

HIGH POWER NPN SILICON TRANSISTOR

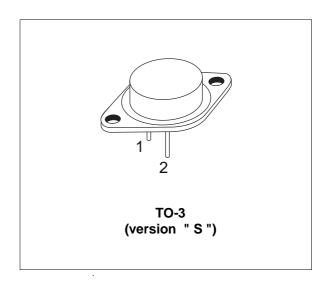
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- HIGH RUGGEDNESS

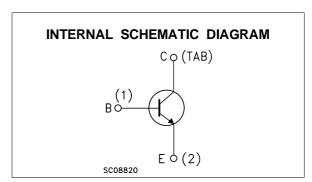
APPLICATION

- MOTOR CONTROL
- UNINTERRUPTABLE POWER SUPPLY

DESCRIPTION

The BUT100 is a Multiepitaxial Planar NPN Transistor in TO-3 package. It is intended for use in high frequency and efficency converters, switching regulators and motor control.





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CEV}	Collector-Emitter Voltage (V _{BE} = -1.5V)	200	V
V _{CEO}	Collector-Emitter Voltage (I _B = 0)	125	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	7	V
ΙE	Emitter Current	50	А
I _{EM}	Emitter Peak Current	150	Α
Ι _Β	Base Current	10	А
I _{BM}	Base Peak Current	30	А
P _{tot}	Total Dissipation at T _c < 25 °C	300	W
T _{stg}	Storage Temperature	-65 to 200	°C
Tj	Max. Operating Junction Temperature	200	°C

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THERMAL DATA

R _{thj-case} Thermal Resistance Junction-case	Max	0.58	°C/W	1
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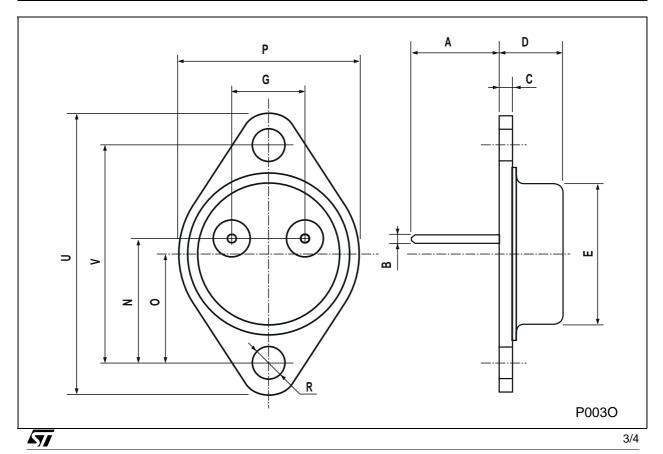
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I _{CER}	Collector Cut-off Current ($R_{BE} = 5\Omega$)	V _{CE} = V _{CEV} V _{CE} = V _{CEV} T _C = 100°C			1 5	mA mA
I _{CEV}	Collector Cut-off Current (V _{BE} = -1.5V)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ $T_{C} = 100^{\circ}C$			1 4	mA 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 = 0.2 A L = 25mH	125			V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	I _E = 50mA	7			\
VCE(sat)*	Collector-Emitter Saturation Voltage	$ \begin{array}{llllllllllllllllllllllllllllllllllll$			0.9 0.9 1.2 1.5	< < < <
V _{BE(sat)} *	Base-Emitter Saturation Voltage	$\begin{split} I_C &= 50 A & I_B &= 2.5 A \\ I_C &= 100 A & I_B &= 10 A \\ I_C &= 50 A & I_B &= 2.5 A & T_c &= 100^{\circ} C \\ I_C &= 100 A & I_B &= 10 A & T_c &= 100^{\circ} C \end{split}$			1.4 2 1.4 2.1	V V V
di _c /dt	Rate of Rise of on-state Collector Current	$V_{CC} = 100V$ $R_C = 0$ $I_{B1} = 5A$ $T_p = 3\mu s$ $T_c = 100^{\circ}C$	180			A/μs
t _s t _f t _c	INDUCTIVE LOAD Storage time Fall Time Crossover Time	$\begin{array}{lll} V_{CC} = 90V & V_{clamp} = 125 \ V \\ I_{C} = 50A & I_{B1} = 2.5A \\ V_{BB} = -5V & L_{C} = 80 \mu H \\ R_{B2} = 1 \ \Omega & T_{c} = 100 ^{\circ} C \end{array}$			2 0.2 0.35	μs μs μs
Vcew	Maximum Collector Emitter Voltage without Snubber	$ \begin{array}{ll} V_{CC} = 90V & I_{CWoff} = 150A \\ v_{BB} = -5V & I_{B1} = 10A \\ L_{C} = 30 \mu H & R_{B2} = 1 \Omega \\ T_{c} = 125 ^{\circ} C \\ \end{array} $	125			V

^{*} Pulsed: Pulse duration = 3μs, duty cycle = 2 %

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DIM.	mm		inch			
5	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
А	11.00		13.10	0.433		0.516
В	1.47		1.60	0.058		0.063
С	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
Е	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
Р	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



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