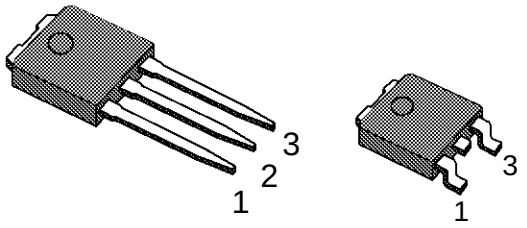
SGS-THOMSON MICROELECTRONICS

BUXD87

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



IPAK
TO-251
(Suffix "-1")

DPAK
TO-252
(Suffix "T4")

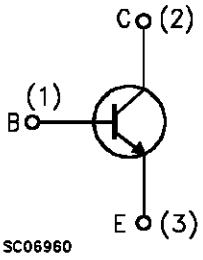
APPLICATIONS

- 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

THERMAL DATA

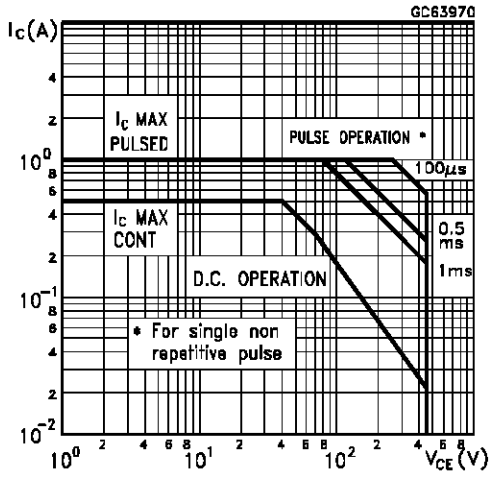
$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	6.25	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient Max	100	°C/W

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

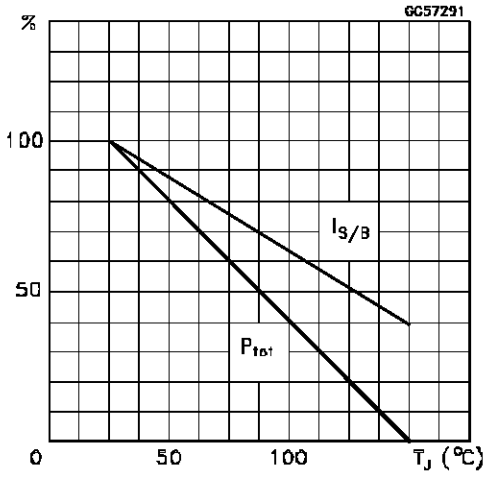
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current (V_{BE} = -1.5V)	V_{CE} = 1000 V V_{CE} = 1000 V T_j = 125 °C			100 1	µA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	I_C = 100 mA	450			V
V_{BEO}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

