

## HIGH VOLTAGE POWER TRANSISTOR

... designed for use in high-voltage, high-speed, power switching in inductive circuit, motor control, solenoid and relay drivers.

### FEATURES:

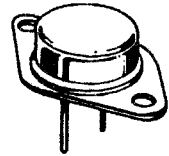
- \* Collector-Emitter Sustaining Voltage -  
 $V_{CE(sus)} = 400V$  (Min.)
- \* Low Collector-Emitter Saturation Voltage -  
 $V_{CE(sat)} = 3.0V$  (Max.) @  $I_C = 8.0 A$ ,  $I_B = 2.5 A$

**NPN  
BUX80**

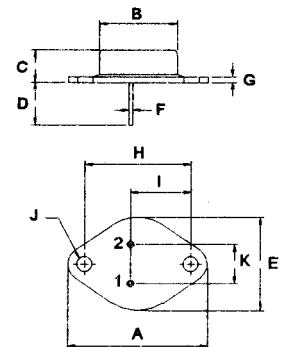
**10 AMPERE  
POWER  
TRANSISTORS  
400 VOLTS  
100 WATTS**

### MAXIMUM RATINGS

Characteristic	Symbol	BUX80	Unit
Collector-Emitter Voltage	$V_{CEO}$	400	V
Collector-Emitter Voltage ( $V_{BE}=0$ )	$V_{CES}$	800	V
Emitter-Base Voltage	$V_{EBO}$	10	V
Collector Current - Continuous - Peak	$I_C$	10 15	A
Base Current - Continuous	$I_B$	5.0	A
Total Power Dissipation @ $T_C=25^\circ C$ Derate above $25^\circ C$	$P_D$	100 0.8	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	- 65 to +150	$^\circ C$



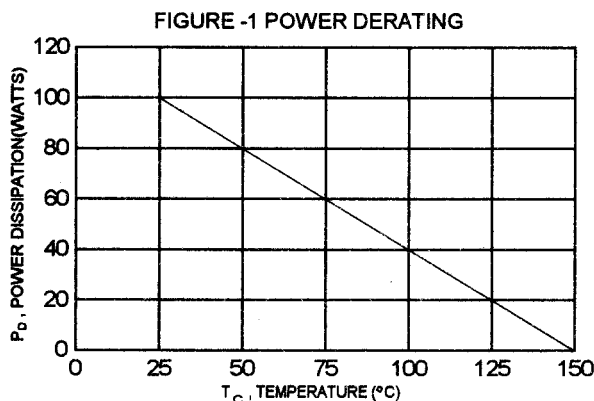
**TO-3**



PIN 1. BASE  
2. EMITTER  
COLLECTOR(CASE)

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.25	$^\circ C/W$



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

**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 (1) ( $I_C = 100\text{ mA}$ , $I_B = 0$ , $L = 25\text{ mH}$ )	$V_{CEO(SUS)}$	400		V
Collector Cutoff Current ( $V_{CE} = 800\text{ V}$ , $V_{BE} = 0$ ) ( $V_{CE} = 800\text{ V}$ , $V_{BE} = 0$ , $T_C = 125^\circ\text{C}$ )	$I_{CES}$		1.0 3.0	mA
Emitter Cutoff Current ( $V_{EB} = 10\text{ V}$ , $I_C = 0$ )	$I_{EBO}$		10	mA

**ON CHARACTERISTICS (1)**

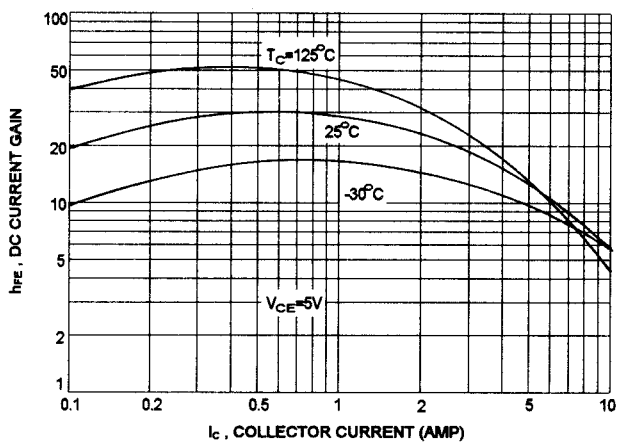
DC Current Gain ( $I_C = 1.2\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )	hFE	30(typ)		
Collector - Emitter Saturation Voltage ( $I_C = 5.0\text{ A}$ , $I_B = 1.0\text{ A}$ ) ( $I_C = 8.0\text{ A}$ , $I_B = 2.5\text{ A}$ )	$V_{CE(sat)}$		1.5 3.0	V
Base - Emitter Saturation Voltage ( $I_C = 5.0\text{ A}$ , $I_B = 1.0\text{ A}$ ) ( $I_C = 8.0\text{ A}$ , $I_B = 2.5\text{ A}$ )	$V_{BE(sat)}$		1.4 1.8	V

