SGS-THOMSON MICROELECTRONICS

BUR50S

HIGH CURRENT NPN SILICON TRANSISTOR

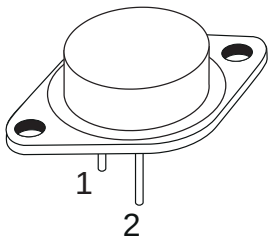
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

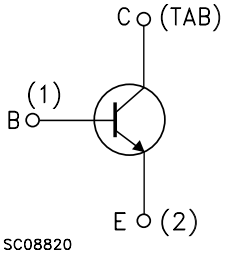
DESCRIPTION

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



TO-3

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 $T_c \leq 25\ ^oC$	350	W
T_{stg}	Storage Temperature	-65 to 200	^oC
T_j	Max. Operating Junction Temperature	200	^oC

THERMAL DATA

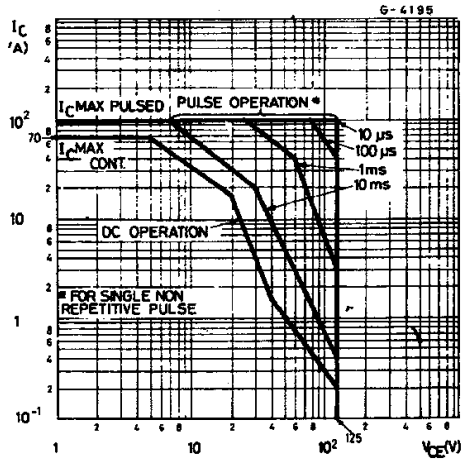
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	0.5	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 200 V V_{CB} = 200 V T_{case} = 125 ^oC			0.2 2	mA mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 125 V			1	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 7 V			0.2	µA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 200 mA	125			V
V_{EBO}	Emitter-base Voltage (I_C = 0)	I_E = 10 mA	10			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 35 A I_B = 2 A I_C = 70 A I_B = 7 A		 0.8	1 1.5	V V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = 35 A I_B = 2 A I_C = 70 A I_B = 7 A		 1.6	1.8 2	V V
h_{FE}*	DC Current Gain	I_C = 5 A V_{CE} = 4 V I_C = 50 A V_{CE} = 4 V	20 15		100	
$I_{s/b}$	Second Breakdown Collector Current	V_{CE} = 20 V t = 1 s	17.5			A
f_T	Transition-Frequency	I_C = 1 A V_{CE} = 5 V f = 1 MHz	10	16		MHz
t_{on}	Turn-on Time	I_C = 70 A I_{B1} = 7 A V_{CC} = 60 V		0.5	1.2	µs
t_s	Storage Time	I_C = 70 A I_{B1} = 7 A I_{B2} = -7 A V_{CC} = 60 V		0.82	2	µs
t_f	Fall Time			0.1	0.5	µs
	Clamped $E_{s/b}$ Collector Current	V_{clamp} = 125 V L = 500 µH	70			A

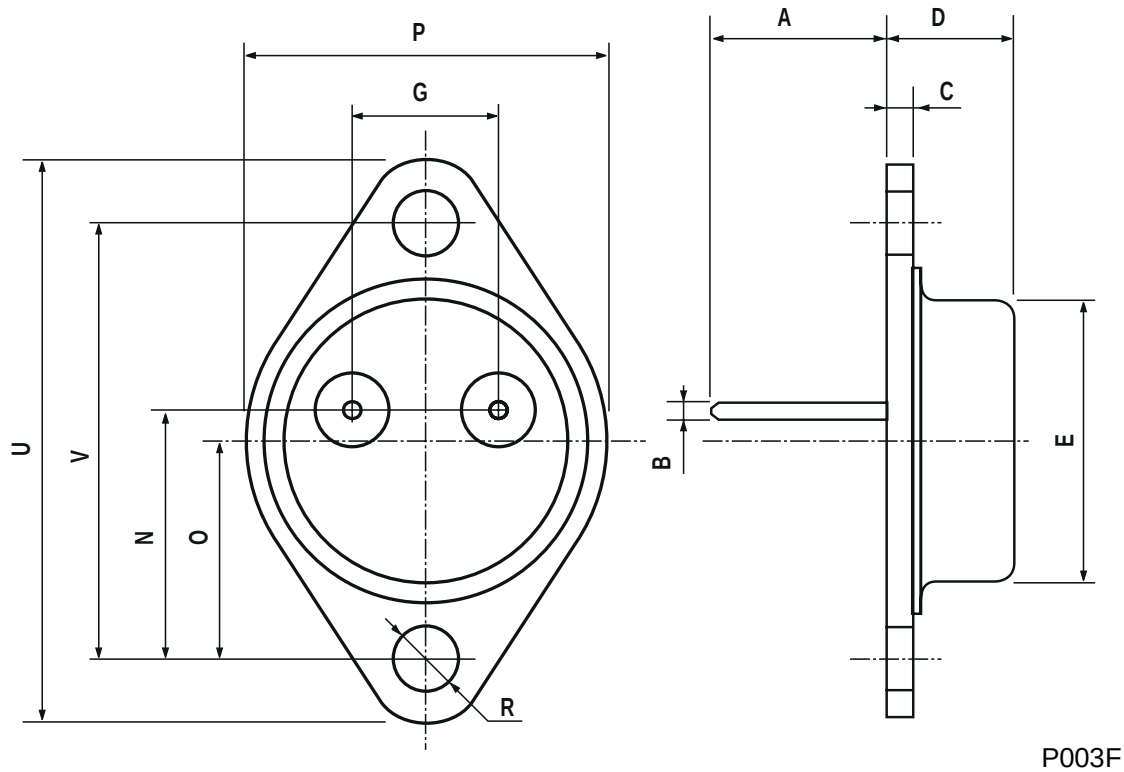
* Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %

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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