

HIGH VOLTAGE SILICON POWER TRANSISTOR

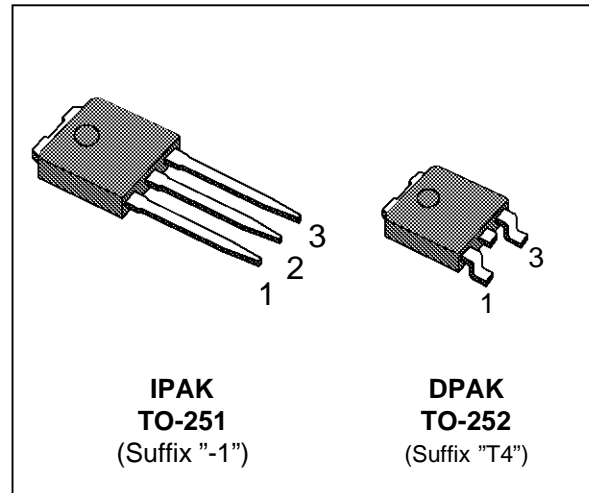
- SGS-THOMSON PREFERRED SALESTYPE
- HIGH VOLTAGE CAPABILITY
- HIGH DC CURRENT GAIN
- THROUGH-HOLE IPAK (TO-251) POWER PACKAGE IN TUBE (SUFFIX "-1")
- SURFACE-MOUNTING DPAK (TO-252) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICAL SIMILAR TO BUX87

APPLICATIONS

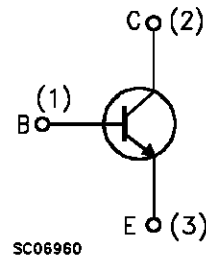
- SWITCH MODE POWER SUPPLIES
- GENERAL PURPOSE SWITCHING

DESCRIPTION

The BUX87 is manufactured using High Voltage Multi Epitaxial Planar technology for high switching speeds and high voltage withstand capability.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{Cev}	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	20	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

BUXD87

THERMAL DATA

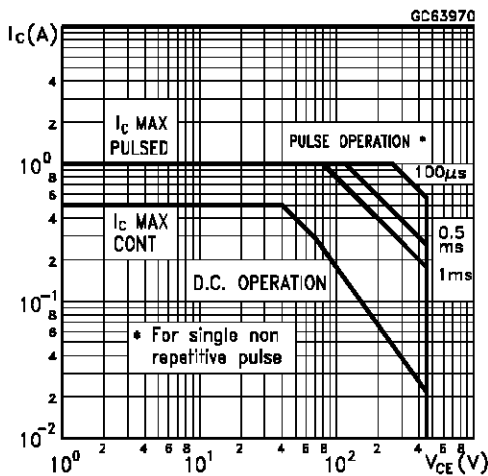
$R_{thj-case}$	Thermal Resistance Junction-case	Max	6.25	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	100	$^{\circ}C/W$

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

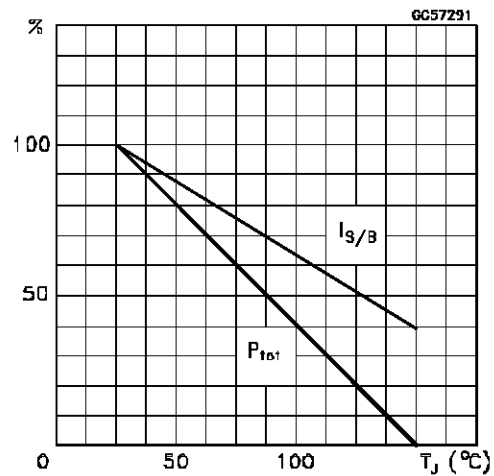
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5V$)	$V_{CE} = 1000 V$ $V_{CE} = 1000 V \quad T_j = 125^{\circ}C$			100 1	μA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 100 mA$	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
$V_{BE(sat)*}$	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	RESISTIVE LOAD Storage Time	$V_{CC} = 250 V \quad I_C = 200 mA$ $I_{B1} = 40 mA \quad I_{B2} = -80 mA$		4.5		μs
t_f	Fall Time	$t_p = 20 \mu s$		0.5		μs

