

High voltage NPN power transistor

Features

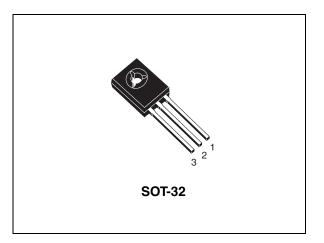
- High voltage capability (450 V V_{CEO})
- Minimum lot-to-lot spread for reliable operation
- High DC current gain

Applications

 Flyback and forward single transistor low power converters

Description

The BUX87 is manufactured using high voltage multi-epitaxial planar technology for high switching speeds and high voltage withstand capability.





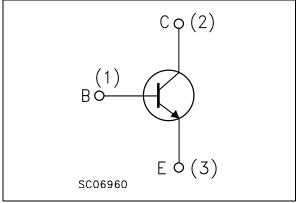


Table 1. Device summary

Order code	Marking	Package	Packaging
BUX87	BUX87	SOT-32	Tube

1 Electrical ratings

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Symbol	Parameter	Value	Unit	
V _{CES}	Collector-emitter voltage ($V_{BE} = 0$)	1000	V	
V _{CEO}	Collector-emitter voltage $(I_B = 0)$	450	V	
V _{EBO}	Emitter-base voltage ($I_C = 0$)	5	V	
۱ _C	Collector current	0.5	Α	
I _{CM}	Collector peak current ($t_p \le 5ms$)	1	А	
Ι _Β	Base current	0.3	А	
I _{BM}	Base peak current ($t_p \le 5ms$)	0.6	А	
P _{TOT}	Total power dissipation at $T_c = 25 \text{ °C}$	40	W	
T _{stg}	Storage temperature	-65 to 150	0°	
TJ	Max. operating junction temperature	150	J	

Table 3. Thermal data

Symbol	Parameter	Value	Unit
R _{thj-case}	Thermal resistance junction-case max.	3.1	°C/W



2 Electrical characteristics

 $T_{case} = 25 \ ^{\circ}C$; unless otherwise specified.

Table 4.	Electrical characteristi	65				
Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
I _{CES}	Collector cut-off current (V _{BE} = 0)	V _{CE} = 1000 V V _{CE} = 1000 V T _C = 125 °C			100 1	μA mA
I _{EBO}	Emitter cut-off current (I _C = 0)	V _{EB} = 5 V			1	mA
V _{CEO(sus)} ⁽¹⁾	Collector-emitter sustaining voltage (I _B = 0)	I _C = 10 mA	450			V
V _{EBO}	Emitter-base voltage (I _C = 0)	l _E = 10 mA	5			v
V _{CE(sat)} ⁽¹⁾	Collector-emitter saturation voltage	$ I_{C} = 0.1 \text{ A} \qquad I_{B} = 10 \text{ mA} \\ I_{C} = 0.2 \text{ A} \qquad I_{B} = 20 \text{ mA} $			0.8 1	V V
V _{BE(sat)} ⁽¹⁾	Base-emitter saturation voltage	I _C = 0.2 A I _B = 20 mA			1	v
h _{FE} ⁽¹⁾	DC current gain	$ I_{C} = 50 \text{ mA} \qquad V_{CE} = 5 \text{ V} \\ I_{C} = 40 \text{ mA} \qquad V_{CE} = 5 \text{ V} $	12	50		
f _T	Transition frequency	$I_{C} = 50 \text{ mA}$ $V_{CE} = 10 \text{ V}$ f = 1MHz		20		MHz
	Resistive load	$V_{CC} = 250 \text{ V}$ $I_{C} = 200 \text{ mA}$				
t _s	Storage time	$I_{B(on)} = 40 \text{ mA } I_{B(off)} = -80 \text{ mA}$			4.5	μs
t _f	Fall time	$t_P = 20 \ \mu s$			0.5	μs

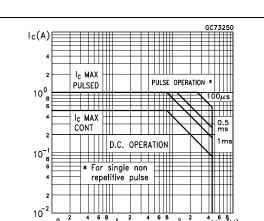
 Table 4.
 Electrical characteristics

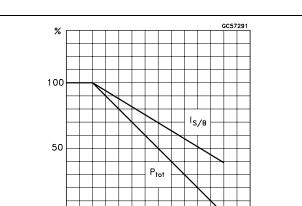
1. Pulsed duration = 300 $\mu s,$ duty cycle $\leq 1.5\%$



2.1 Electrical characteristics (curves)

Figure 2. Safe operating area





100

T_C (℃)

Derating curve

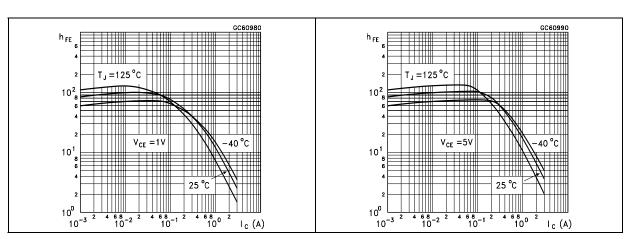
50

DC current gain



10⁰

⁴ ⁶ ⁸ 10¹



⁴V_{CE}⁶(V)

810²

Figure 3.

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Figure 5.

Figure 6. Collector-emitter saturation voltage Figure 7. Base-emitter saturation voltage

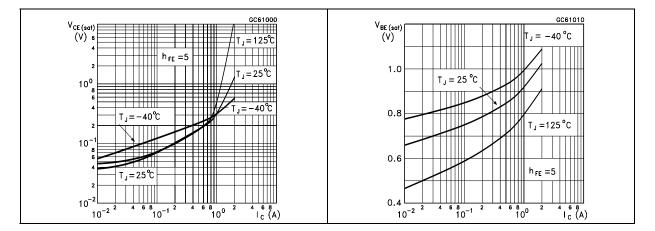
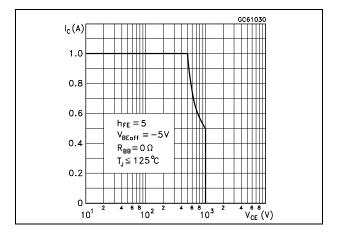




Figure 8. Reverse biased SOA





3 Package mechanical data

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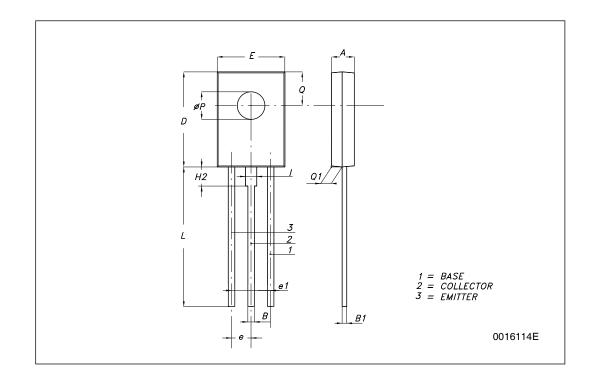


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SOT-32 (TO-126) MECHANICAL DATA				
DIM		mm.		
DIM.	MIN.	ТҮР	MAX.	
A	2.4		2.9	
В	0.64		0.88	
B1	0.39		0.63	
D	10.5		11.05	
E	7.4		7.8	
е	2.04	2.29	2.54	
e1	4.07	4.58	5.08	
L	15.3		16	
Р	2.9		3.2	
Q		3.8		
Q1	1		1.52	
H2		2.15		
1		1.27		





4 Revision history

Table 5.Document revision history

Date	Revision	Changes
21-Jun-2004	4	Document migration, no content change.
30-Apr-2009	5	Modified: Section 3 on page 6.



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