BUX85

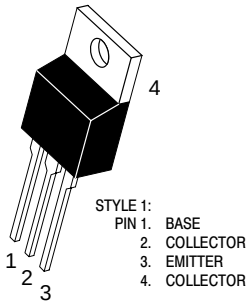
SWITCHMODE™ NPN Silicon Power Transistors

2 AMPERES
POWER TRANSISTOR
NPN SILICON
450 VOLTS
50 WATTS

The BUX85 is designed for high voltage, high speed power switching applications like converters, inverters, switching regulators, motor control systems.

Specifications Features:

- $V_{CEO(sus)}$ 450 V
- $V_{CES(sus)}$ 1000 V
- Fall time = 0.3 μs (typ) at I_C = 1.0 A
- $V_{CE(sat)}$ = 1.0 V (max) at I_C = 1.0 A, I_B = 0.2 A



CASE 221A–09
TO–220AB

MAXIMUM RATINGS

Rating	Symbol	BUX84	BUX85	Unit
Collector–Emitter Voltage	$V_{CEO(sus)}$	400	450	Vdc
Collector–Emitter Voltage	V_{CES}	800	1000	Vdc
Emitter Base Voltage	V_{EBO}	5		Vdc
Collector Current — Continuous — Peak (1)	 I_C I_{CM}	 2 3.0		Adc
Base Current — Continuous — Peak (1)	 I_B I_{BM}	 0.75 1.0		Adc
Reverse Base Current — Peak	I_{BM}	1		Adc
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	50 400		Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–65 to +150		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.5	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Maximum Lead Temperature for Soldering Purpose: 1/8″ from Case for 5 Seconds	T_L	275	°C

(1) Pulse Test: Pulse Width = 5 ms, Duty Cycle ≦10%.

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS (1)					
Collector–Emitter Sustaining Voltage (I_C = 100 mAdc, (L = 25 mH) See fig. 1	$V_{CEO(sus)}$	450	—	—	Vdc
Collector Cutoff Current (V_{CES} = Rated Value) (V_{CES} = Rated Value, T_C = 125°C)	I_{CES}	 — —	 — —	 0.2 1.5	mAdc
Emitter Cutoff Current (V_{EB} = 5 Vdc, I_C = 0)	I_{EBO}	—	—	1	mAdc
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 0.1 Adc, V_{CE} = 5 V)	h_{FE}	30	50	—	—
Collector–Emitter Saturation Voltage (I_C = 0.3 Adc, I_B = 30 mAdc) (I_C = 1 Adc, I_B = 200 mAdc)	$V_{CE(sat)}$	 — —	 — —	 0.8 1	Vdc
Base–Emitter Saturation Voltage (I_C = 1 Adc, I_B = 0.2 Adc)	$V_{BE(sat)}$	—	—	1.1	Vdc
DYNAMIC CHARACTERISTICS					
Current–Gain — Bandwidth Product (I_C = 500 mAdc, V_{CE} = 1 0 Vdc, f = 1 MHz)	f_T	4	—	—	MHz
SWITCHING CHARACTERISTICS					
Turn–on Time	V_{CC} = 250 Vdc, I_C = 1 A I_{B1} = 0.2 A, I_{B2} = 0.4 A See fig. 2	t_{on}	—	0.3	0.5	μs
Storage Time		t_s	—	2	3.5	μs
Fall Time		t_f	—	0.3	—	μs
Fall Time	Same above cond. at T_C = 95°C	t_f	—	—	1.4	μs

(1) Pulse Test: PW = 300 μs, Duty Cycle ≦2%.

