

**BUX87**

HIGH VOLTAGE NPN SILICON POWER TRANSISTOR

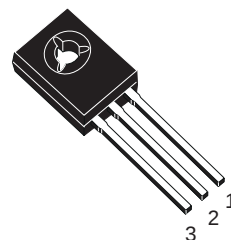
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY (450V V_{CE0})
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- HIGH DC CURRENT GAIN

APPLICATIONS

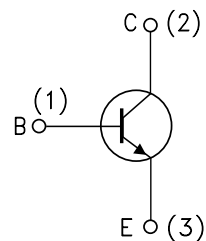
- FLYBACK AND FORWARD SINGLE TRANSISTOR LOW POWER CONVERTERS

DESCRIPTION

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

**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

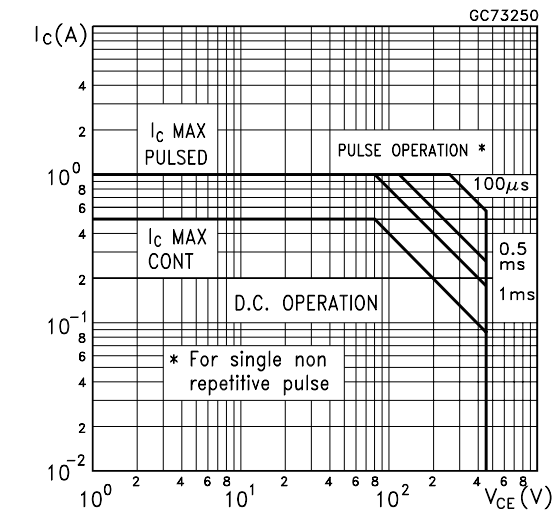
R _{thj-case}	Thermal Resistance Junction-case	Max	3.12	°C/W
R _{thj-amb}	Thermal Resistance Junction-ambient	Max	100	°C/W

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

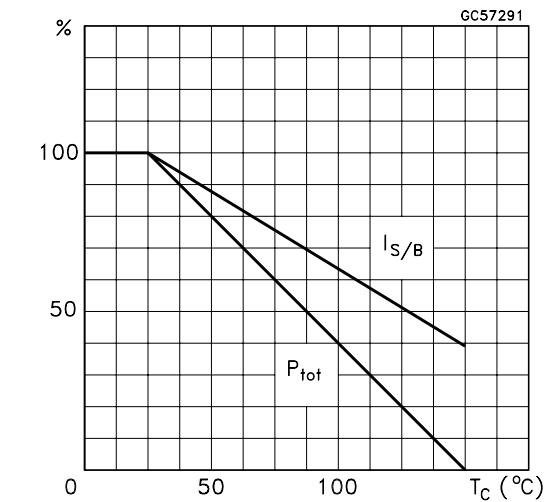
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CEV}	Collector Cut-off Current (V _{BE} = -1.5V)	V _{CE} = 1000 V V _{CE} = 1000 V T _j = 125 °C			100 1	μA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 5 V			1	mA
V _{CEO(sus)*}	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 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 %

