



# BUX87

## HIGH VOLTAGE NPN SILICON POWER TRANSISTOR

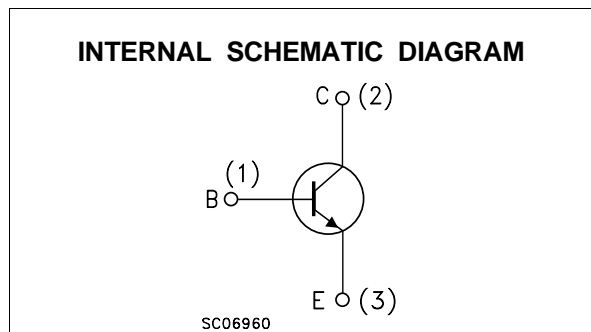
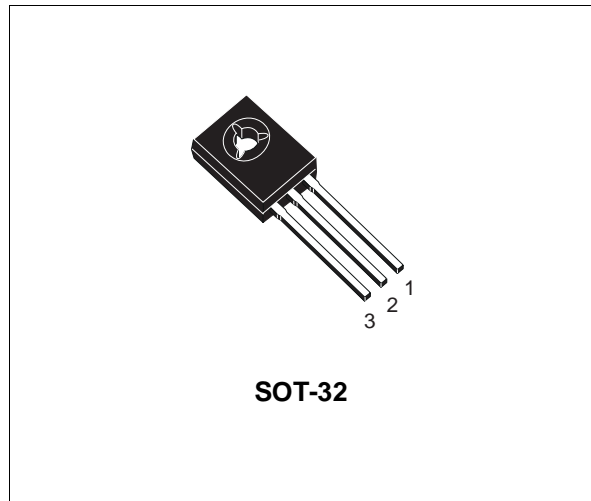
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY (450V  $V_{CE0}$ )
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- HIGH DC CURRENT GAIN

### 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

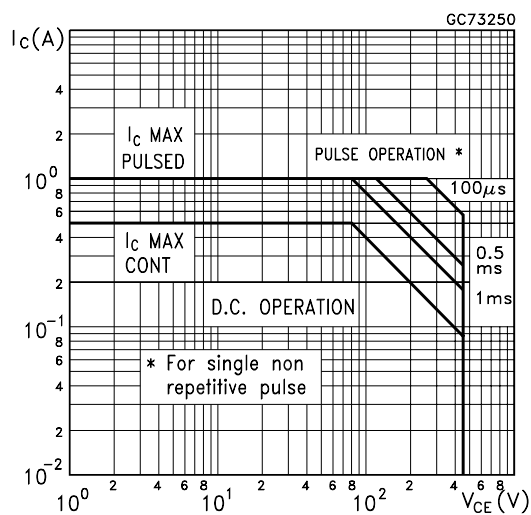
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	3.12	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	100	°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

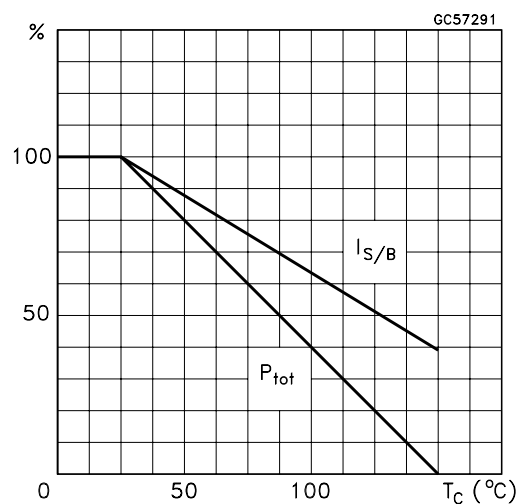
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEV</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	V <sub>CE</sub> = 1000 V V <sub>CE</sub> = 1000 V T <sub>j</sub> = 125 °C			100 1	μA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 100 mA	450			V
V <sub>BEO</sub>	Collector-Base Sustaining Voltage	I <sub>C</sub> = 10 mA	5			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 0.1 A I <sub>B</sub> = 0.01 A I <sub>C</sub> = 0.2 A I <sub>B</sub> = 0.02 A			0.8 1	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 0.2 A I <sub>B</sub> = 0.02 A			1	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 50 mA V <sub>CE</sub> = 5 V I <sub>C</sub> = 40 mA V <sub>CE</sub> = 5 V	12	50		
f <sub>T</sub>	Transition Frequency	I <sub>C</sub> = 50 mA V <sub>CE</sub> = 10 V f=1MHz		20		MHz
t <sub>s</sub> t <sub>f</sub>	RESISTIVE LOAD Storage Time Fall Time	V <sub>CC</sub> = 250 V I <sub>C</sub> = 200 mA I <sub>B1</sub> = 40 mA I <sub>B2</sub> = -80 mA t <sub>p</sub> = 20 μs		4.5 0.5		μs μs

