

HIGH VOLTAGE SILICON POWER TRANSISTOR

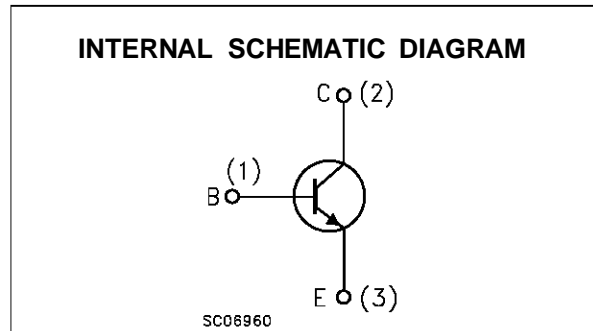
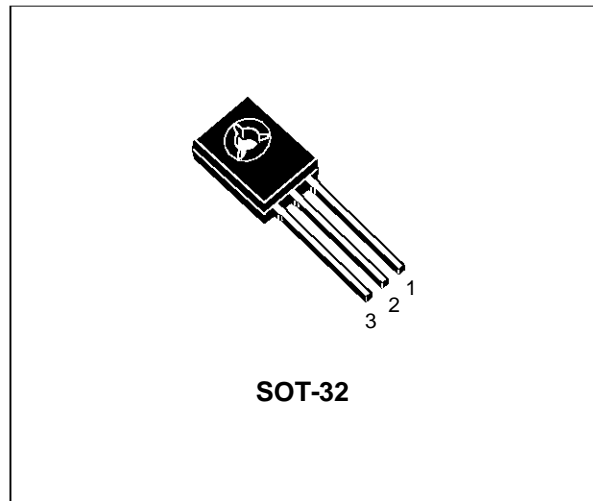
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY (450V V_{CE0})
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- HIGH DC CURRENT GAIN

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.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = -1.5V$)	1000	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	450	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	0.5	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	1	A
I_B	Base Current	0.3	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	0.6	A
P_{tot}	Total Dissipation at $T_c = 25$ °C	40	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

BUX87

THERMAL DATA

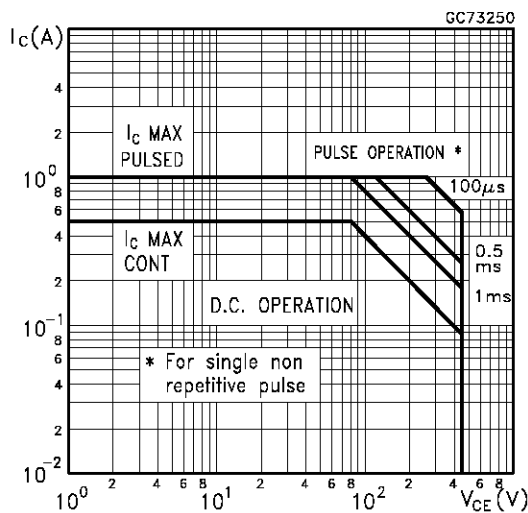
$R_{thj-case}$	Thermal Resistance Junction-case	Max	3.12	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	100	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

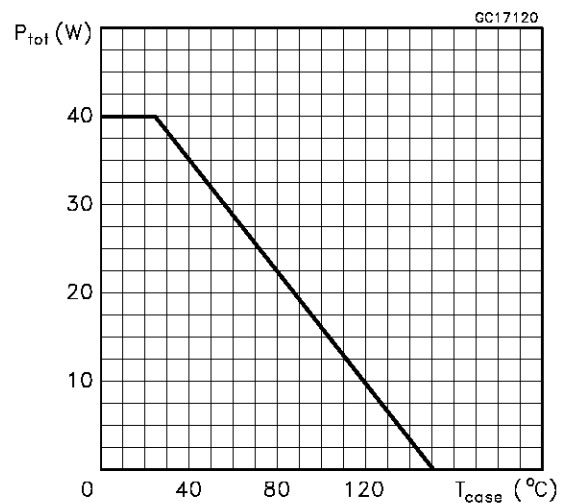
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5V$)	$V_{CE} = 1000 V$ $V_{CE} = 1000 V \quad T_j = 125^{\circ}C$			100 1	μA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 100 mA$	450			V
V_{BEO}	Collector-Base Sustaining Voltage	$I_C = 10 mA$	5			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 0.1 A \quad I_B = 0.01 A$ $I_C = 0.2 A \quad I_B = 0.02 A$			0.8 1	V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 0.2 A \quad I_B = 0.02 A$			1	V
h_{FE*}	DC Current Gain	$I_C = 50 mA \quad V_{CE} = 5 V$ $I_C = 40 mA \quad V_{CE} = 5 V$	12	50		
f_T	Transition Frequency	$I_C = 50 mA \quad V_{CE} = 10 V \quad f=1MHz$		20		MHz
t_s t_f	RESISTIVE LOAD Storage Time Fall Time	$V_{CC} = 250 V \quad I_C = 200 mA$ $I_{B1} = 40 mA \quad I_{B2} = -80 mA$ $t_p = 20 \mu s$		4.5 0.5		μs μs