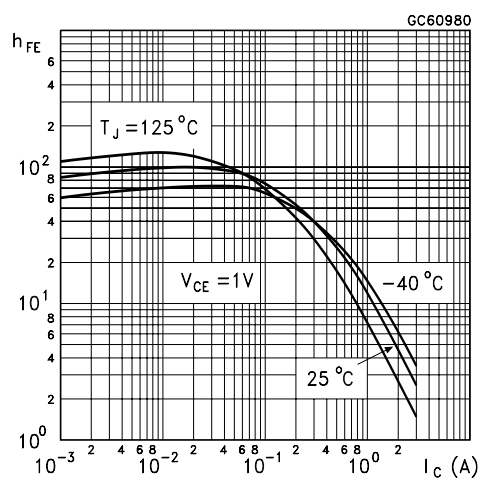
Safe Operating Area



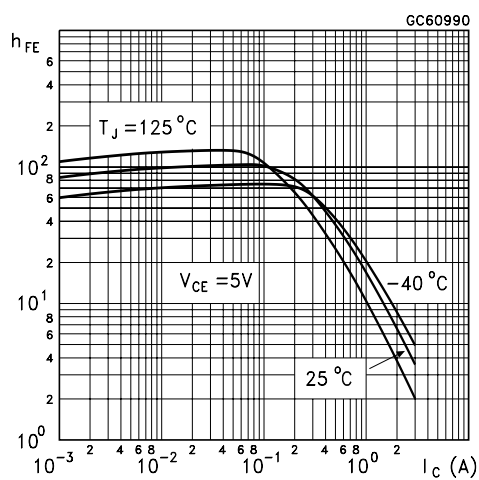
Derating Curve



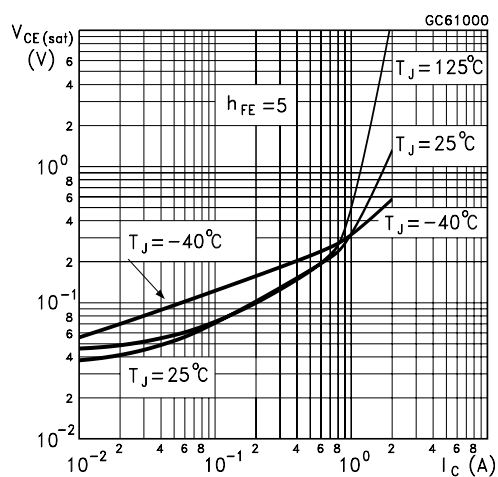
DC Current Gain



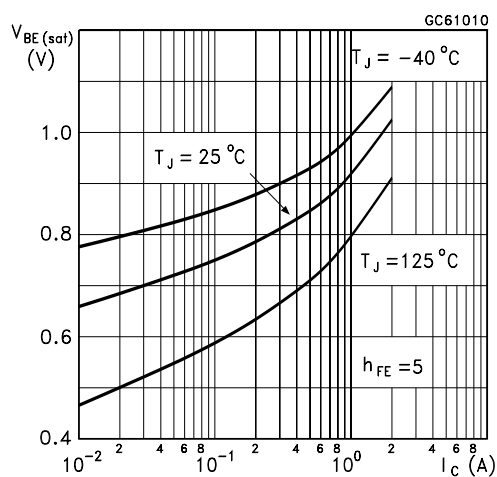
DC Current Gain



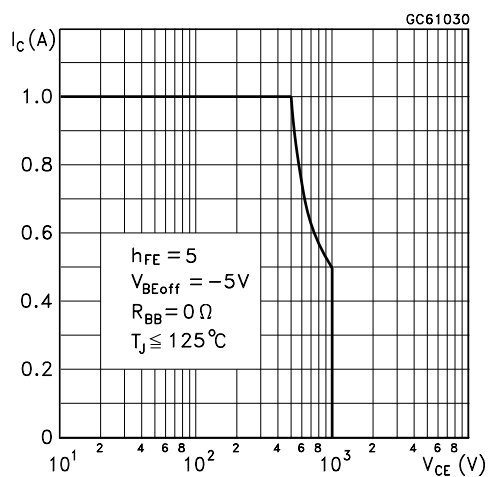
Collector Emitter Saturation Voltage



Base Emitter Saturation Voltage

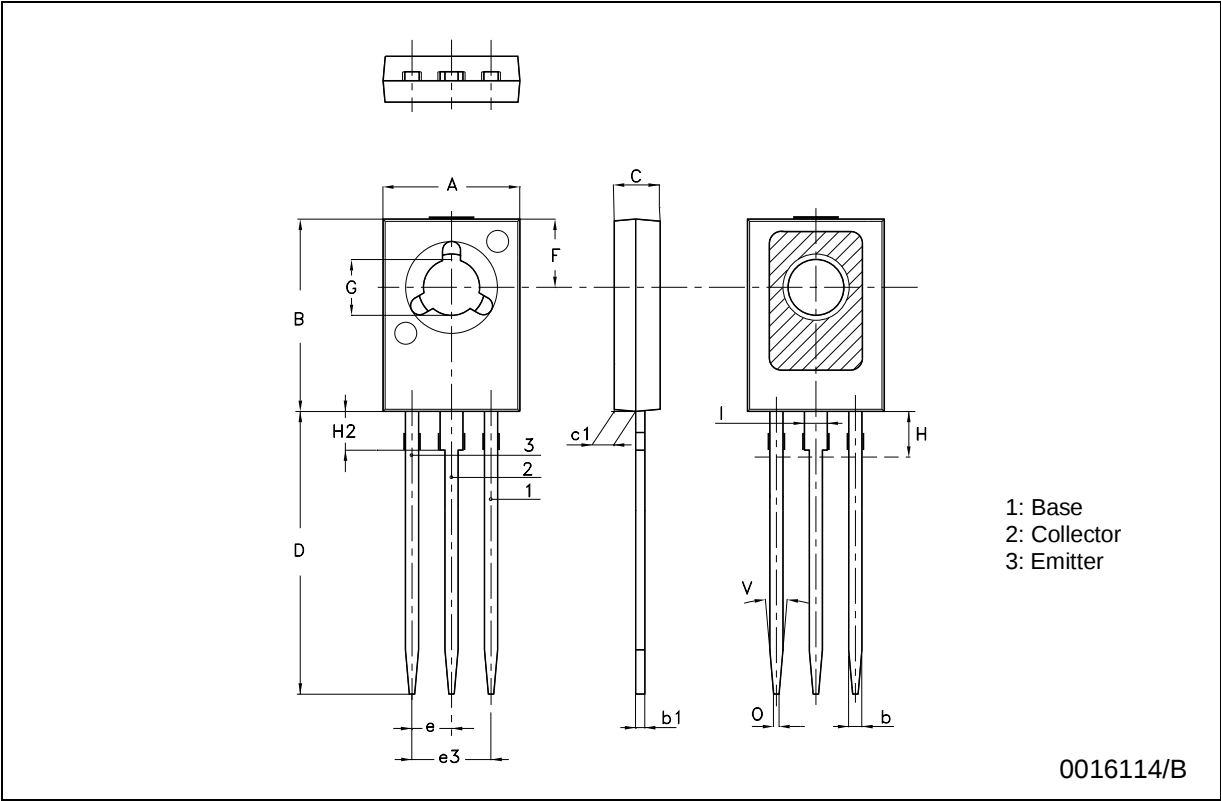


Reverse Biased SOA



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 ⁰			10 ⁰	



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