

## HIGH CURRENT NPN SILICON TRANSISTOR

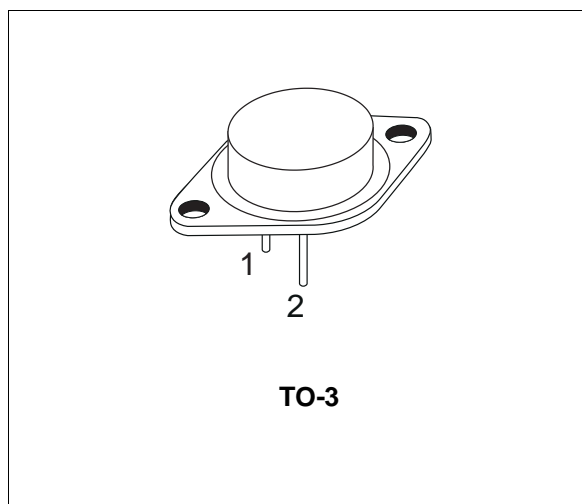
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

### APPLICATIONS

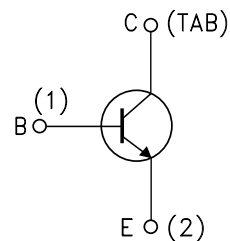
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

The BUR50S is a silicon multiepitaxial planar NPN transistors in JEDEC TO-3 metal case, intended for use in switching and linear applications in military and industrial equipment.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	200	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	125	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	10	V
$I_C$	Collector Current	70	A
$I_{CM}$	Collector Peak Current ( $t_p = 10$ ms)	100	A
$I_B$	Base Current	20	A
$P_{tot}$	Total Dissipation at $T_c \leq 25$ °C	350	W
$T_{stg}$	Storage Temperature	-65 to 200	°C
$T_j$	Max. Operating Junction Temperature	200	°C

# BUR50S

## THERMAL DATA

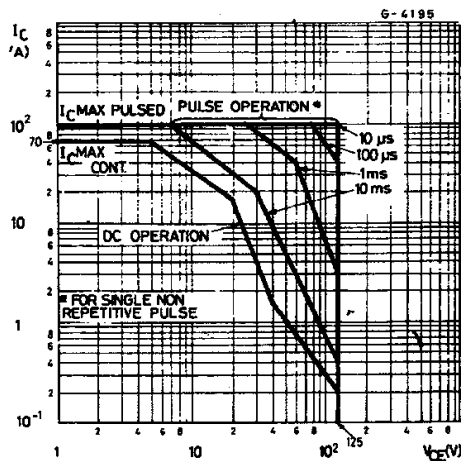
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	0.5	°C/W
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## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 200 V V <sub>CB</sub> = 200 V T <sub>case</sub> = 125 °C			0.2 2	mA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 125 V			1	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 7 V			0.2	μA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 200 mA	125			V
V <sub>EBO</sub>	Emitter-base Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 10 mA	10			V
V <sub>CE(sat)*</sub>	Collector-emitter Saturation Voltage	I <sub>C</sub> = 35 A I <sub>C</sub> = 70 A		0.8	1 1.5	V V
V <sub>BE(sat)*</sub>	Base-emitter Saturation Voltage	I <sub>C</sub> = 35 A I <sub>C</sub> = 70 A		1.6	1.8 2	V V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 5 A I <sub>C</sub> = 50 A	20 15		100	
I <sub>s/b</sub>	Second Breakdown Collector Current	V <sub>CE</sub> = 20 V t = 1 s	17.5			A
f <sub>T</sub>	Transition-Frequency	I <sub>C</sub> = 1 A V <sub>CE</sub> = 5 V f = 1 MHz	10	16		MHz
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 70 A I <sub>B1</sub> = 7 A V <sub>CC</sub> = 60 V		0.5	1.2	μs
t <sub>s</sub>	Storage Time	I <sub>C</sub> = 70 A I <sub>B1</sub> = 7 A		0.82	2	μs
t <sub>f</sub>	Fall Time	I <sub>B2</sub> = -7 A V <sub>CC</sub> = 60 V		0.1	0.5	μs
	Clamped E <sub>s/b</sub> Collector Current	V <sub>clamp</sub> = 125 V L = 500 μH	70			A

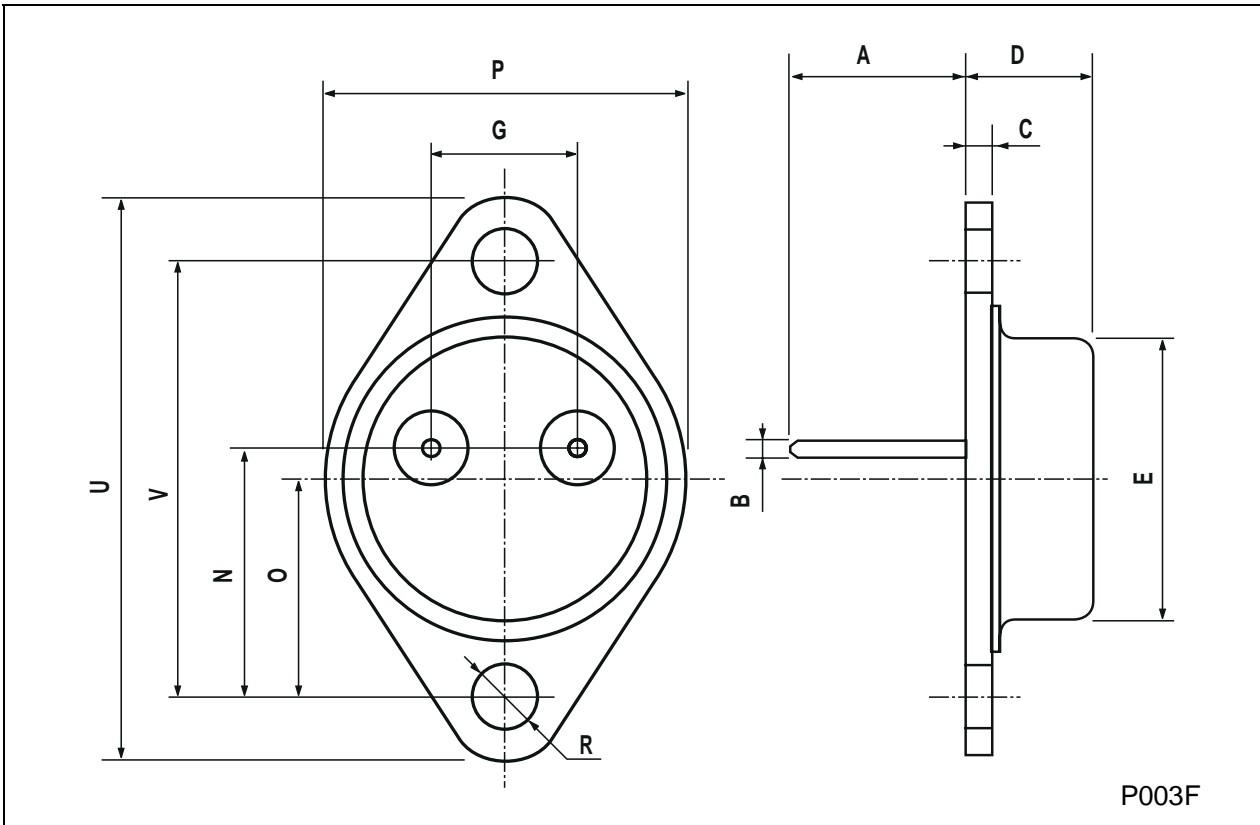
\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

## Safe Operating Area



**TO-3 MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
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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