**SWITCHING CHARACTERISTICS**

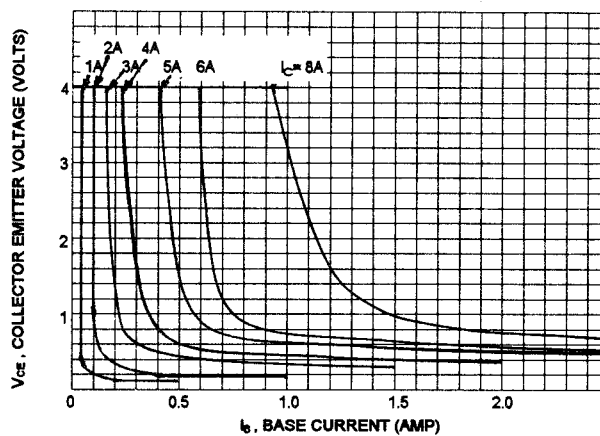
Turn On Time	$V_{CC} = 250\text{V}$ , $I_C = 5.0\text{A}$ $I_{B1} = 1.0\text{A}$ , $I_{B2} = -2.0\text{A}$	$t_{on}$		0.5	us
Storage Time		$t_s$		3.5	us
Fall Time		$t_f$		0.5	us

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

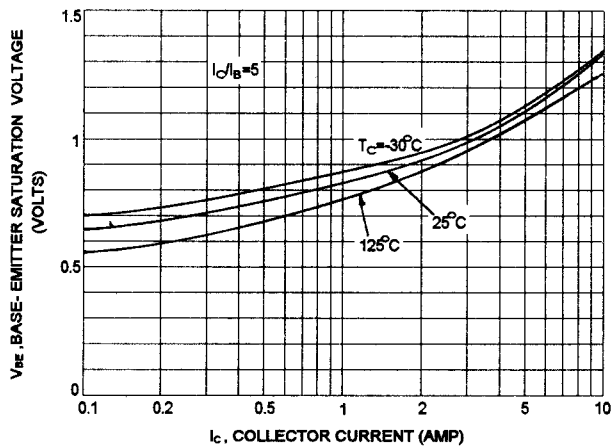
DC CURRENT GAIN



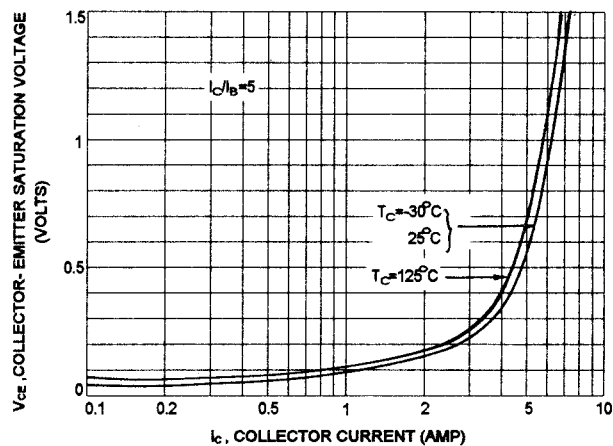
COLLECTOR SATURATION REGION



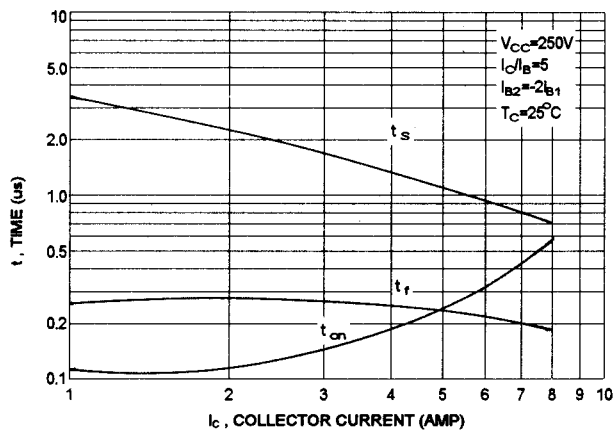
BASE-EMITTER SATURATION VOLTAGE



COLLECTOR-EMITTER SATURATION VOLTAGE



SWITCHING TIME



SAFE OPERATING AREA

