BUT11A

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

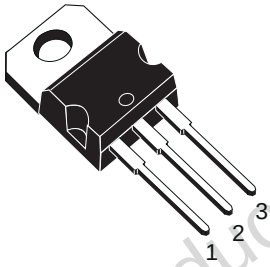
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS:

- FLYBACK AND FORWARD SINGLE TRANSISTOR LOW POWER CONVERTERS

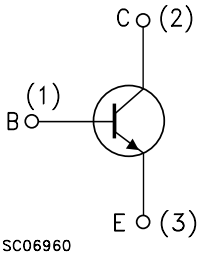
DESCRIPTION

The BUT11A is a silicon Multiepitaxial Mesa NPN transistor in Jedec TO-220 plastic package, particularly intended for switching application.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0 V)	1000	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	450	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	9	V
I_C	Collector Current	5	A
I_{CM}	Collector Peak Current (t_p < 5 ms)	10	A
I_B	Base Current	2	A
I_{BM}	Base Peak Current (t_p < 5 ms)	4	A
P_{tot}	Total Power Dissipation at $T_c \leq 25\ ^oC$	83	W
T_{stg}	Storage Temperature	-65 to 150	^oC
T_j	Max. Operating Junction Temperature	150	^oC

THERMAL DATA

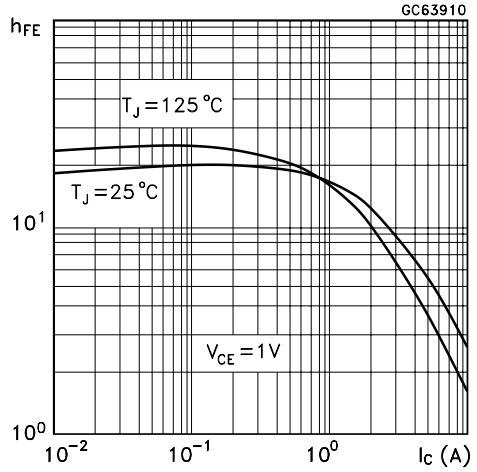
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1.5	°C/W

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

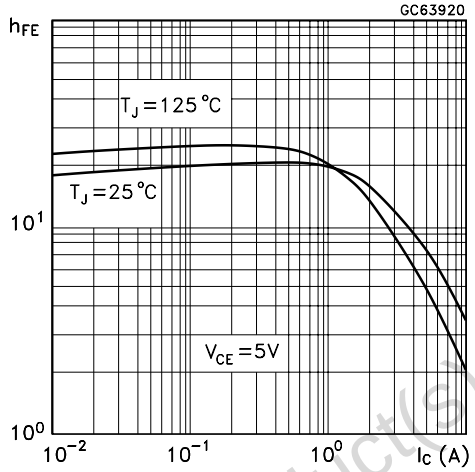
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = rated V_{CES} at T_c = 125°C			1 2	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	I_C = 0 V_{BE} = 9 V			10	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	$I_{B\ (off)}$ = 0 I_C = 100 mA	450			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 2.5 A I_B = 0.5 A			1.5	V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = 2.5 A I_B = 0.5 A			1.3	V
h_{FE}	DC Current Gain	I_C = 5 mA V_{CE} = 5 V I_C = 0.5 A V_{CE} = 5 V	10 10		35 35	
t_{on} t_s t_f	RESISTIVE LOAD Turn on Time Storage Time Fall Time	I_C = 2.5 A V_{CC} = 250 V I_B = $-I_{B2}$ = 0.5 A			 1 4 0.8	 µs µs µs