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

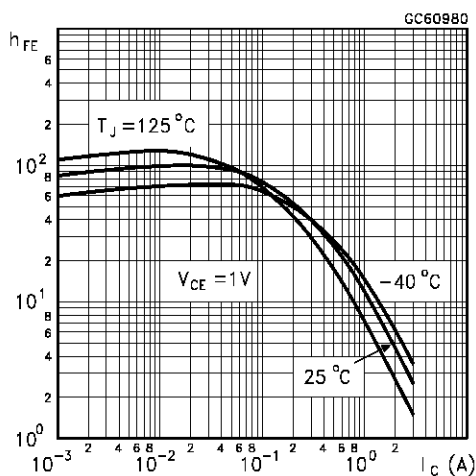
Safe Operating Area



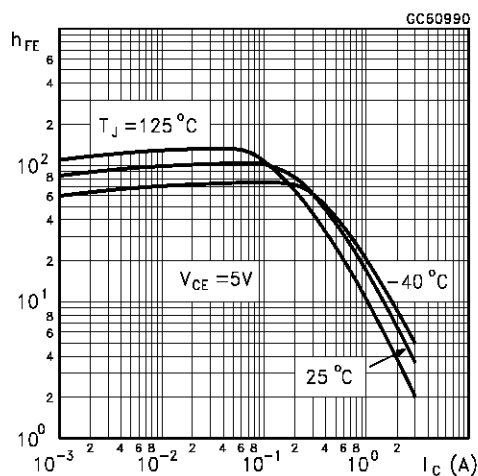
Derating Curves



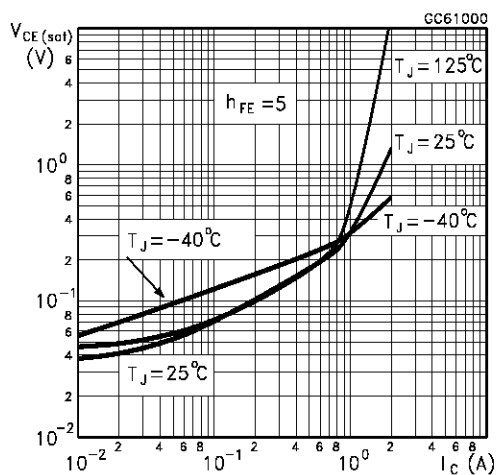
DC Current Gain



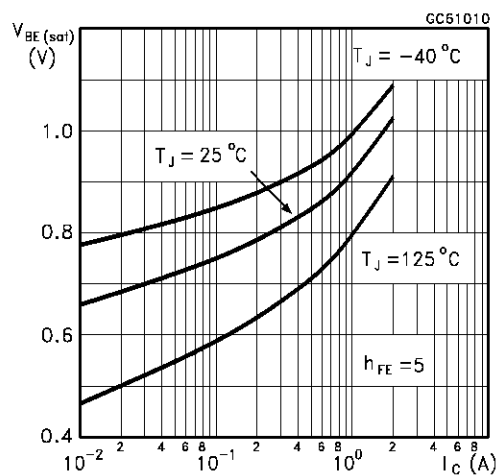
DC Current Gain



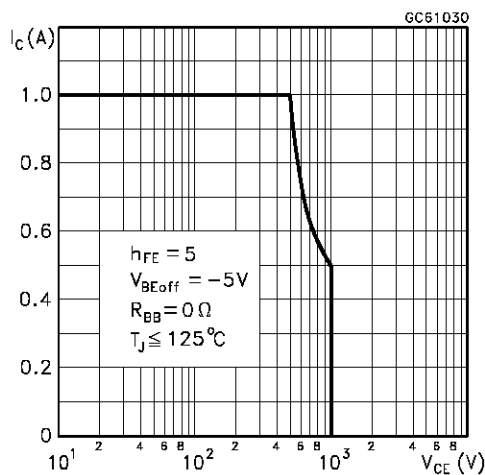
Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage

