MOSPEC

HIGH-POWER NPN SILICON TRANSISTOR

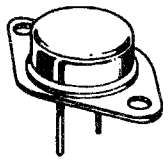
...for use as an output device in complementary audio amplifiers to 100-Watts music power per channel.

NPN
MJ802

30 AMPERE
POWER TRANSISTOR
NPN SILICON
100 VOLTS
200 WATTS

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(Max)@I_C=7.5A,I_B= 750mA
* Complement to the PNP MJ4502



TO-3

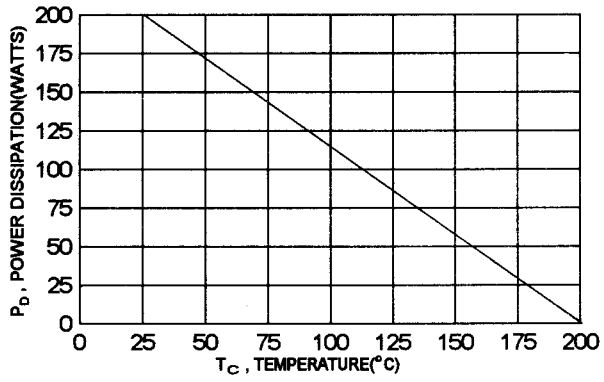
MAXIMUM RATINGS

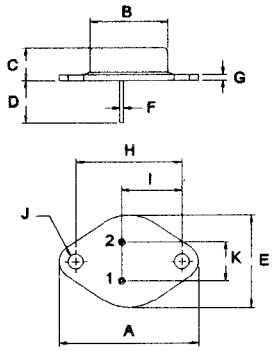
Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CER}	100	V
Collector-Emitter Voltage	V_{CEO}	90	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current - Continuous	I_C	30	A
Base Current-Continuous	I_B	7.5	A
Total Power Dissipation @T_C=25°C Derate above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

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	0.875	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

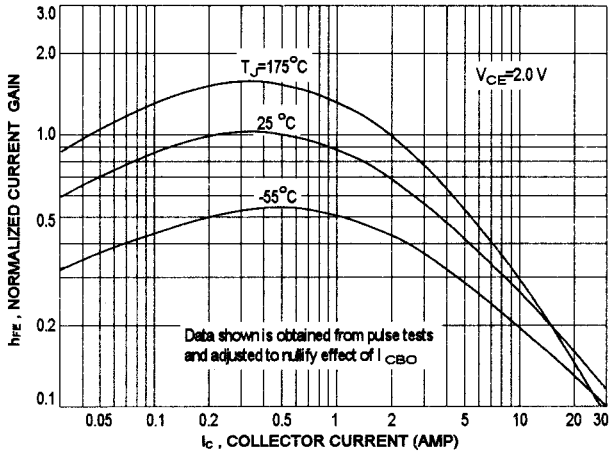
DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

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

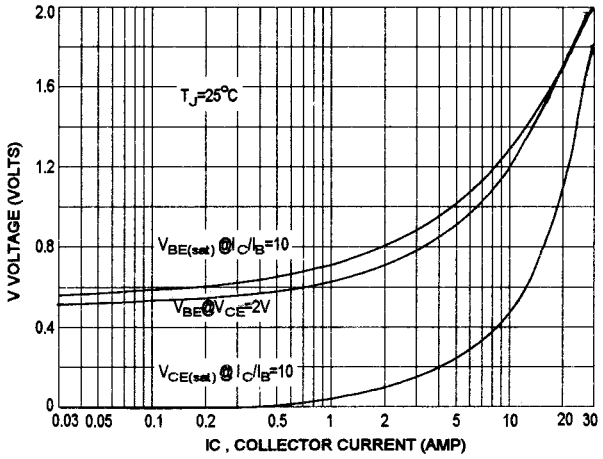
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage(1) (I_C= 200 mA , I_B=0)	$V_{CEO\ (sus)}$	90		V
Collector-Emitter Breakdown Voltage(1) (I_C= 200 mA, R_{BE}= 100 ohm)	BV_{CER}	100		V
Collector Cutoff Current (V_{CB}= 100 V , I_E= 0) (V_{CB}= 100 V , I_E= 0 ,T_C=150°C)	I_{CBO}		1.0 5.0	mA
Emitter Cutoff Current (V_{BE}= 4.0 V, I_C= 0)	I_{EBO}		1.0	mA
ON CHARACTERISTICS (1)				
DC Current Gain (I_C= 7.5 A,V_{CE}= 2.0 V)	hFE	25	100	
Collector-Emitter Saturation Voltage (I_C= 7.5 A, I_B=0.75 A)	$V_{CE(sat)}$		0.8	V
Base-Emitter Saturation Voltage (I_C= 7.5 A, I_B= 0.75 A)	$V_{BE(sat)}$		1.3	V
Base-Emitter On Voltage (I_C= 7.5 A,V_{CE}= 2.0 V)	$V_{BE(on)}$		1.3	V
DYNAMIC CHARACTERISTICS				
Current-Gain Bandwidth Product (I_C= 1.0 A,V_{CE}= 10 V,f = 1.0 MHz)	f_T	2.0		MHz

(1) Pulse Test: Pulse width = 300 μs , Duty Cycle ≦ 2.0%

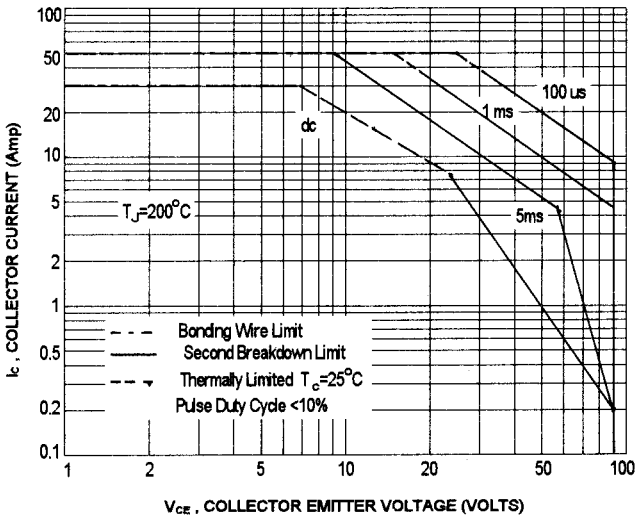
DC CURRENT GAIN



"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.