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

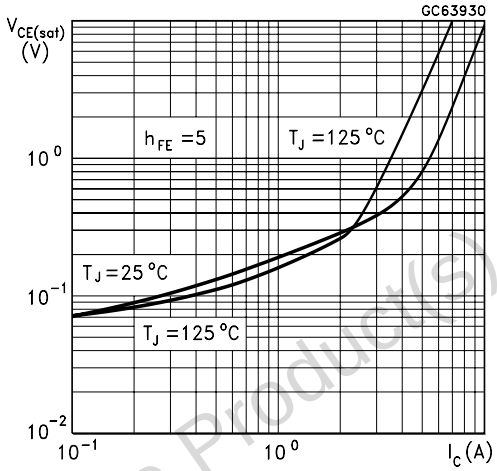
DC Current Gain



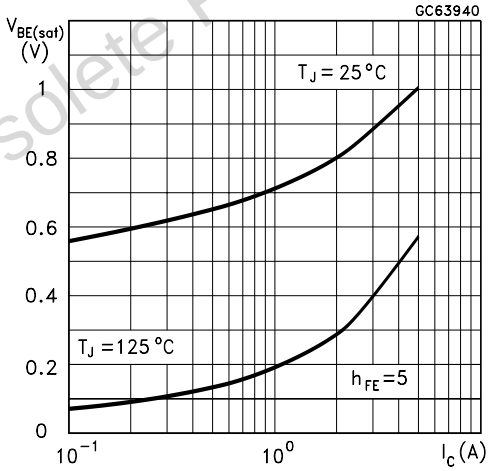
DC Current Gain



Collector-Emitter Saturation Voltage

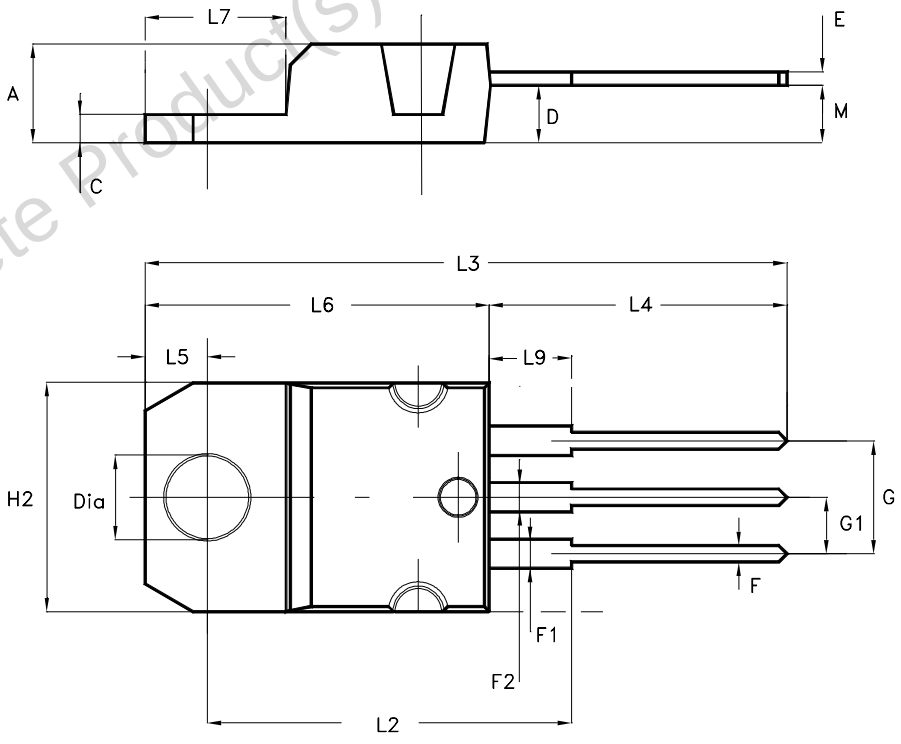


Base-Emitter Saturation Voltage



TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.052
D	2.40		2.72	0.094		0.107
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.202
G1	2.40		2.70	0.094		0.106
H2	10.00		10.40	0.394		0.409
L2		16.40			0.645	
L4	13.00		14.00	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.20		6.60	0.244		0.260
L9	3.50		3.93	0.137		0.154
M		2.60			0.102	
DIA.	3.75		3.85	0.147		0.151



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