

HIGH POWER NPN SILICON TRANSISTOR

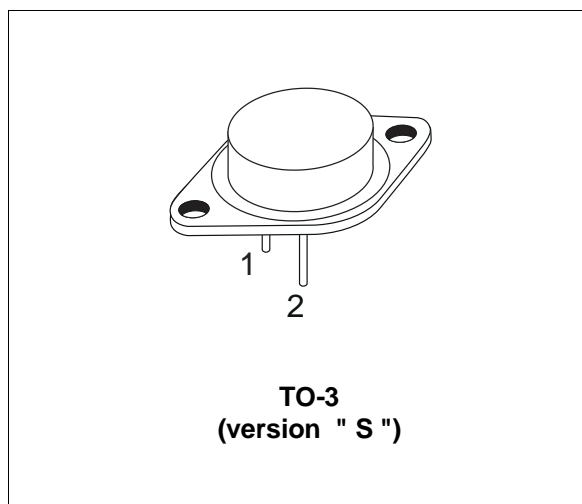
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- HIGH RUGGEDNESS

APPLICATION

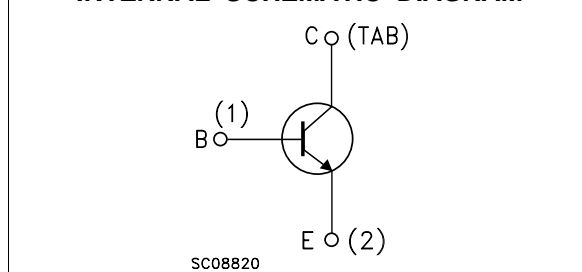
- MOTOR CONTROL
- UNINTERRUPTABLE POWER SUPPLY

DESCRIPTION

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



INTERNAL SCHEMATIC DIAGRAM



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
I_E	Emitter Current	50	A
I_{EM}	Emitter Peak Current	150	A
I_B	Base Current	10	A
I_{BM}	Base Peak Current	30	A
P_{tot}	Total Dissipation at $T_c < 25^\circ C$	300	W
T_{stg}	Storage Temperature	-65 to 200	$^\circ C$
T_j	Max. Operating Junction Temperature	200	$^\circ C$

BUT100

THERMAL DATA

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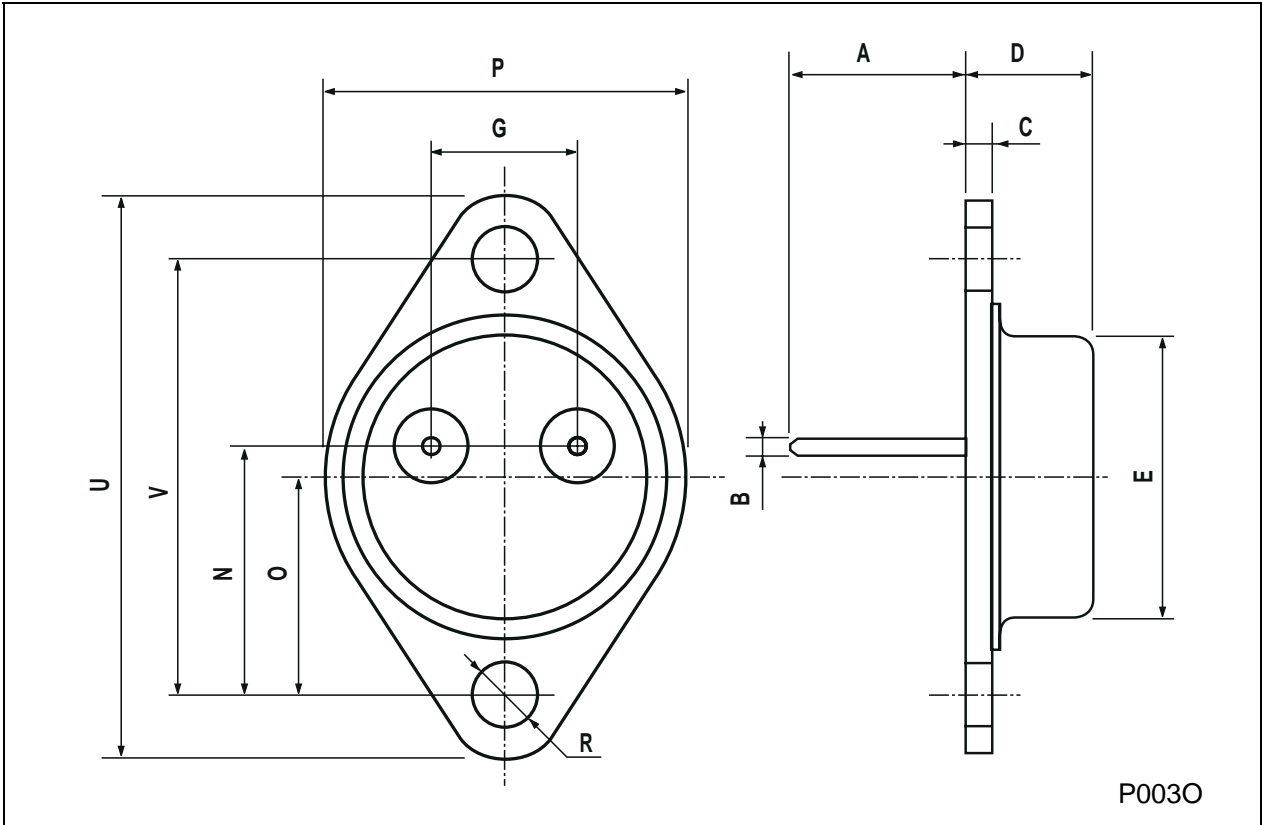
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CEr}	Collector Cut-off Current (R _{BE} = 5Ω)	V _{CE} = V _{CEV} V _{CE} = V _{CEV} T _C = 100°C			1 5	mA mA
I _{CEV}	Collector Cut-off Current	V _{CE} = V _{CEV} V _{BE} = -1.5V V _{CE} = V _{CEV} V _{BE} = -1.5V T _C = 100°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 _C = 0.2 A L = 25mH	125			V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	I _E = 50mA	7			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 50A I _B = 2.5A I _C = 100A I _B = 10A I _C = 50A I _B = 2.5A T _j = 100°C I _C = 100A I _B = 10A T _j = 100°C			0.9 0.9 1.2 1.5	V V V V
V _{BE(sat)*}	Base-Emitter Saturation Voltage	I _C = 50A I _B = 2.5A I _C = 100A I _B = 10A I _C = 50A I _B = 2.5A T _j = 100°C I _C = 100A I _B = 10A T _j = 100°C			1.4 2 1.4 2.1	V 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 = 3μs T _j = 100°C	180			A/μs
t _s t _f t _c	INDUCTIVE LOAD Storage time Fall Time Crossover Time	V _{CC} = 90V V _{clamp} = 125 V I _C = 50A I _{B1} = 2.5A V _{BB} = - 5V L _C = 80μH R _{B2} = 1 Ω T _j = 100°C			2 0.2 0.35	μs μs μs
V _{CEW}	Maximum Collector Emitter Voltage without Snubber	V _{CC} = 90V I _{CWoff} = 150A V _{BB} = - 5V I _{B1} = 10A L _C = 30μH R _{B2} = 1Ω T _j = 125°C	125			V

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

TO-3 (version S) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	1.47		1.60	0.058		0.063
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	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
P	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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