

Silicon NPN Transistor



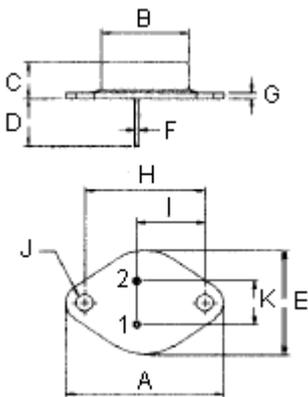
Features:

- High-power
- Continuous collector current- $I_C = 30\text{ A}$
- High DC current gain- $h_{FE} = 25\text{-}100$ at $I_C = 7.5\text{ A}$
- Excellent safe operating area : $V_{CE(sat)} = 0.8\text{ V}$ (Maximum) at $I_C = 75\text{ A}$, $I_B = 750\text{ mA}$

Applications:

For use as an output device in complementary audio amplifiers to 100 watts music power per channel

TO-3



Pin 1. Base
2. Emitter
Collector (Case)

Dimension	Millimetres	
	Minimum	Maximum
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.2	26.67
F	0.92	1.09
G	1.38	1.62
H	29.9	30.4
I	16.64	17.3
J	3.88	4.36
K	10.67	11.18

Dimensions : Millimetres

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	V
Collector current - continuous	I_C	30	A
Base current - continuous	I_B	7.5	A
Total power dissipation at $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	200 1.14	W W/ $^\circ\text{C}$
Operating and storage junction temperature range	T_J, T_{STG}	-65 to +200	$^\circ\text{C}$

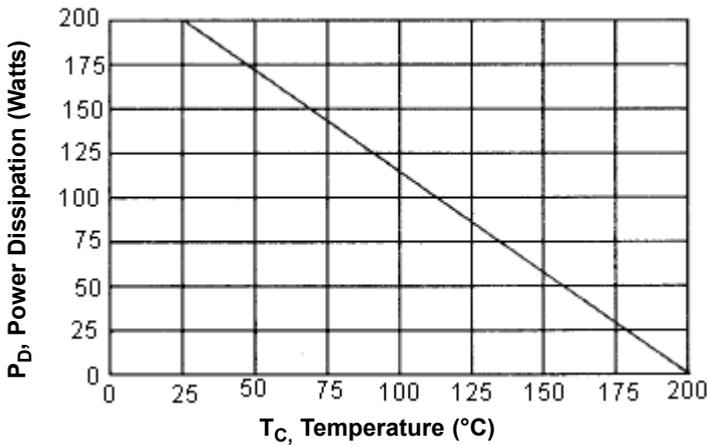
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Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal resistance junction to case	$R_{\theta jc}$	0.875	$^{\circ}C/W$

Figure-1 Power Derating



Electrical Characteristics ($T_C = 25^{\circ}C$ Unless Otherwise Noted)

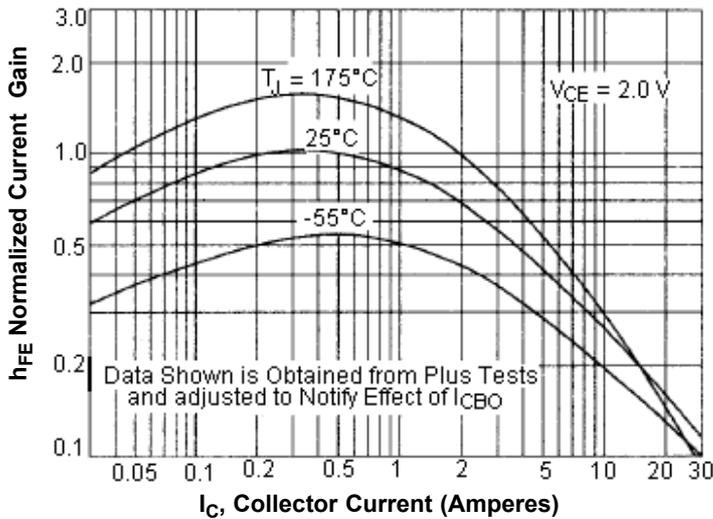
Characteristic	Symbol	Minimum	Maximum	Unit
OFF Characteristics				
Collector - emitter sustaining voltage (1) ($I_C = 200$ mA, $I_B = 0$)	$V_{CEO (SUS)}$	90	-	V
Collector - emitter breakdown voltage (1) ($I_C = 0.2$ A, $V_{BE (off)} = 1.5$ V, $R_{BE} = 100$ Ohms)	BV_{CER}	100	-	V
Collector cut off current ($V_{CB} = 100$ V, $I_E = 0$) ($V_{CB} = 100$ V, $I_E = 0$, $T_C = 150^{\circ}C$)	I_{CBO}	-	1 5	mA
Emitter cut off current ($V_{EB} = 4$ V, $I_C = 0$)	I_{EBO}	-	1	mA
ON Characteristics (1)				
DC current gain ($I_C = 7.5$ A, $V_{CE} = 2$ V)	h_{FE}	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)	$V_{CE (sat)}$	-	1.3	
Base - emitter on voltage ($I_C = 7.5$ A, $V_{CE} = 2$ V)	$V_{BE (on)}$	-	1.3	V
Dynamic Characteristics				
Current - gain bandwidth product ($I_C = 1$ A, $V_{CE} = 10$ V, $f = 1$ MHz)	f_T	2	-	MHz

