SGS-THOMSON MICROELECTRONICS

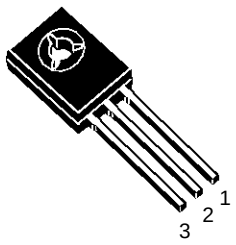
BUX87

HIGH VOLTAGE SILICON POWER TRANSISTOR

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

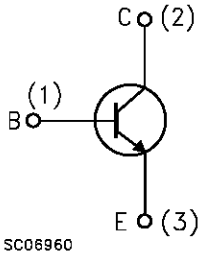
APPLICATIONS:
FLYBACK AND FORWARD SINGLE TRANSISTOR LOW POWER CONVERTERS

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



SOT-32

INTERNAL SCHEMATIC DIAGRAM



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

THERMAL DATA

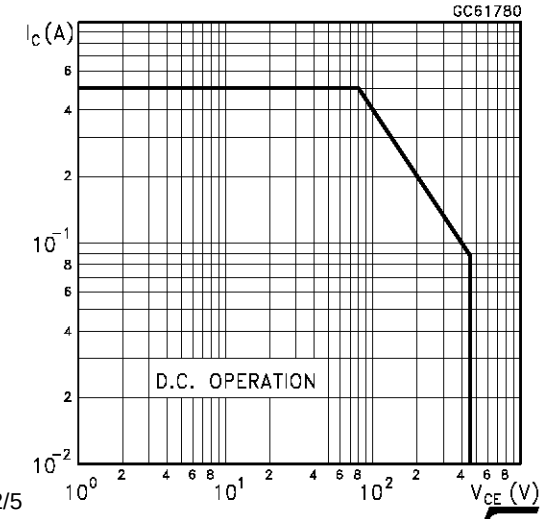
$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	3.12	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient Max	100	°C/W

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

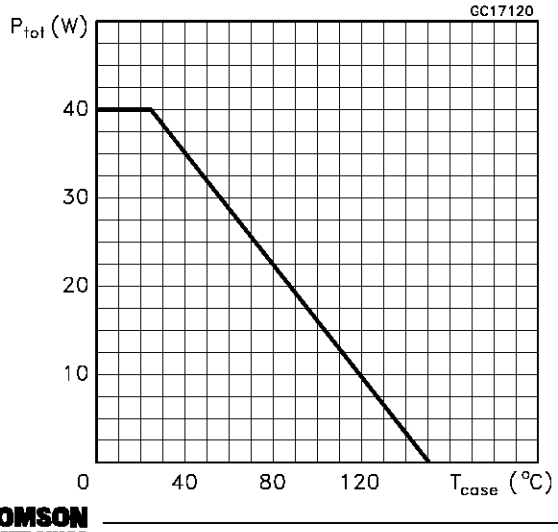
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current (V_{BE} = -1.5V)	V_{CE} = 1000 V V_{CE} = 1000 V T_j = 125 °C			100 1	µA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	I_C = 100 mA	450			V
V_{BEO}	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 %

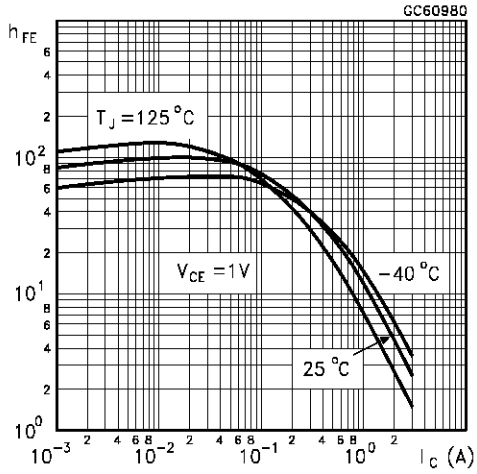
Safe Operating Area



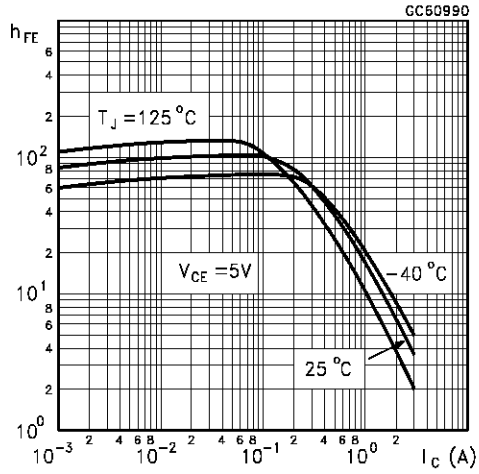
Derating Curves



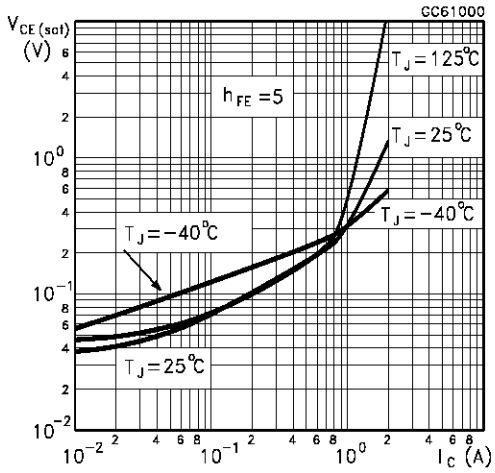
DC Current Gain



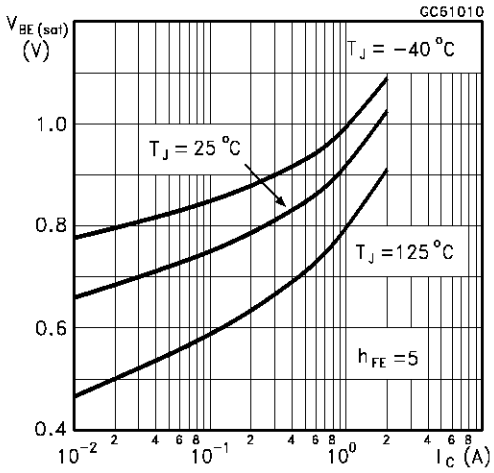
DC Current Gain



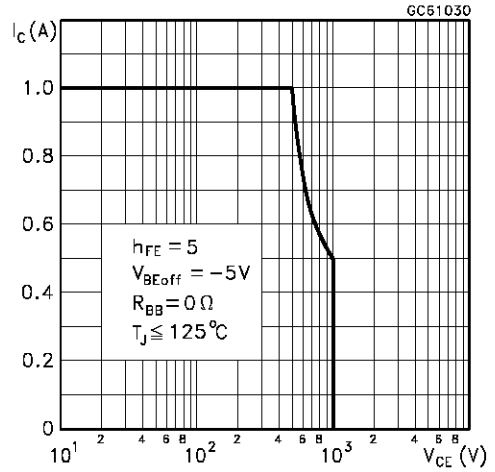
Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage



Reverse Biased SOA



SOT-32 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	0.04		0.106
c1		1.2			0.047	
D		15.7			0.618	
e		2.2			0.087	
e3		4.4			0.173	
F		3.8			0.150	
G	3		3.2	0.118		0.126
H			2.54			0.100