BUX98A

High power NPN transistor

Features

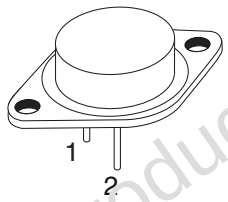
- High voltage capability
- High current capability
- Fast switching speed

Applications

- High frequency and efficency converters
- Linear and switching industrial equipment

Description

The BUX98A is a multi-epitaxial mesa NPN transistor in TO-3 metal case, intended for industrial applications from single and three-phase mains operation.



TO-3
Type R

Figure 1. Internal schematic diagram

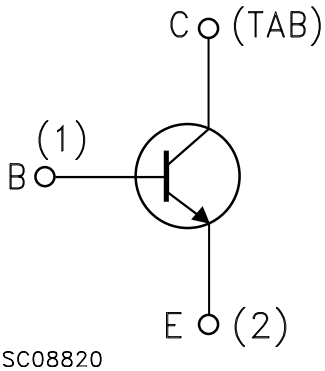


Table 1. Device summary

Order codes	Marking	Package	Packaging
BUX98A	BUX98A	TO-3	Tray

Obsolete Product(s) - Obsolete Product(s)

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Obsolete Product(s) - Obsolete Product(s)

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CER}	Collector-emitter voltage ($R_{BE} \leq 10\ \Omega$)	1000	V
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 ($I_C = 0$)	7	V
I_C	Collector current	30	A
I_{CM}	Collector peak current ($t_p \leq 5$ms)	60	A
I_{CP}	Collector peak current non repetitive ($t_p \leq 20\ \mu$s)	80	A
I_B	Base current	8	A
I_{BM}	Base peak current ($t_p \leq 5$ms)	30	A
P_{TOT}	Total power dissipation at $T_c = 25$ °C	250	W
T_{stg}	Storage temperature	-65 to 200	°C
T_J	Max. operating junction temperature	200	

Table 3. Thermal data

Symbol	Parameter	Value	Unit
$R_{thj\text{-}case}$	Thermal resistance junction-case max.	0.7	°C/W

Obsolete Product(s) - Obsolete Product(s)

2 Electrical characteristics

(T_{case} = 25 °C; unless otherwise specified)

Table 4. Electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cut-off current (V_{BE} = 0)	V_{CE} = 1000 V V_{CE} = 1000 V T_C = 125 °C			400 4	µA mA
I_{CER}	Collector cut-off current (R_{BE} = 10 Ω)	V_{CE} = 1000 V V_{CE} = 1000 V T_C = 125 °C			1 8	µA µA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 1000 V			2	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(sus)}$ (1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = 200 mA	450			V
$V_{CER(sus)}$ (1)	Collector-emitter sustaining voltage (R_{BE} = 10 Ω)	I_C = 1 A L= 2 mH	1000			V
$V_{CE(sat)}$ (1)	Collector-emitter saturation voltage	I_C = 16 A I_B = 3.2 A I_C = 24 A I_B = 5 A			1.5 5	V V
$V_{BE(sat)}$ (1)	Base-emitter saturation voltage	I_C = 16 A I_B = 3.2 A			1.6	V
t_{on} t_s t_f	Resistive load Turn-on time Storage time Fall time	I_C = 16 A V_{CC} = 150 V $I_{B(on)}$ = -$I_{B(off)}$ = 3.2 A			1 3 0.8	µs µs µs

1. Pulsed duration = 300 µs, duty cycle ≤1.5%

Obsolete Product(s) - Obsolete Product(s)