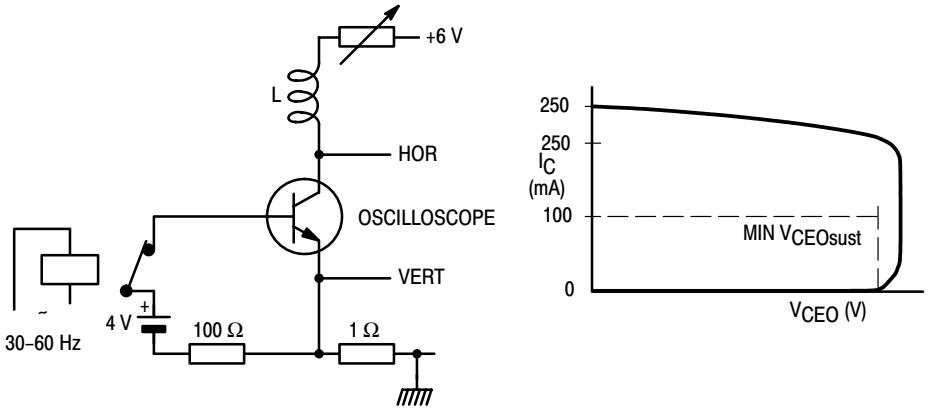
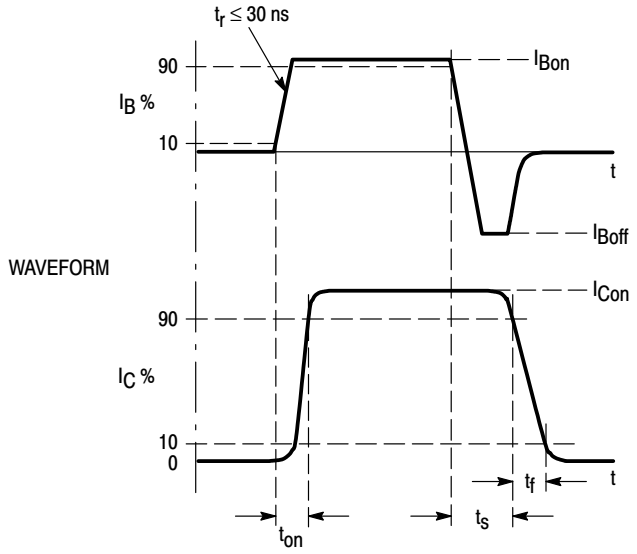


Figure 1. Test Circuit for $V_{CEOsust}$



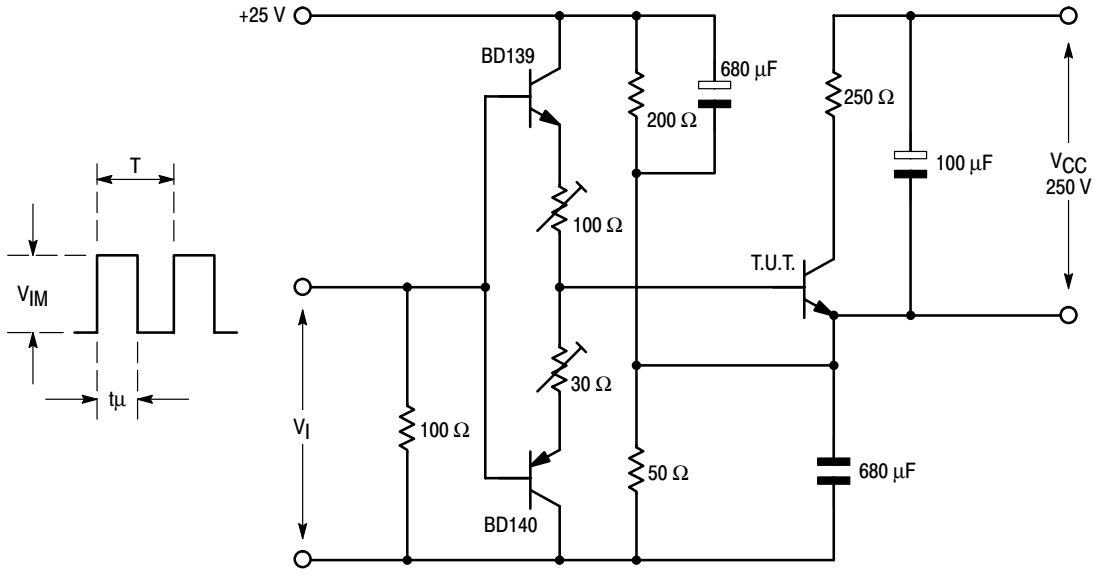
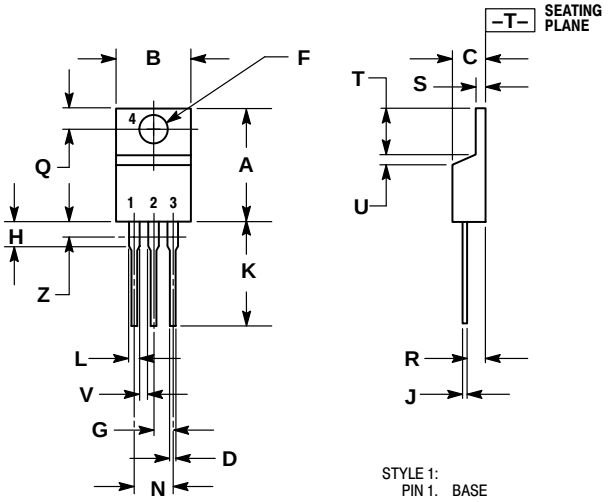


Figure 2. Switching Times/Test Circuit

BUX85

PACKAGE DIMENSIONS

TO–220AB
CASE 221A–09
ISSUE AA



STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

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