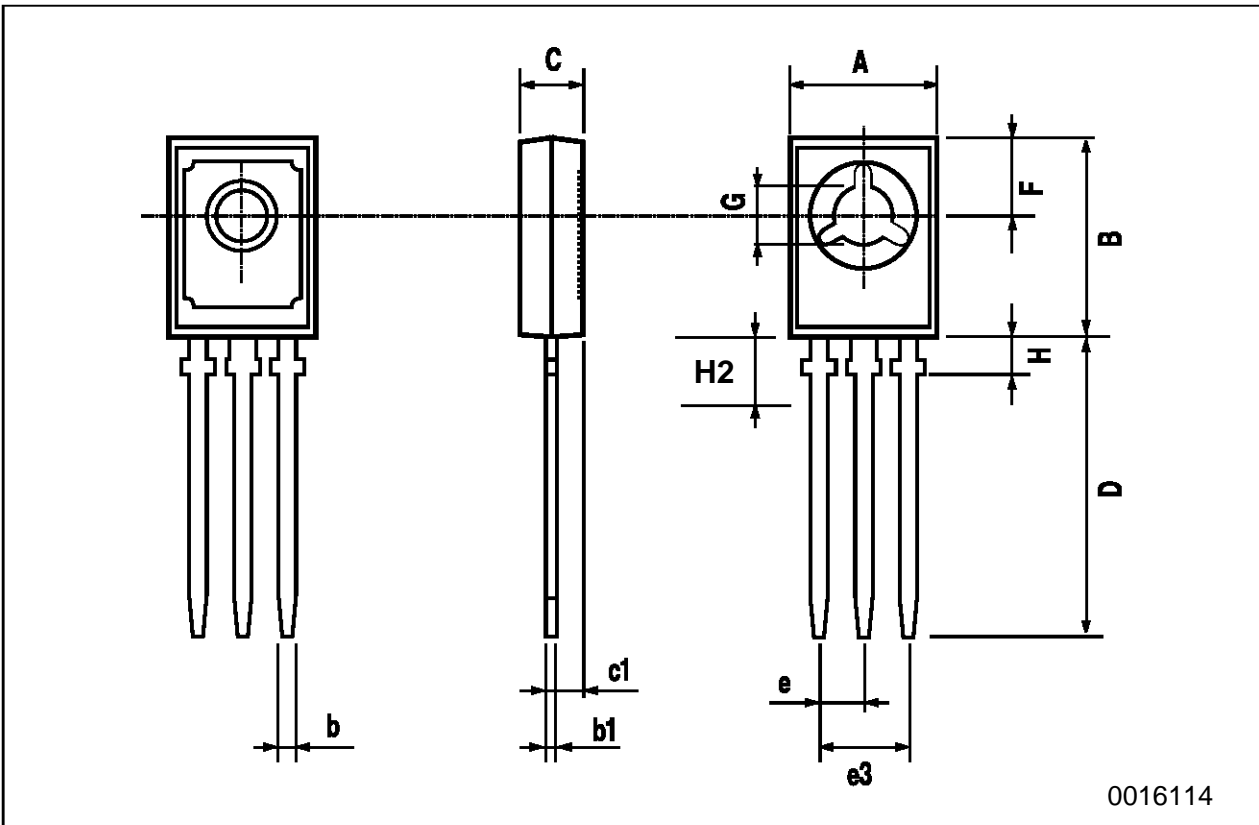


Reverse Biased SOA



SOT-32 (TO-126) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	7.4		7.8	0.291		0.307
B	10.5		10.8	0.413		0.445
b	0.7		0.9	0.028		0.035
b1	0.49		0.75	0.019		0.030
C	2.4		2.7	0.040		0.106
c1	1.0		1.3	0.039		0.050
D	15.4		16.0	0.606		0.629
e		2.2			0.087	
e3	4.15		4.65	0.163		0.183
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100
H2		2.15			0.084	



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1997 SGS-THOMSON Microelectronics - Printed in Italy - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES
Australia - Brazil - Canada - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A
...