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

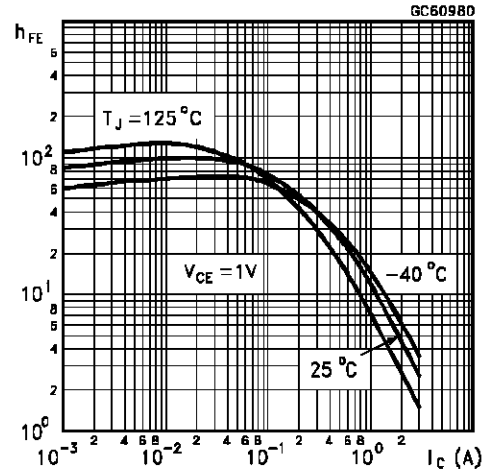
Safe Operating Areas



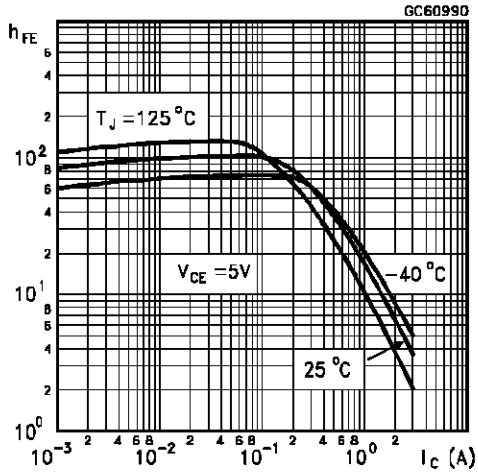
Derating Curves



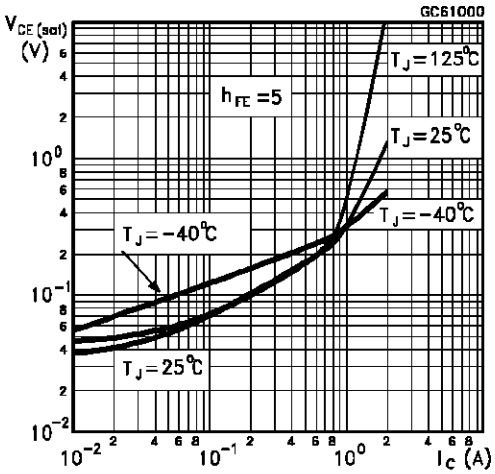
DC Current Gain



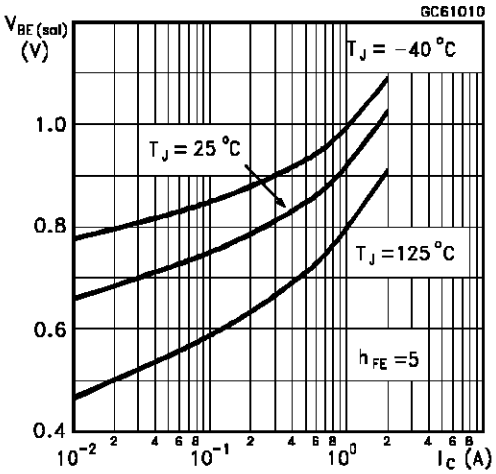
DC Current Gain



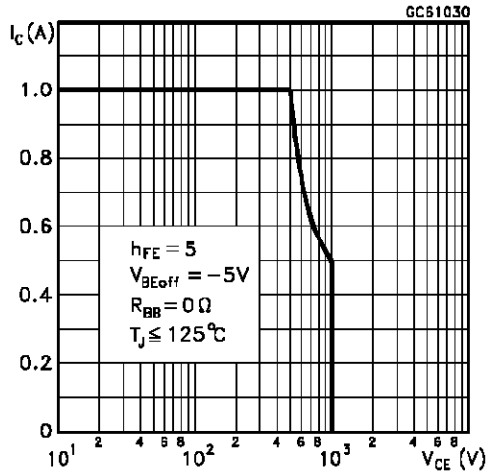
Collector-Emitter Saturation Voltage



Base-Emitter Saturation Voltage

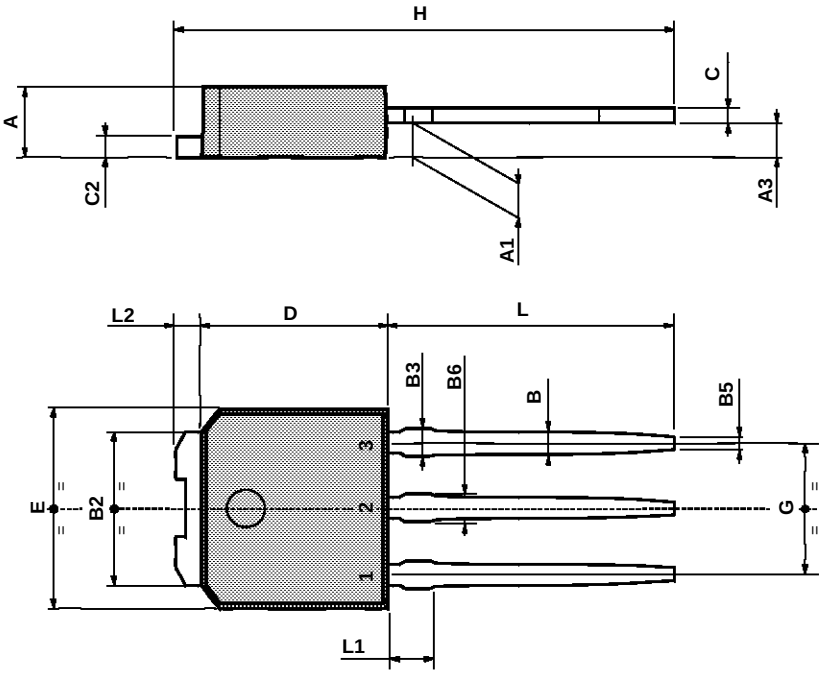


Reverse Biased SOA



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



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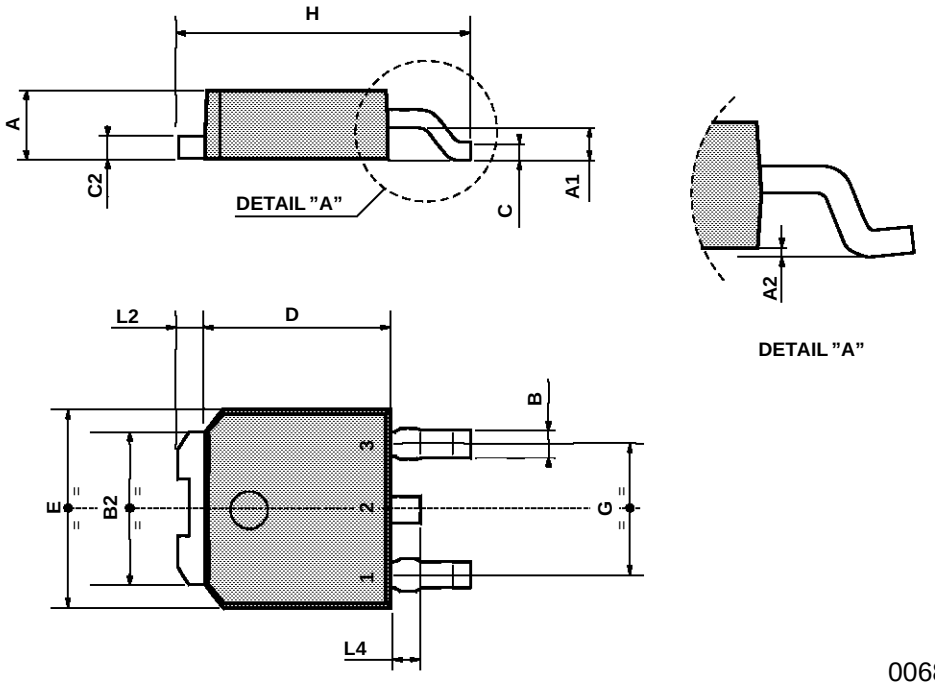
TO-252 (DPAK) MECHANICAL DATA

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



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