

SWITCHMODE SERIES NPN POWER TRANSISTORS

... designed for use in high-voltage, high-speed, power switching regulators, converters, inverters, motor control system application.

FEATURES:

*Collector-Emitter Sustaining Voltage-

$$V_{CE(sus)} = 400 \text{ V (Min) -BUX84}$$

$$= 450 \text{ V (Min) -BUX85}$$

* Collector-Emitter Saturation Voltage -

$$V_{CE(sat)} = 1.0 \text{ V (Max.) @ } I_C = 1.0 \text{ A, } I_B = 0.2 \text{ A}$$

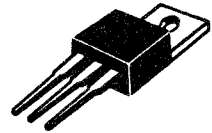
* Switching Time - $t_f = 0.6 \text{ us (Max.) @ } I_C = 1.0 \text{ A}$

NPN
BUX84
BUX85

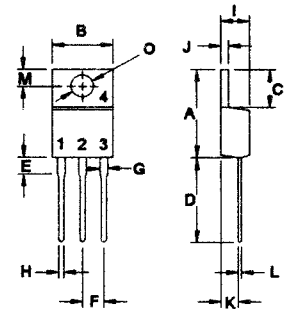
2 AMPERE
POWER
TRANSISTORS
400 - 450 VOLTS
40 WATTS

MAXIMUM RATINGS

Characteristic	Symbol	BUX84	BUX85	Unit
Collector-Emitter Voltage	V_{CEO}	400	450	V
Collector-Emitter Voltage ($V_{BE}=0$)	V_{CES}	800	1000	V
Emitter-Base Voltage	V_{EBO}	10		V
Collector Current - Continuous	I_C	2.0		A
- Peak	I_{CM}	3.0		
Base current	I_B	0.75		A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	40		W
		0.32		W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150		$^\circ\text{C}$



TO-220



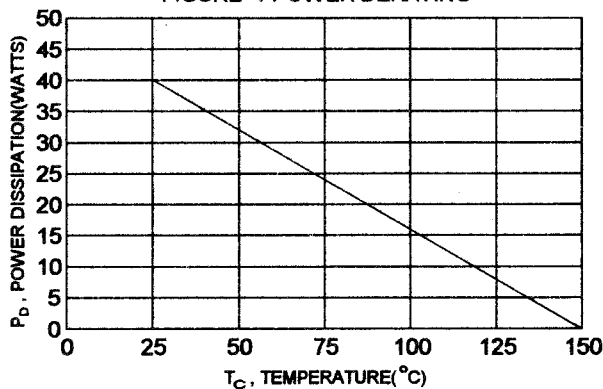
PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	3.125	$^\circ\text{C/W}$

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

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 ($I_c = 0.2\text{ A}$, $I_B = 0$, $L = 25\text{ mH}$) BUX84 BUX85	$V_{CE(sus)}$	400 450		V
Collector Cutoff Current ($V_{CE} = V_{CES}$, $V_{BE} = 0$) ($V_{CE} = V_{CES}$, $V_{BE} = 0$, $T_c = 125^\circ\text{C}$)	I_{CES}		0.2 1.5	mA
Emitter Cutoff Current ($V_{EB} = 5.0\text{ V}$, $I_c = 0$)	I_{EBO}		1.0	mA

ON CHARACTERISTICS (1)

DC Current Gain ($I_c = 100\text{ mA}$, $V_{CE} = 5.0\text{ V}$)	hFE	30(typ)		
Collector-Emitter Saturation Voltage ($I_c = 0.3\text{ A}$, $I_B = 30\text{ mA}$) ($I_c = 1.0\text{ A}$, $I_B = 0.2\text{ A}$)	$V_{CE(sat)}$		0.8 1.0	V
Base-Emitter Saturation Voltage ($I_c = 1.0\text{ A}$, $I_B = 0.2\text{ A}$)	$V_{BE(sat)}$		1.1	V

DYNAMIC CHARACTERISTICS

Current-Gain-Bandwidth Product ($I_c = 0.2\text{ A}$, $V_{CE} = 10\text{ V}$, $f = 1.0\text{ MHz}$)	f_T	20 (typ)		MHz
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SWITCHING CHARACTERISTICS

On Time	$V_{CC} = 250\text{V}$, $I_c = 1.0\text{A}$ $I_{B1} = 0.2\text{A}$, $I_{B2} = -0.4\text{A}$	t_{on}	0.5	us
Storage Time		t_s	3.5	us
Fall Time		t_f	0.6	us

(1) Pulse Test: Pulse Width = 300 us, Duty Cycle $\leq 2.0\%$