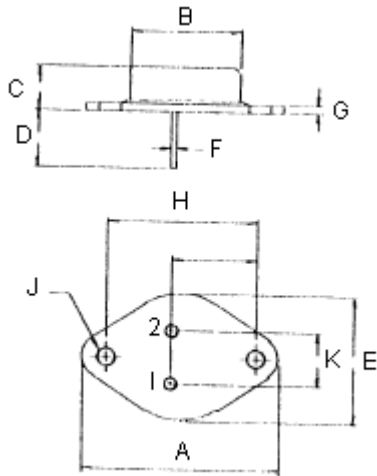


# NPN Silicon Power Transistor



**TO - 3**

Transistor is designed for use in general purpose switching and linear amplifier application requiring high breakdown voltages



## Features:

- Driver for high power outputs
- Series and shunt regulators
- Solenoid and relay drivers
- Power switching circuits

## Pinning

Pin	Description
1	Base
2	Emitter Collector (case)

Dimensions	mm	
	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	Value	Unit
Collector - base voltage	$V_{CBO}$	160	V
Collector - emitter voltage	$V_{CEO}$	125	V
Emitter - base voltage	$V_{EBO}$	7	V
Collector current - Continuous - Peak	$I_C$	25 30	A
Base current	$I_B$	5	A
Total power dissipation at $T_c = 25^\circ\text{C}$ derate above $25^\circ\text{C}$	$P_D$	150 0.857	W W/ $^\circ\text{C}$
Operating and storage Junction temperature range	$T_j, T_{stg}$	-65 to +200	$^\circ\text{C}$

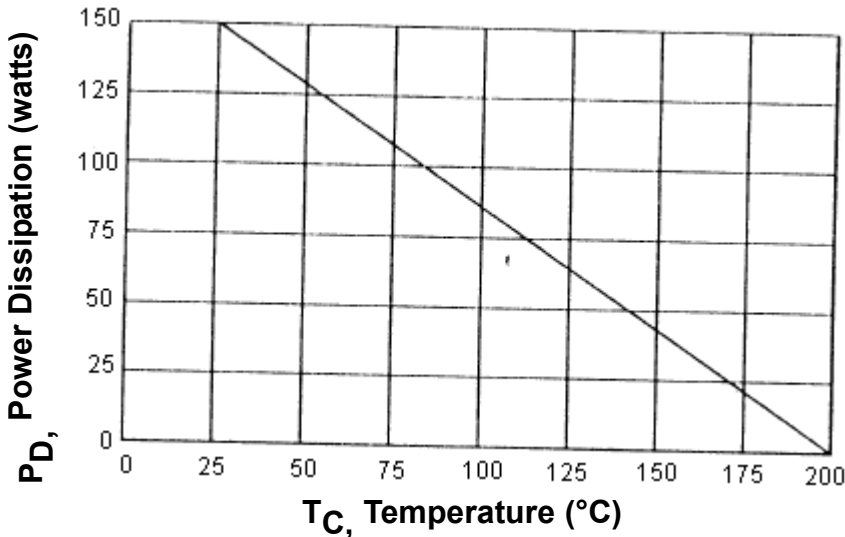
# NPN Silicon Power Transistor



## Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	$R_{\theta jc}$	1.167	$^{\circ}\text{C/W}$

Figure-1 Power Derating



## Electrical Characteristics ( $T_j = 25^{\circ}\text{C}$ Unless Otherwise noted)

Characteristic	Symbol	Minimum	Maximum	Unit
<b>Off Characteristics</b>				
Collector - emitter sustaining voltage (1) ( $I_C = 100 \text{ mA}$ , $I_B = 0$ )	$V_{CEO(SUS)}$	125	-	V
Collector cutoff current ( $V_{CE} = 100 \text{ V}$ , $I_B = 0$ )	$I_{CEO}$	-	1.5	mA
Collector cutoff current ( $V_{CE} = 160 \text{ V}$ , $V_{BE(off)} = 1.5 \text{ V}$ )	$I_{CEX}$	-	6	mA
Emitter cutoff current ( $V_{EB} = 5 \text{ V}$ , $I_C = 0$ )	$I_{EBO}$	-	1	mA
<b>On Characteristics (1)</b>				
DC current gain ( $I_C = 10 \text{ A}$ ; $V_{CE} = 2 \text{ V}$ ) ( $I_C = 20 \text{ A}$ ; $V_{CE} = 4 \text{ V}$ )	$h_{FE}$	20 10	60	
Collector - emitter saturation voltage ( $I_C = 10 \text{ A}$ ; $I_B = 1 \text{ A}$ ) ( $I_C = 20 \text{ A}$ ; $I_B = 2 \text{ A}$ )	$V_{CE(sat)}$		0.6 1.2	V
Base-emitter saturation voltage ( $I_C = 20 \text{ A}$ ; $V_{CE} = 2 \text{ A}$ )	$V_{BE(sat)}$		2	V

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## Electrical Characteristics (T<sub>j</sub> = 25°C Unless Otherwise noted)

Characteristic	Symbol	Minimum	Maximum	Unit
<b>Dynamic Characteristics</b>				
Current gain - bandwidth product (I <sub>C</sub> = 1 A, V <sub>CE</sub> = 15 V, f <sub>test</sub> = 1 MHz)	f <sub>T</sub>	8	-	MHz

(1) Pulse test: Pulse width = 300 μs, duty cycle ≤ 2%

(2)  $f_T = |h_{fe}| \cdot f_{test}$

## Part Number Table

Description	Part Number
NPN Silicon Power Transistor	BUX10

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