2.1 Electrical characteristics (curves)

Figure 2. Safe operating area

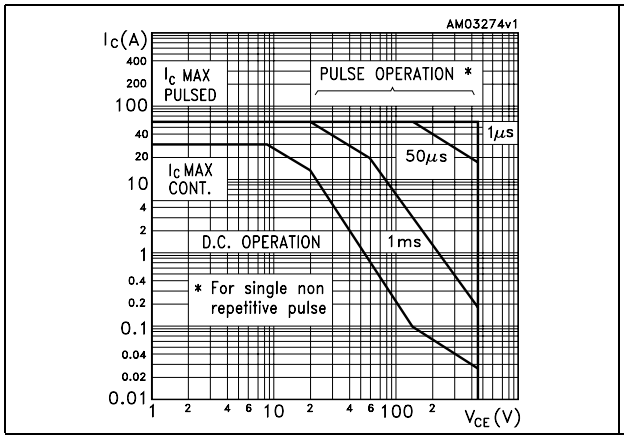


Figure 3. Derating curve

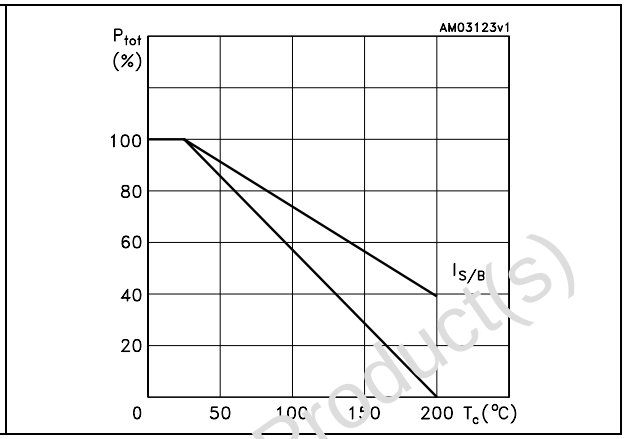


Figure 4. DC current gain

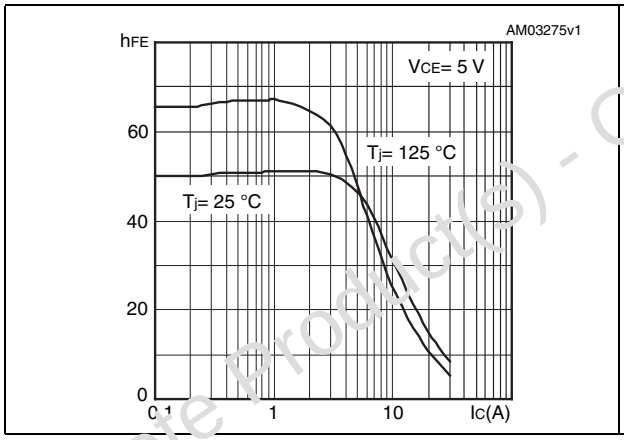


Figure 5. Collector-emitter saturation voltage

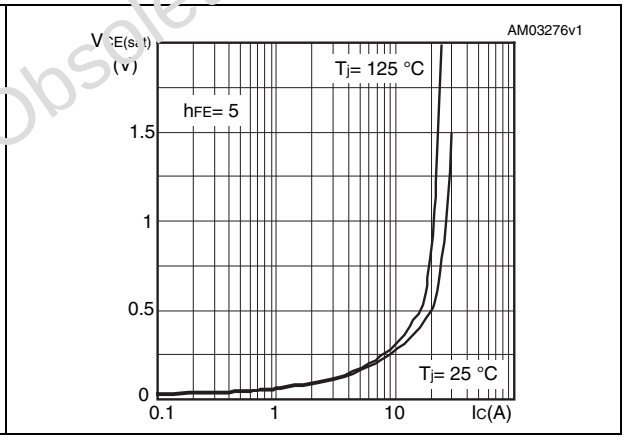


Figure 6. Base-emitter saturation voltage

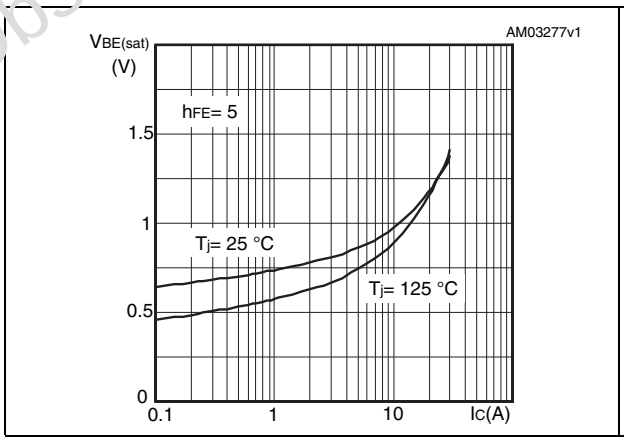
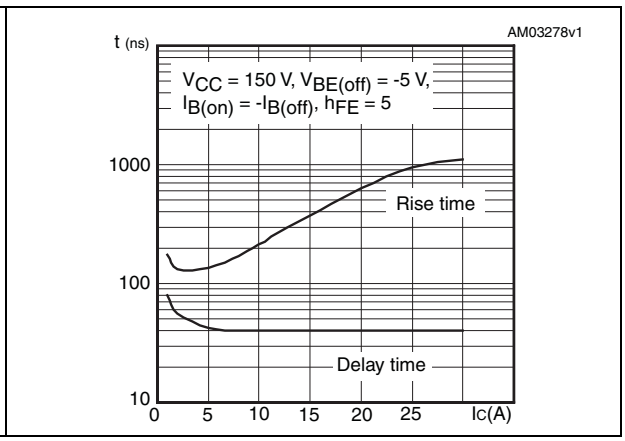


