BUX85G

SWITCHMODE™ NPN Silicon Power Transistors

The BUX85G is designed for high voltage, high speed power switching applications like converters, inverters, switching regulators, motor control systems.

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
- These Devices are Pb−Free and are RoHS Compliant*

MAXIMUM RATINGS

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

THERMAL CHARACTERISTICS

Characteristics	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 Purposes 1/8″ from Case for 5 Seconds	T_L	275	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

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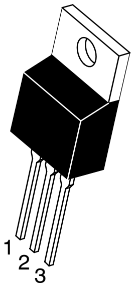
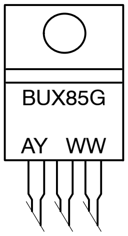
2.0 AMPERES
POWER TRANSISTOR
NPN SILICON
450 VOLTS, 50 WATTS



TO−220AB
CASE 221A−09
STYLE 1

MARKING DIAGRAM



BUX85 = Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping
BUX85G	TO−220 (Pb−Free)	50 Units / Rail

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*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS (Note 2)					
Collector–Emitter Sustaining Voltage (I_C = 100 mAdc, (L = 25 mH) See Figure 1	$V_{CEO(sus)}$	450	–	–	Vdc
Collector Cutoff Current	I_{CES}				mAdc
(V_{CES} = Rated Value)		–	–	0.2	
(V_{CES} = Rated Value, T_C = 125°C)		–	–	1.5	
Emitter Cutoff Current (V_{EB} = 5 Vdc, I_C = 0)	I_{EBO}	–	–	1	mAdc
ON CHARACTERISTICS (Note 2)					
DC Current Gain (I_C = 0.1 Adc, V_{CE} = 5 V)	h_{FE}	30	50	–	–
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$				Vdc
(I_C = 0.3 Adc, I_B = 30 mAdc)		–	–	0.8	
(I_C = 1 Adc, I_B = 200 mAdc)		–	–	1	
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 Figure 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