(1) Pulse Test : Pulse width = 300 μ s, duty cycle $\leq 2\%$

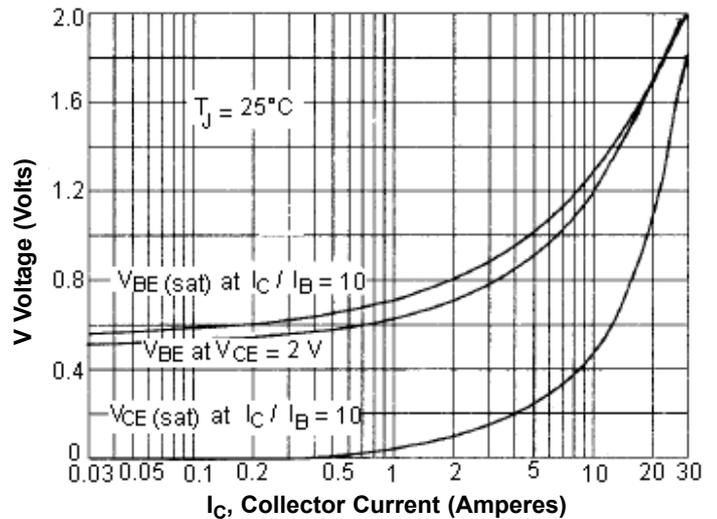
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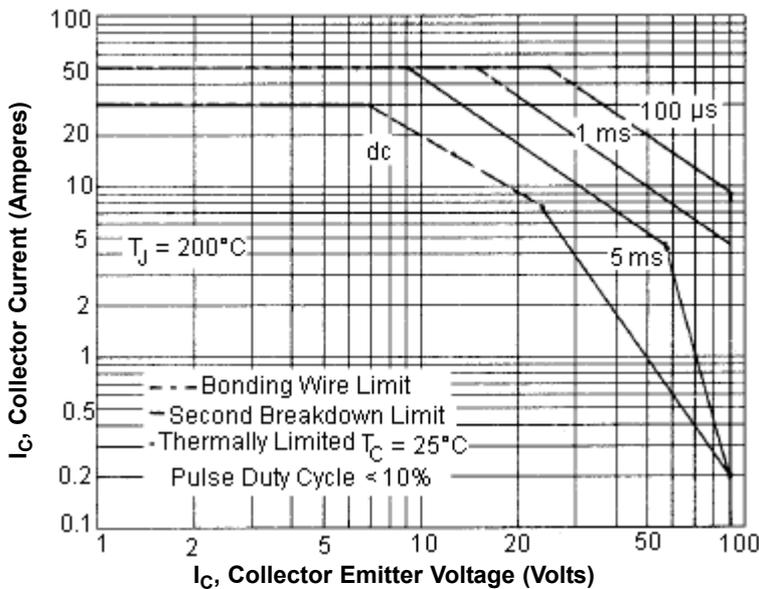
DC Current Gain



"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

Part Number Table

Description	Part Number
High-Power NPN Silicon Transistor	MJ802

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