Figure 7. Resistive load switching times (on)



Obsolete Product(s) - Obsolete Product(s)

Figure 8. Resistive load switching times (off)

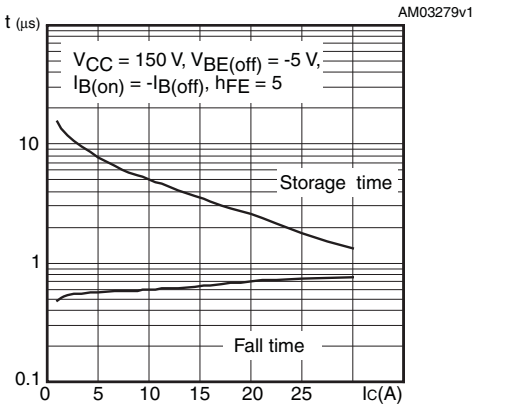
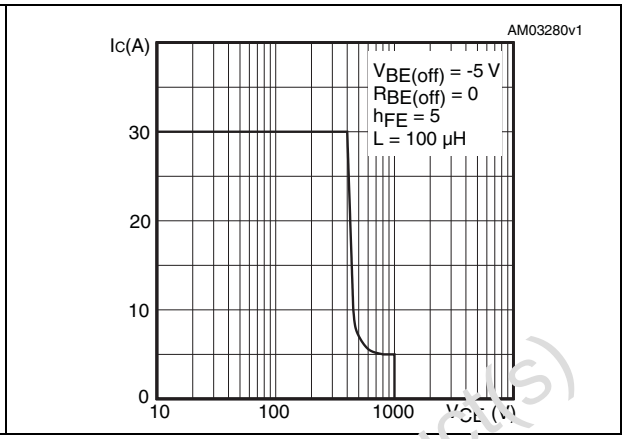