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

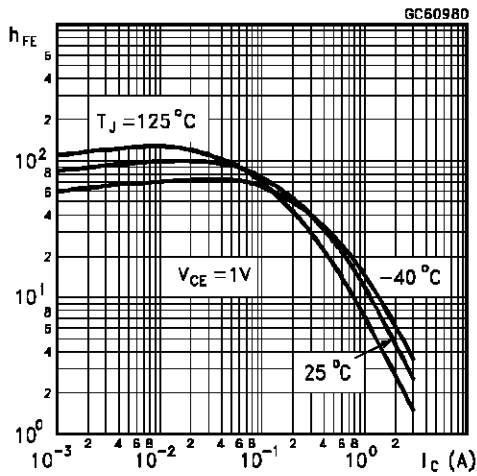
Safe Operating Areas



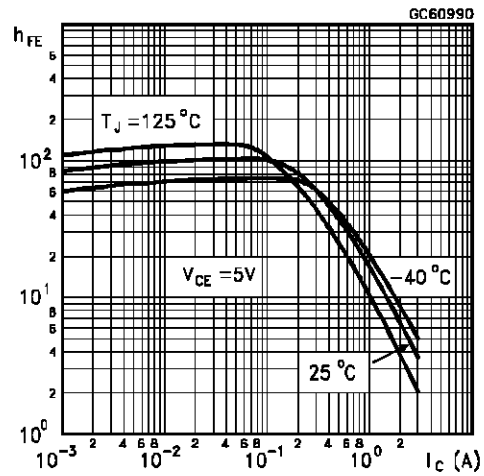
Derating Curves



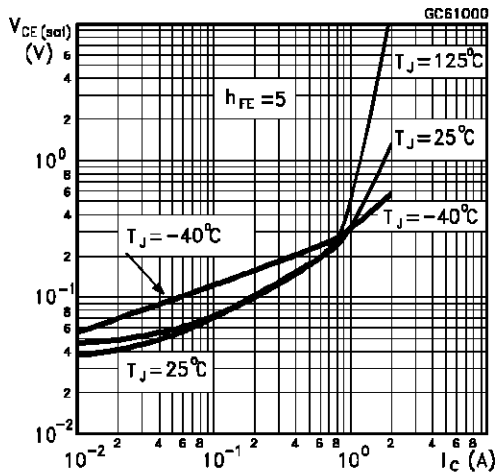
DC Current Gain



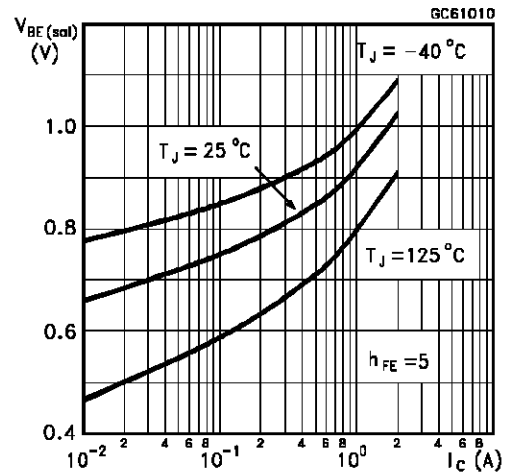
DC Current Gain



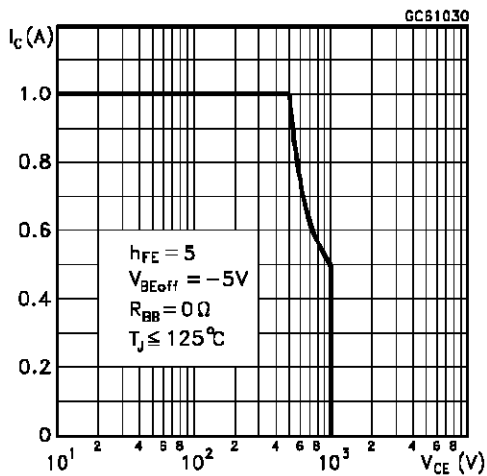
Collector-Emitter Saturation Voltage



Base-Emitter Saturation Voltage

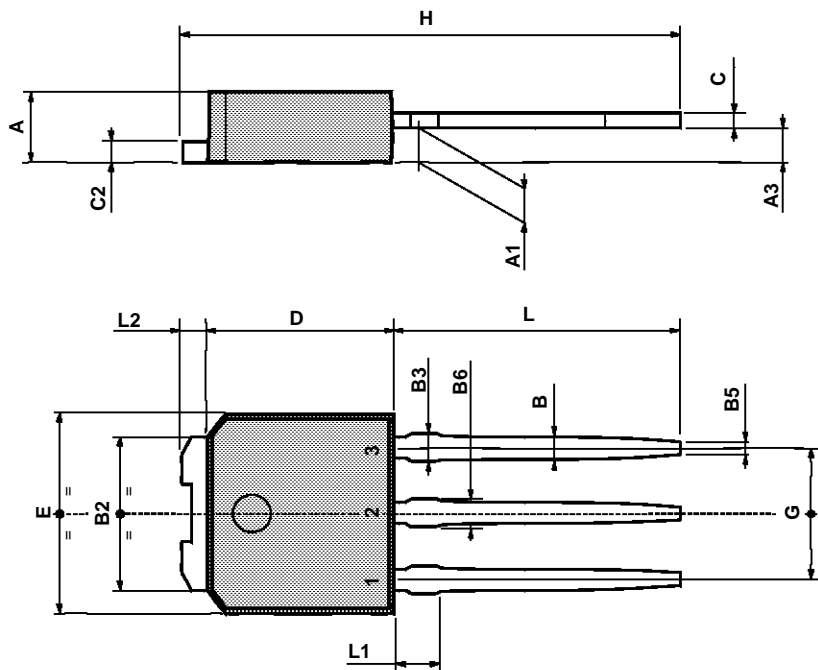


Reverse Biased SOA



TO-251 (IPAK) MECHANICAL DATA

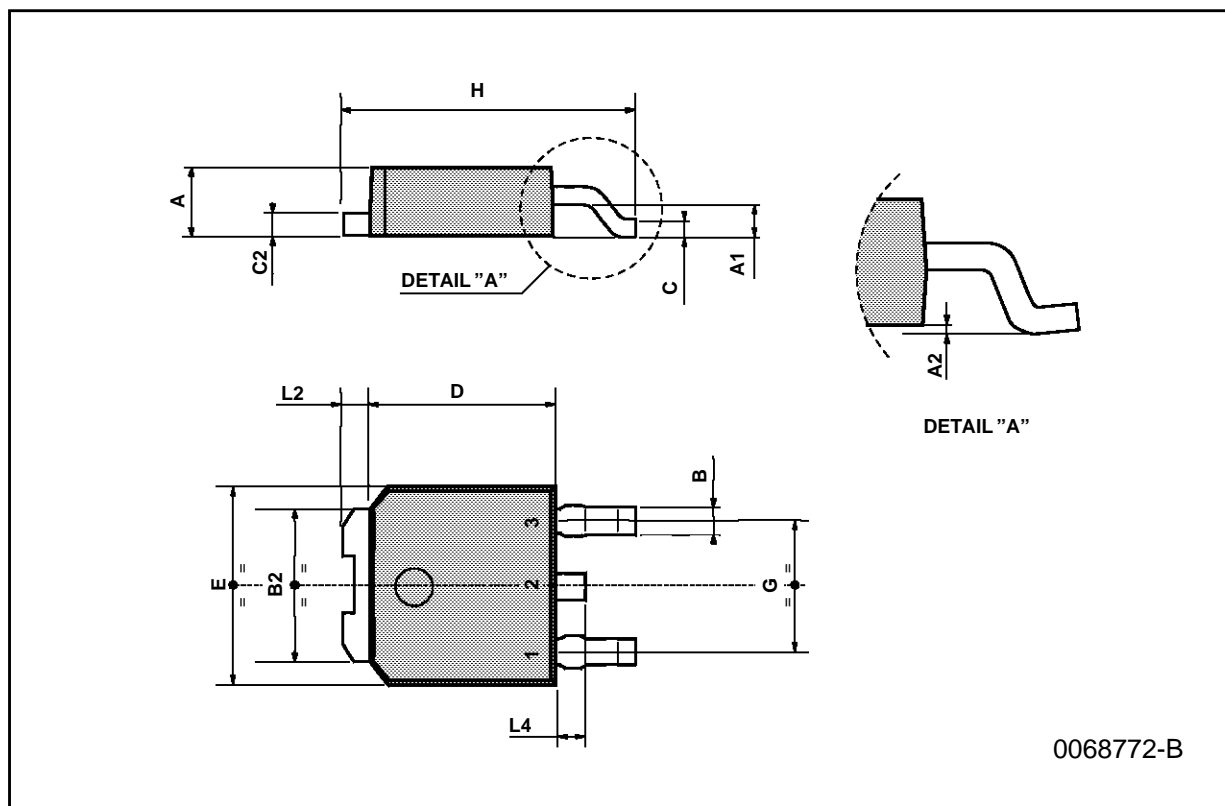
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A3	0.7		1.3	0.027		0.051
B	0.64		0.9	0.025		0.031
B2	5.2		5.4	0.204		0.212
B3			0.85			0.033
B5		0.3			0.012	
B6			0.95			0.037
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	15.9		16.3	0.626		0.641
L	9		9.4	0.354		0.370
L1	0.8		1.2	0.031		0.047
L2		0.8	1		0.031	0.039



0068771-E

TO-252 (DPAK) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L2		0.8			0.031	
L4	0.6		1	0.023		0.039



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.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

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