

SWITCHMODE SERIES NPN POWER TRANSISTORS

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

* Collector-Emitter Sustaining Voltage-

$V_{CEO(sus)} = 400 \text{ V (Min)}$ ---BUX48

$= 450 \text{ V (Min)}$ ---BUX48A

* Collector-Emitter Saturation Voltage-

$V_{CE(sat)} = 1.5 \text{ V (Max.) @ } I_C = 10 \text{ A}$ ---BUX48

$I_C = 8.0 \text{ A}$ ---BUX48

* Switching Time $-t_f = 0.8 \text{ us (Max.) @ } I_C = 10 \text{ A}$ ---BUX48

$I_C = 8.0 \text{ A}$ ---BUX48

**NPN
BUX48
BUX48A**

**15 AMPERES
POWER
TRANSISTOR**

**400-450 VOLTS
175 WATTS**

MAXIMUM RATINGS

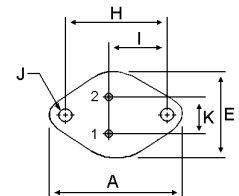
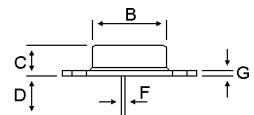
Rating	Symbol	BUX48	BUX48A	Unit
Collector-Emitter Voltage	V_{CEO}	400	450	V
Collector-Emitter Voltage ($V_{BE} = -2.5\text{V}$)	V_{CEX}	850	1000	V
Emitter-Base Voltage	V_{EB}	7.0		V
Collector Current-Continuous	I_C	15		A
Peak	I_{CM}	30		A
Base Current	I_B	4		A
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	175	1.0	Watts $\text{W}/^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +200		$^\circ\text{C}$



TO-3

THERMAL CHARACTERISTICS

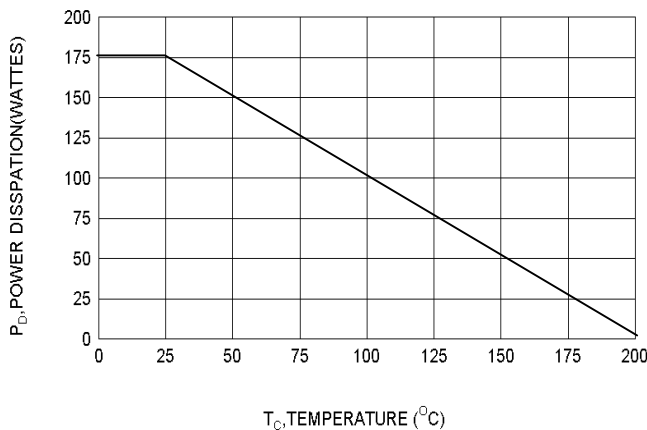
Characteristic	Symbol	Max	Unit
Thermal Resistance to Case	$R_{\theta JC}$	1.0	$^\circ\text{C}/\text{W}$



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

FIGURE -1 POWER DERATING



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

Characteristic	Symbol	Min.	Typ.	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage (I _C = 200 mAdc, I _B = 0 ,L=25 mH)	BUX48 BUX48A	V _{CEO(sus)}	400 450	-- --	-- --	V
Collector Current (V _{CE} = V _{CEX} , V _{BE(off)} = -2.5V) (V _{CE} = V _{CEX} , V _{BE(off)} = -2.5V, T _C =125)		I _{CEX}	--	--	0.2 2.0	mAdc
Collector Current (V _{CE} = V _{CEX} , R _{BE} < 10 ohm) (V _{CE} = V _{CEX} , R _{BE} < 10 ohm, T _C =125)		I _{CER}	--	--	0.5 4.0	mAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc, I _C = 0)		I _{EBO}	--	--	1.0	mAdc

ON CHARACTERISTICS(1)

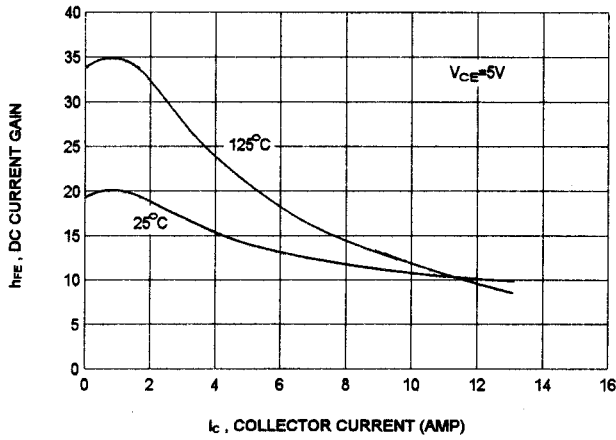
Collector-Emitter Saturation Voltage (I _C = 10 Adc, I _B = 2.0 Adc) (I _C = 8.0 Adc, I _B = 1.6 Adc) (I _C = 15 Adc, I _B = 3.0 Adc) (I _C = 12 Adc, I _B = 2.4 Adc)	BUX48 BUX48A BUX48 BUX48A	V _{CE(sat)}	-- -- -- --	-- -- -- --	1.5 1.5 5.0 5.0	Vdc
Base-Emitter Saturation Voltage (I _C = 10 Adc, I _B = 2.0 Adc) (I _C = 8.0 Adc, I _B = 1.6 Adc)	BUX48 BUX48A	V _{BE(sat)}	-- --	-- --	1.6 1.6	Vdc

