

HIGH POWER NPN SILICON TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN

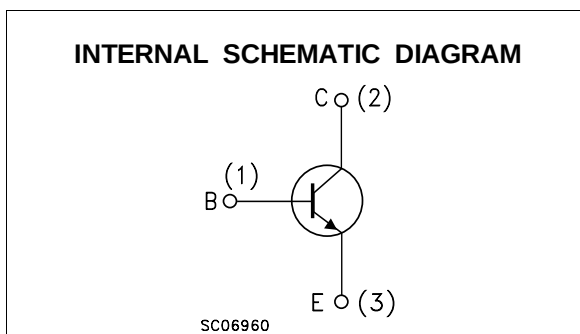
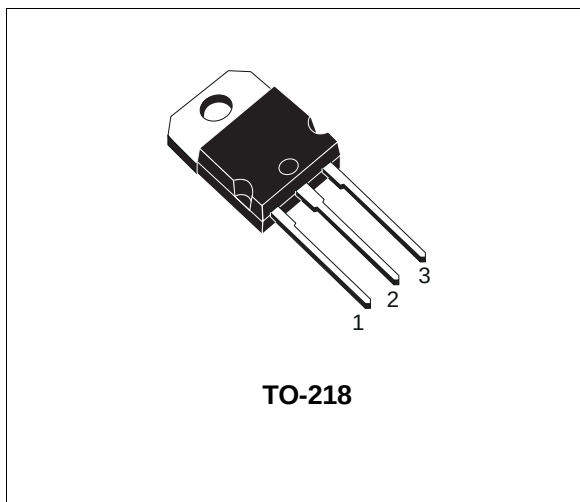
APPLICATION

- SWITCHING REGULATORS
- MOTOR CONTROL
- HIGH FREQUENCY AND EFFICIENCY CONVERTERS

DESCRIPTION

The BUT70 is a Multiepitaxial planar NPN transistor in TO-218 plastic package.

It's intended for use in high frequency and efficiency converters such as motor controllers and industrial equipment.



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
$I_{E(RMS)}$	Emitter Current	40	A
I_{EM}	Emitter Peak Current	120	A
I_B	Base Current	8	A
I_{BM}	Base Peak Current	24	A
P_{tot}	Total Power Dissipation at $T_{case} < 25\ ^\circ C$	200	W
T_{stg}	Storage Temperature	-65 to 150	$^\circ C$
T_j	Max Operating Junction Temperature	150	$^\circ C$

BUT70

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	0.63	°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 = 0.2A L = 25 mH	125			V
V _{EBO}	Emitter-base Voltage (I _C = 0)	I _E = 50 mA	7			V
V _{CE(sat)} *	Collector-Emitter Saturation Voltage	I _C = 70 A I _B = 7 A I _C = 70 A I _B = 7 A T _J = 100°C I _C = 35 A I _B = 1.75 A I _C = 35 A I _B = 1.75 A T _J = 100°C			0.9 1.5 0.9 1.2	V V V V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = 70 A I _B = 7 A I _C = 70 A I _B = 7 A T _J = 100°C I _C = 35 A I _B = 1.75 A I _C = 35 A I _B = 1.75 A T _J = 100°C			1.8 1.9 1.4 1.4	V V V V
di _C /dt*	Rated of Rise of on-state Collector Current	V _{CC} = 100 V R _C = 0 I _{B1} = 3.5 A t _p = 3 μS T _J = 100°C	140			A/μs

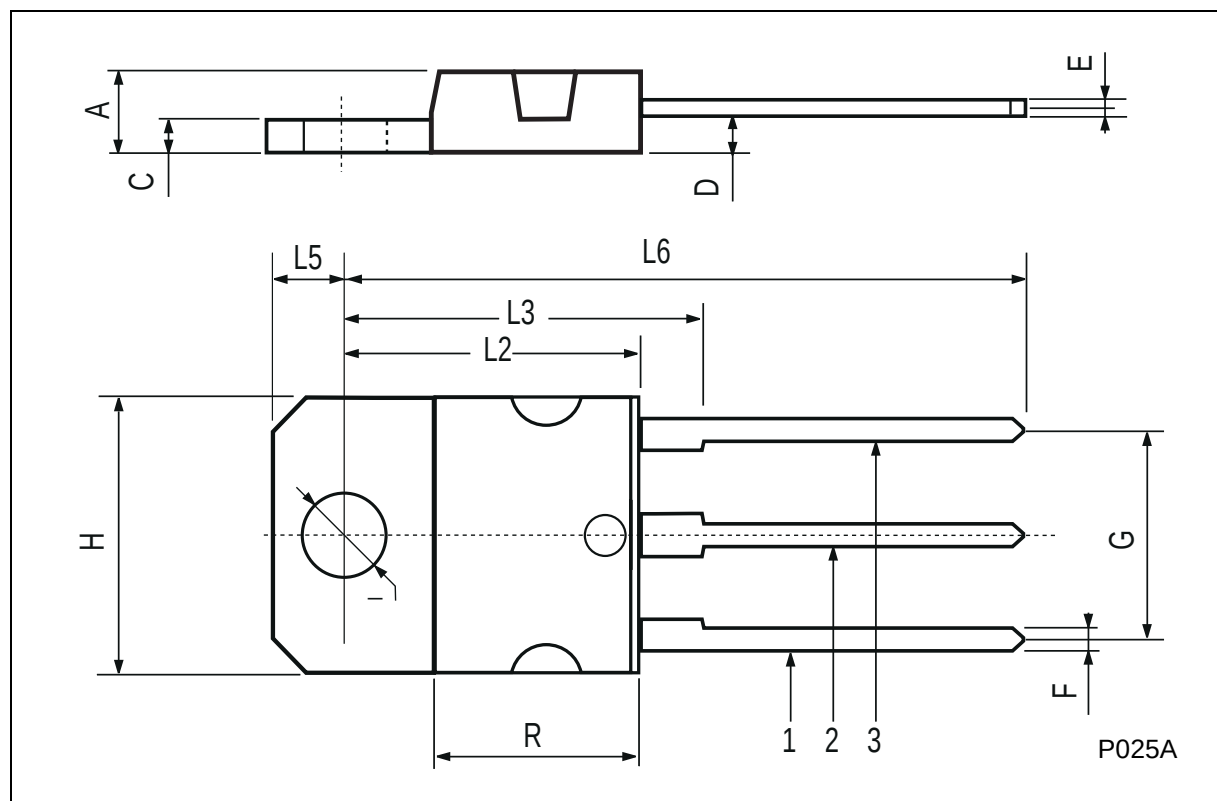
* Pulsed: Pulse duration = 300 μs, duty cycle < 2 %

INDUCTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t _r	Rise Time	V _{CC} = 90 V I _C = 35 A			1.8	μs
t _s	Storage Time	V _{BB} = -5 V I _{B1} = 1.75 A			0.2	μs
t _f	Fall Time	R _{B2} = 1.4 Ω L _C = 0.13 mH T _J = 100°C V _{CLAMP} = 125V			0.35	μs

TO-218 (SOT-93) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		4.9	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.5			0.098	
E	0.5		0.78	0.019		0.030
F	1.1		1.3	0.043		0.051
G	10.8		11.1	0.425		0.437
H	14.7		15.2	0.578		0.598
L2	–		16.2	–		0.637
L3		18			0.708	
L5	3.95		4.15	0.155		0.163
L6		31			1.220	
R	–		12.2	–		0.480
Ø	4		4.1	0.157		0.161



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