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

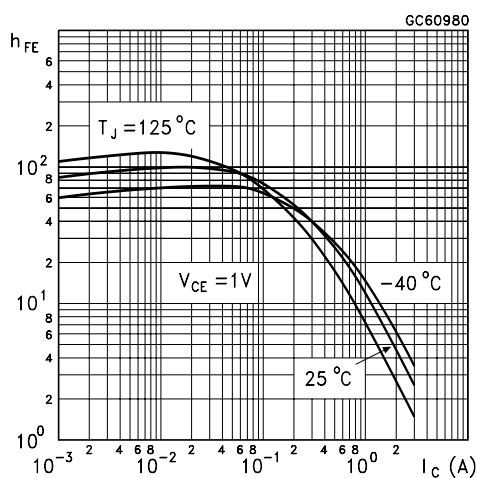
## Safe Operating Area



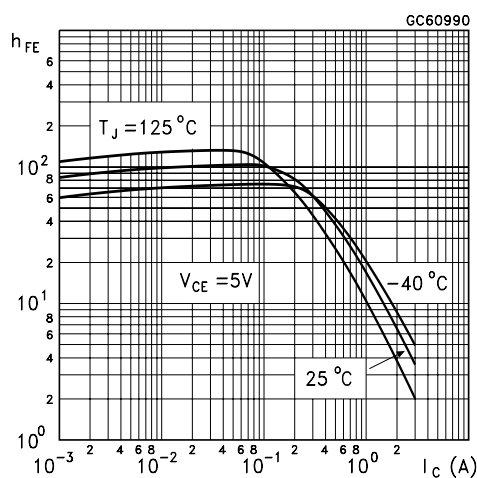
## Derating Curve



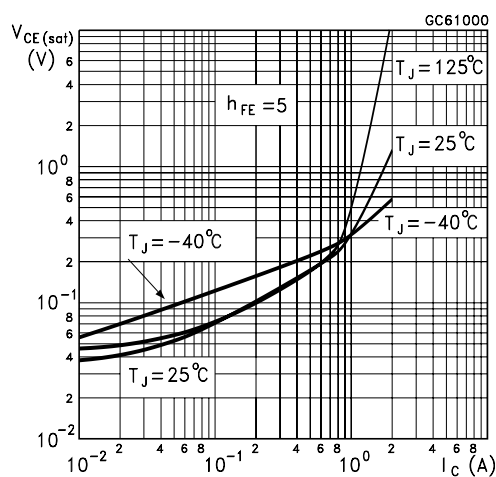
DC Current Gain



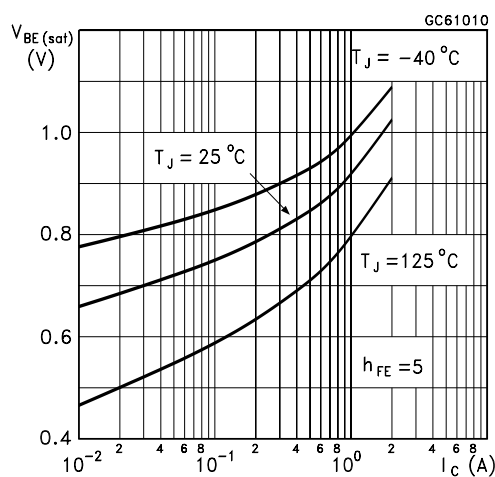
DC Current Gain



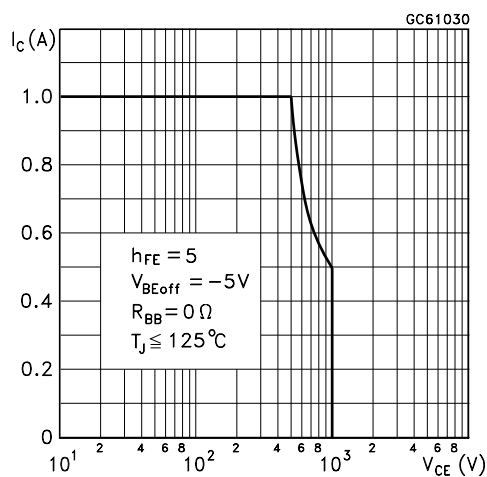
Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage

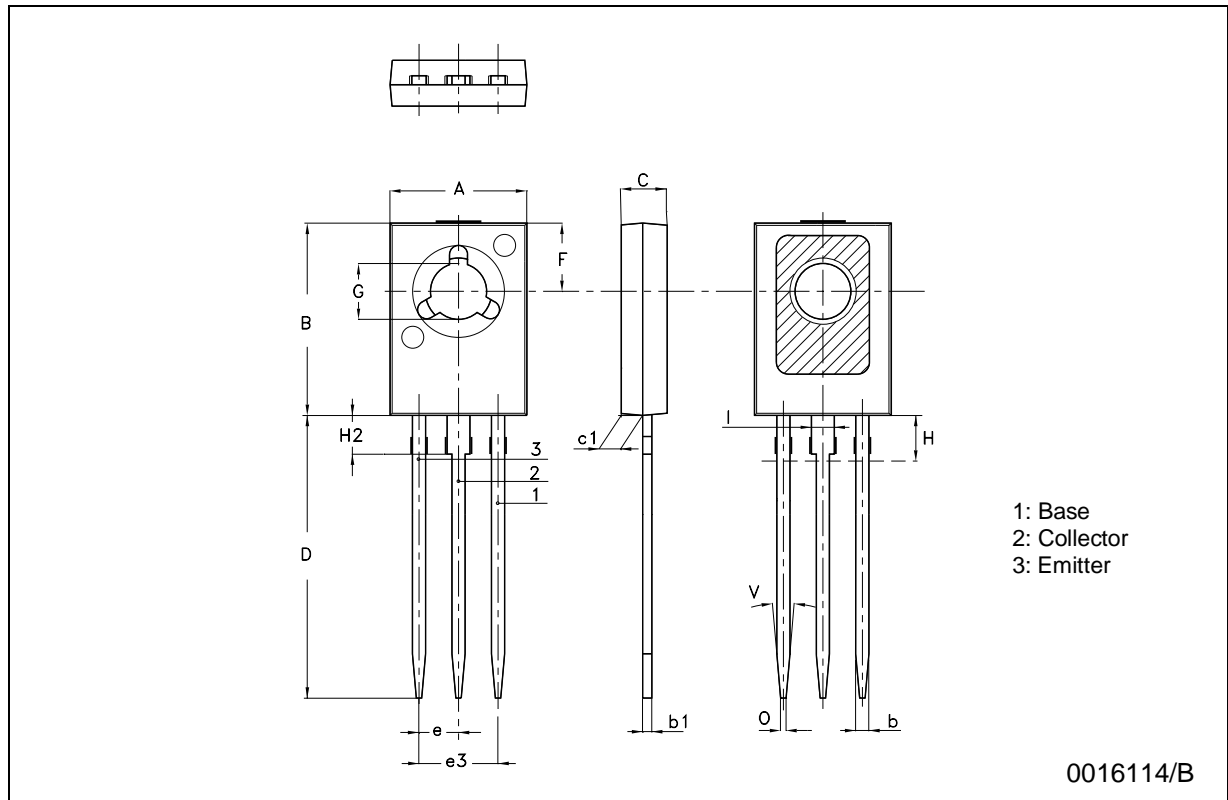


Reverse Biased SOA



**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		0.425
b	0.7		0.9	0.028		0.035
b1	0.40		0.65	0.015		0.025
C	2.4		2.7	0.094		0.106
c1	1.0		1.3	0.039		0.051
D	15.4		16.0	0.606		0.630
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
H2		2.15			0.084	
I		1.27			0.05	
O		0.3			0.011	
V		10°			10°	



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