SWITCHING CHARACTERISTICS

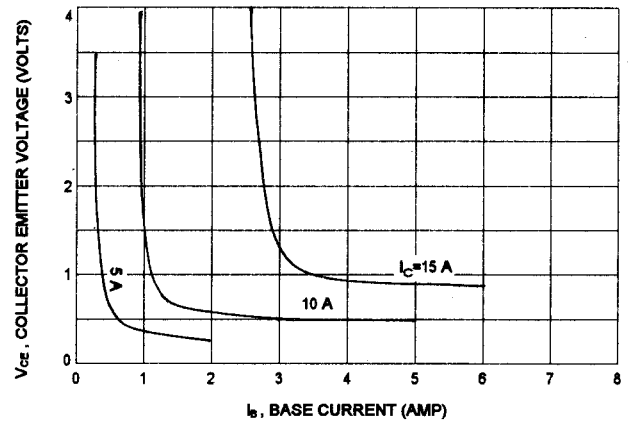
Turn on Time	I _C =10A, I _{B1} =2.0A, I _{B2} =-2.0A BUX48 V _{CC} = 150 V I _C =8A, I _{B1} =1.6A, I _{B2} =-1.6A BUX48A	T _{on}	--	--	1.0	μs
Storage Time		t _s	--	--	3.0	μs
Fall Time		t _r	--	--	0.8	μs

(1) Pulse test: Pulse Width=300 us, Duty Cycle 2.0%

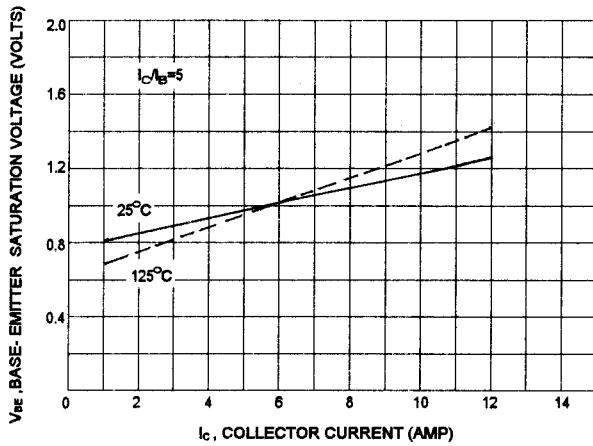
DC CURRENT GAIN



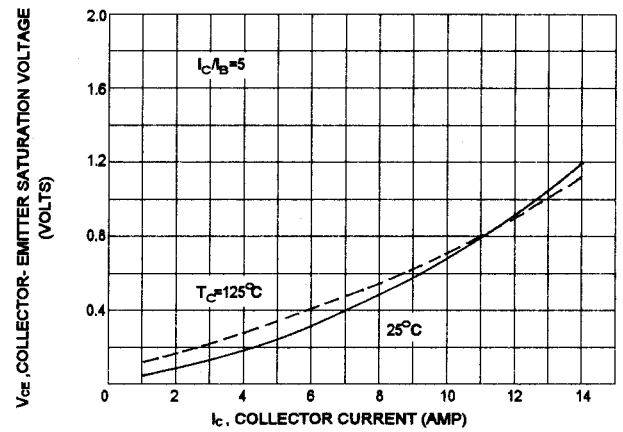
COLLECTOR SATURATION REGION



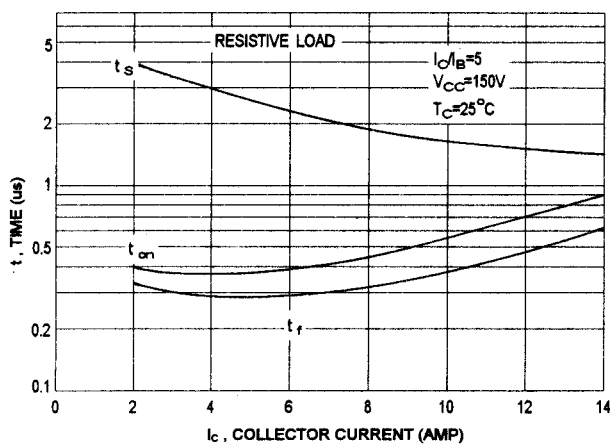
BASE-EMITTER SATURATION VOLTAGE



COLLECTOR-EMITTER SATURATION VOLTAGE



SWITCHING TIME



ACTIVE-REGION SAFE OPERATING AREA