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

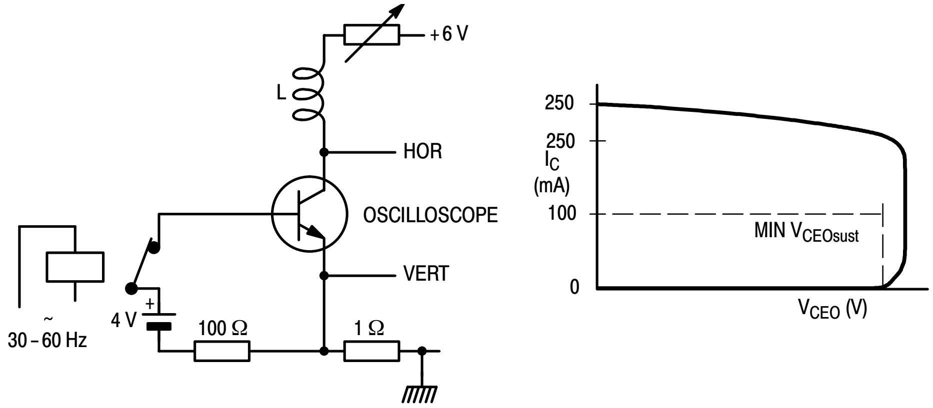


Figure 1. Test Circuit for $V_{CEOsust}$

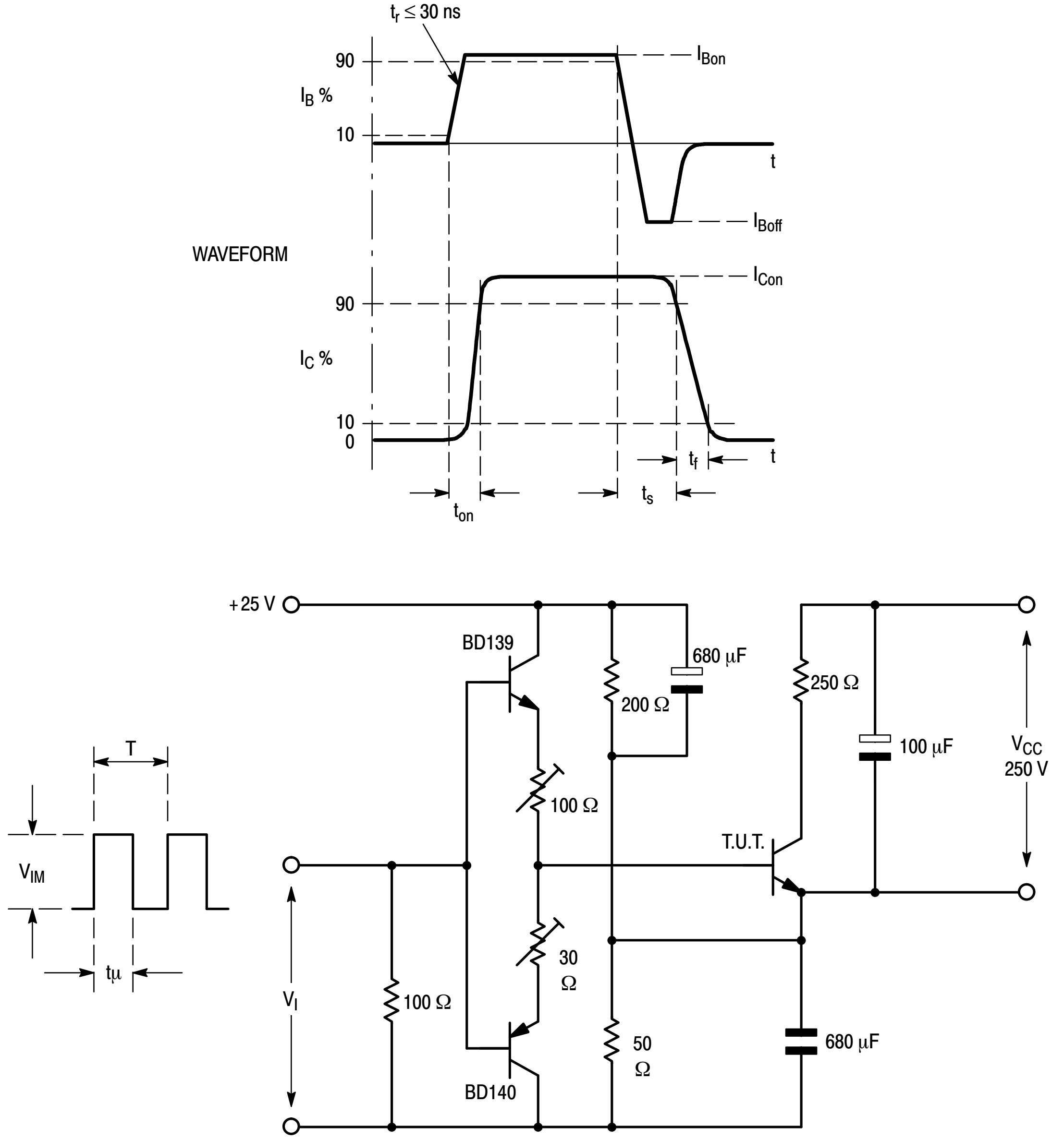
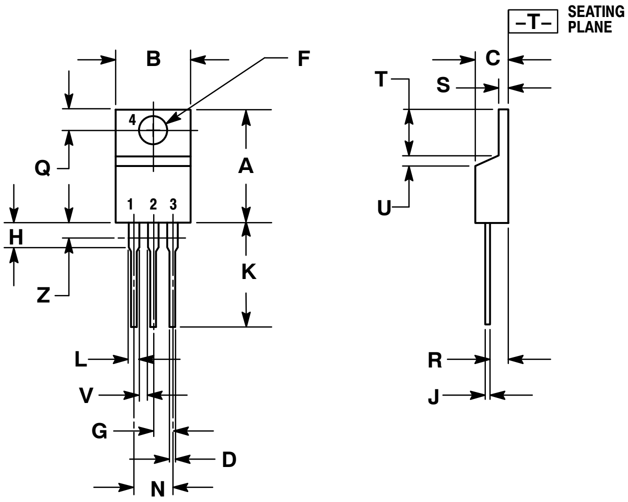


Figure 2. Switching Times/Test Circuit

PACKAGE DIMENSIONS

TO−220AB

CASE 221A−09
ISSUE AF



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	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.025	0.36	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

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

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