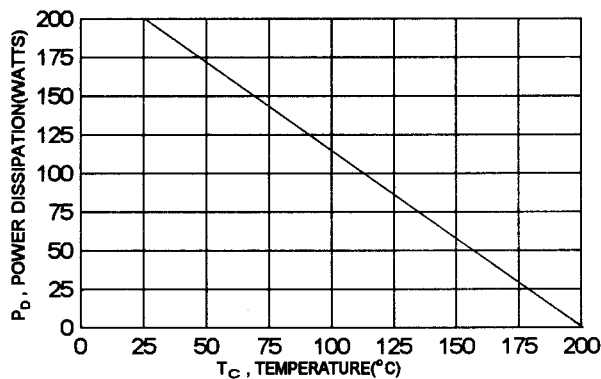
TO-3



PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
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

FIGURE -1 POWER DERATING



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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage(1) ($I_C = 200\text{ mA}$, $I_B = 0$)	$V_{CEO(sus)}$	90		V
Collector-Emitter Breakdown Voltage(1) ($I_C = 200\text{ mA}$, $R_{BE} = 100\text{ ohm}$)	BV_{CER}	100		V
Collector Cutoff Current ($V_{CB} = 100\text{ V}$, $I_E = 0$) ($V_{CB} = 100\text{ V}$, $I_E = 0$, $T_C = 150^\circ\text{C}$)	I_{CBO}		1.0 5.0	mA
Emitter Cutoff Current ($V_{BE} = 4.0\text{ V}$, $I_C = 0$)	I_{EBO}		1.0	mA

ON CHARACTERISTICS (1)

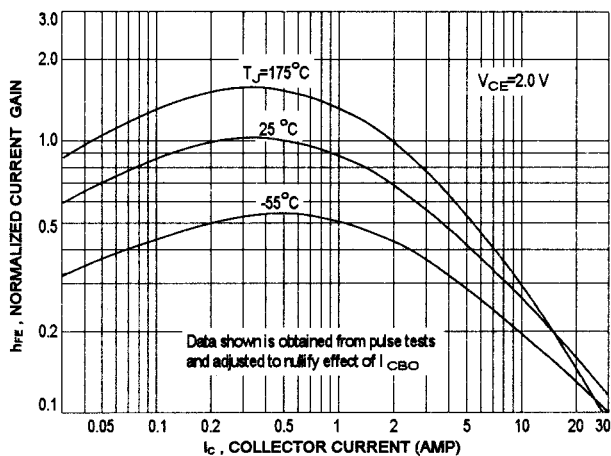
DC Current Gain ($I_C = 7.5\text{ A}$, $V_{CE} = 2.0\text{ V}$)	hFE	25	100	
Collector-Emitter Saturation Voltage ($I_C = 7.5\text{ A}$, $I_B = 0.75\text{ A}$)	$V_{CE(sat)}$		0.8	V
Base-Emitter Saturation Voltage ($I_C = 7.5\text{ A}$, $I_B = 0.75\text{ A}$)	$V_{BE(sat)}$		1.3	V
Base-Emitter On Voltage ($I_C = 7.5\text{ A}$, $V_{CE} = 2.0\text{ V}$)	$V_{BE(on)}$		1.3	V

DYNAMIC CHARACTERISTICS

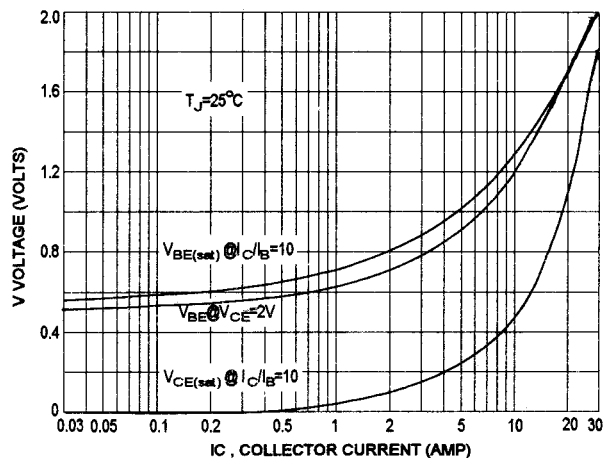
Current-Gain Bandwidth Product ($I_C = 1.0\text{ A}$, $V_{CE} = 10\text{ V}$, $f = 1.0\text{ MHz}$)	f_T	2.0		MHz
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(1) Pulse Test: Pulse width = $300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

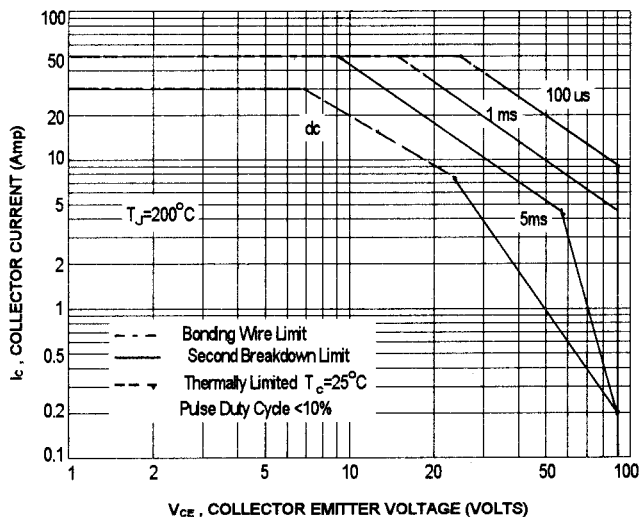
DC CURRENT GAIN



"ON" VOLTAGE



ACTIVE-REGION SAFE OPERATING AREA (SOA)



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 operating below the maximum T_J , power-temperature derating must be observed for both steady state and pulse power conditions.