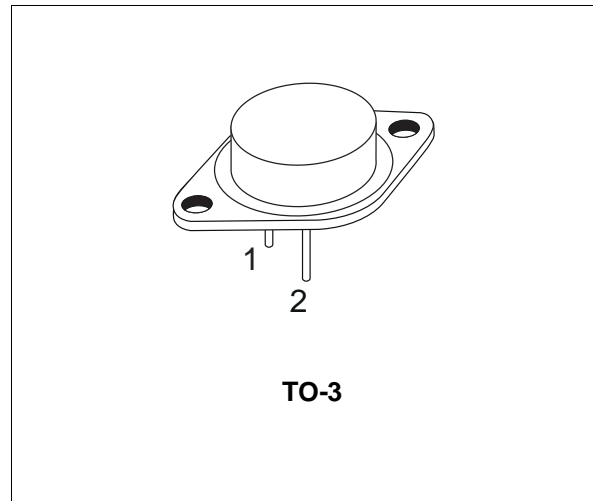


## HIGH CURRENT NPN SILICON TRANSISTOR

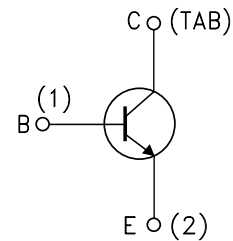
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR

### DESCRIPTION

The BUR51 is a silicon Multiepitaxial Planar NPN transistor in modified 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 ( $I_E = 0$ )	300	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	200	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	10	V
$I_C$	Collector Current	60	A
$I_{CM}$	Collector Peak Current ( $t_p = 10$ ms)	80	A
$I_B$	Base Current	16	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

## BUR51

### THERMAL DATA

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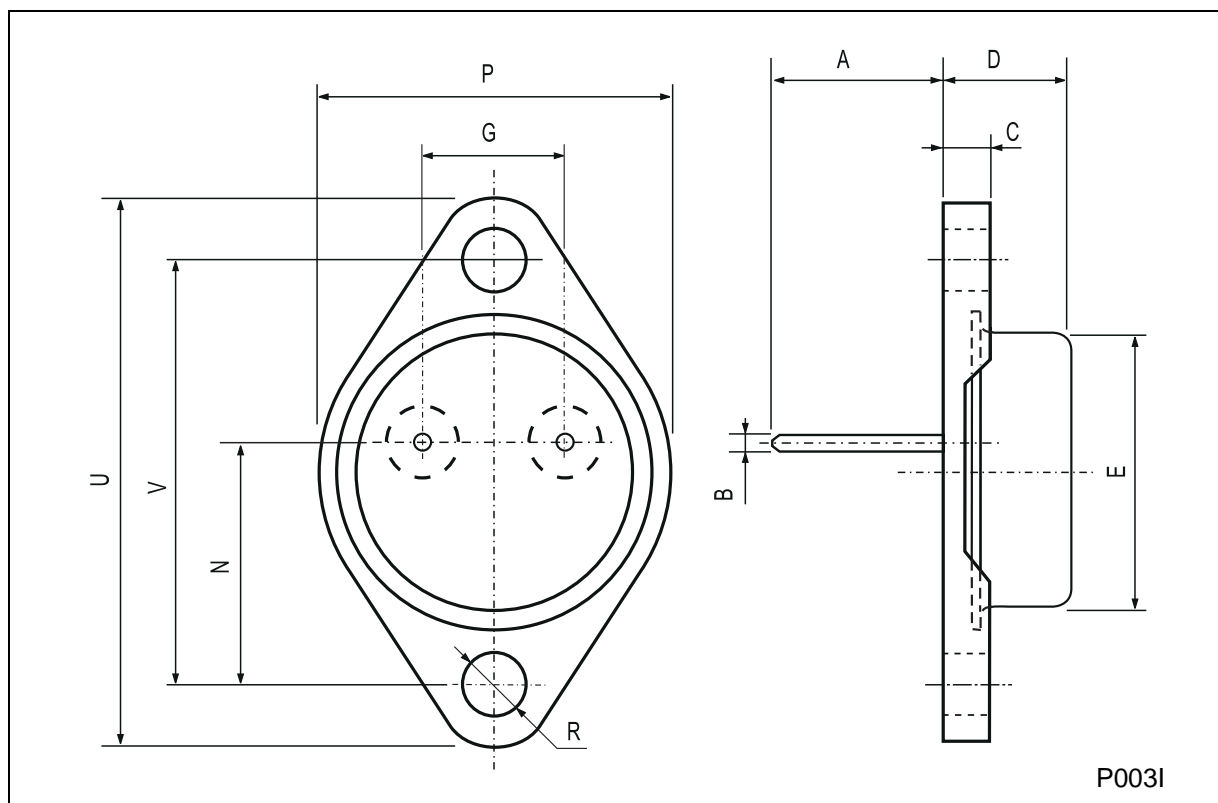
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CB0</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 300 V V <sub>CB</sub> = 300 V      T <sub>c</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> = 200 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>B</sub> = 0)	I <sub>C</sub> = 200 mA	200			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> = 30 A      I <sub>B</sub> = 2 A I <sub>C</sub> = 50 A      I <sub>B</sub> = 5 A		0.9	1 1.5	V V
V <sub>BE(sat)*</sub>	Base-emitter Saturation Voltage	I <sub>C</sub> = 30 A      I <sub>B</sub> = 2 A I <sub>C</sub> = 50 A      I <sub>B</sub> = 5 A		1.55	1.8 2	V V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 5 A      V <sub>CE</sub> = 4 V I <sub>C</sub> = 50 A      V <sub>CE</sub> = 4 V	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 f = 1 MHz      V <sub>CE</sub> = 5 V	10	16		MHz
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 50 A      I <sub>B1</sub> = 5 A V <sub>CC</sub> = 100 V		0.35	1	μs
t <sub>s</sub> t <sub>f</sub>	Storage Time Fall Time	I <sub>C</sub> = 50 A      I <sub>B1</sub> = 5 A I <sub>B2</sub> = -5 A      V <sub>CC</sub> = 100 V		0.9 0.24	2 0.6	μs μs
	Clamped E <sub>s/b</sub> Collector Current	V <sub>clamp</sub> = 200 V      L = 500 μH	50			A

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

**TO-3 (I) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11	11.7	13.1	0.433	0.461	0.516
B	1.45	1.5	1.6	0.057	0.059	0.063
C	2.7		2.92	0.106		0.115
D	8.9		9.4	0.350		0.370
E	19		20	0.748		0.787
G	10.7	10.9	11.1	0.421	0.429	0.437
N	16.5	16.9	17.2	0.650	0.665	0.677
P	25		26	0.984		1.024
R	3.88		4.2	0.153		0.165
U	38.5		39.3	1.516		1.547
V	30	30.14	30.3	1.181	1.187	1.193



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