

BUX47

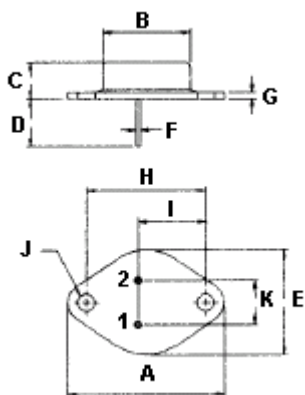
Power Transistor



NPN Silicon Power Transistors are designed for use in high-speed switching and linear amplifier applications.

Features:

- High Current Capabilities.
- Fast Turn-On and Turn Off.
- Power Dissipation $-P_D = 125W$ at $T_C = 25^\circ C$.
- DC Current Gain
 $h_{FE} = 20 - 60$ at $I_C = 6.0A$.
- $V_{CE(sat)} = 0.6V$ (Maximum) at $I_C = 6.0A, I_B = 0.6A$.



Pin 1. Base
2. Emitter
Collector (Case)

Dimensions	Minimum	Maximum
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

Dimensions : Millimetres

**NPN
BUX47**

9 Ampere
NPN Silicon
Power Transistors
450 Volts
125 Watts



TO-3

Maximum Ratings

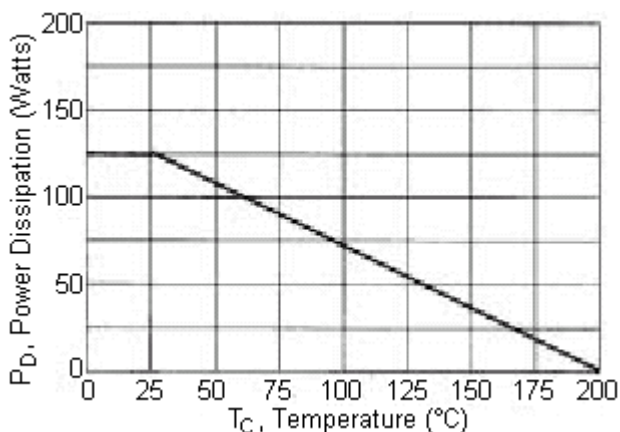
Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	400	V
Collector-Emitter Voltage $V_{BE} = -2.5V$	V_{CEX}	850	
Emitter-Base Voltage	V_{EBO}	6.0	
Collector Current-Continuous	I_C	9	A
Base Current	I_B	3.0	
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	125 0.857	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +200	$^\circ C$



Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.4	$^{\circ}\text{C/W}$

Figure - 1 Power Derating



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

Characteristic	Symbol	Minimum	Typical	Maximum	Unit
OFF Characteristics					
Collector-Emitter Sustaining Voltage (1) ($I_C = 200\text{mA}$, $I_B = 0$, $L = 25\text{mH}$)	$V_{CEO(sus)}$	400	-	-	V
Collector Cut off Current ($V_{CE} = V_{CEX}$, $R_{BE} = 10\Omega$)	I_{CER}	-	-	0.4	mA
Collector Cut off Current ($V_{CE} = V_{CEX}$, $V_{BE(off)} = -2.5\text{V}$)	I_{CEX}	-	-	0.15	
Emitter Cut off Current ($V_{EB} = 5.0\text{V}$, $I_C = 0$)	I_{EBO}	-	-	1.0	
ON Characteristics					
DC Current Gain ($I_C = 6.0\text{A}$, $V_{CE} = 2.0\text{V}$)	h_{FE}	20	-	60	-
Collector-Emitter Saturation Voltage ($I_C = 6.0\text{A}$, $I_B = 1.2\text{A}$) ($I_C = 9.0\text{A}$, $I_B = 1.8\text{A}$)	$V_{CE(sat)}$	-	-	1.5 5.0	V
Base-Emitter Saturation Voltage ($I_C = 6.0\text{A}$, $I_B = 1.2\text{A}$)	$V_{BE(sat)}$	-	-	1.6	
Dynamic Characteristics					
Current Gain-Bandwidth Product (2) ($I_C = 1.0\text{A}$, $V_{CE} = 15\text{V}$, $f = 1.0\text{MHz}$)	f_T	8.0	-	-	MHz

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Characteristics	Symbol	Minimum	Typical	Maximum	Unit	
Switching Characteristics						
On Time	$V_{CC} = 150V, I_C = 6.0A,$ $I_{B1} = -I_{B2} = 1.2A, T_P = 10\mu s$ Duty Cycle <2%	-	-	1.0	μs	
Storage Time						t_{on}
Fall Time						t_s
				0.8		

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle <2.0%.

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

Specification Table

$I_{C(av)}$ maximum (A)	V_{CEO} maximum (V)	V_{CES} maximum (V)	$V_{CE(Sat)}$ (V) at $I_C = 6A$	P_{tot} at 25°C (W)	Package	Type	Part Number
9	400	850	1.5	125	TO-3	NPN	BUX47

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