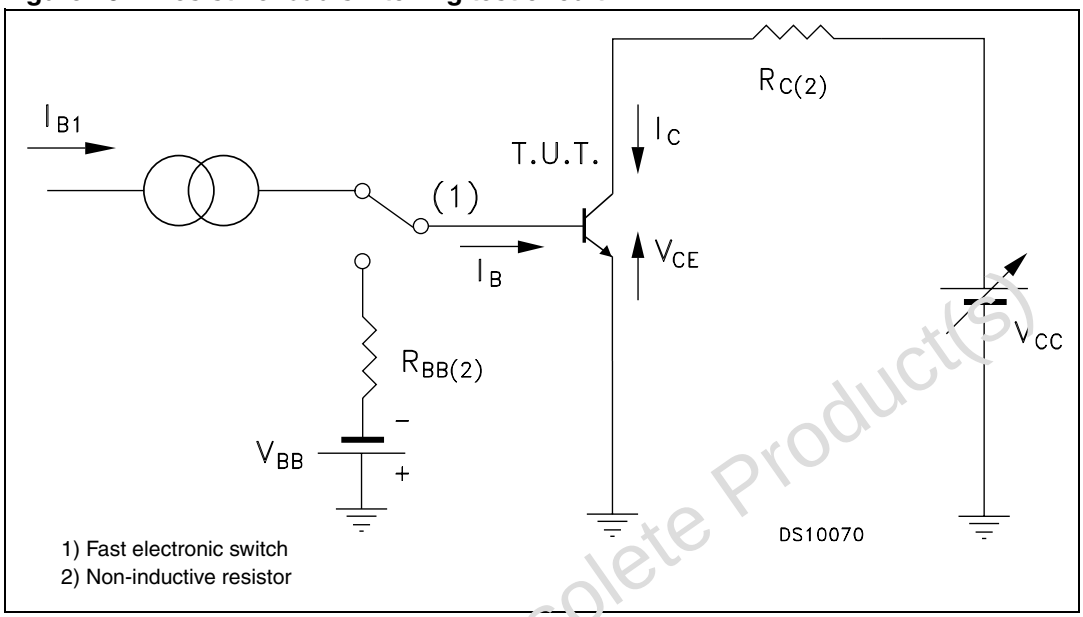
Figure 9. Reverse biased SOA



Obsolete Product(s) - Obsolete Product(s)

3 Test circuits

Figure 10. Resistive load switching test circuit



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4 Package mechanical data

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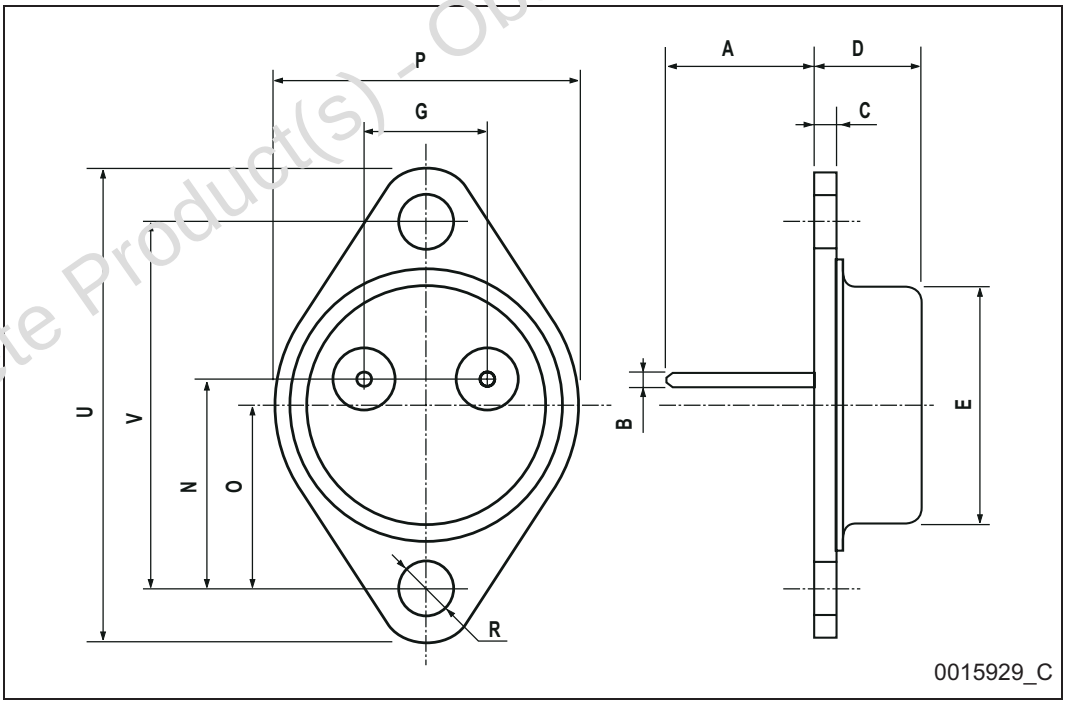
TO-3 type R Mechanical data

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		11.7			0.460	
B	0.96		1.10	0.037		0.043
C			1.70			0.066
D			8.7			0.342
E			20.0			0.787
G		10.9			0.429	
N		16.9			0.665	
P			26.2			1.031
R	3.88		4.09	0.152		0.161
U			39.50			1.555
V		30.10			1.185	



Obsolete Product(s) - Obsolete Product(s)

5 Revision history

Table 5. Document revision history

Date	Revision	Changes
21-Jun-2004	4	
24-Nov-2008	5	Inserted new *Section 2.1: Electrical characteristics (curves)*

Obsolete Product(s) - Obsolete Product(s)

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