

HIGH CURRENT NPN SILICON TRANSISTOR

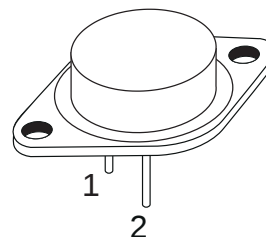
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

- MOTOR CONTROL
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT
- HIGH POWER TO-3 PACKAGE

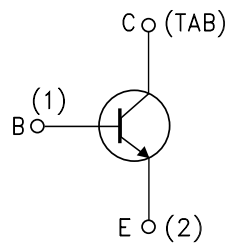
DESCRIPTION

The BUX22 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.



**TO-3
(version P)**

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	300	V
V_{CEX}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	300	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	250	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	40	A
I_{CM}	Collector Peak Current ($t_p = 10$ ms)	50	A
I_B	Base Current	8	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	350	W
T_{stg}	Storage Temperature	-65 to 200	$^\circ C$
T_j	Max Operating Junction Temperature	200	$^\circ C$

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.5	$^{\circ}C/W$
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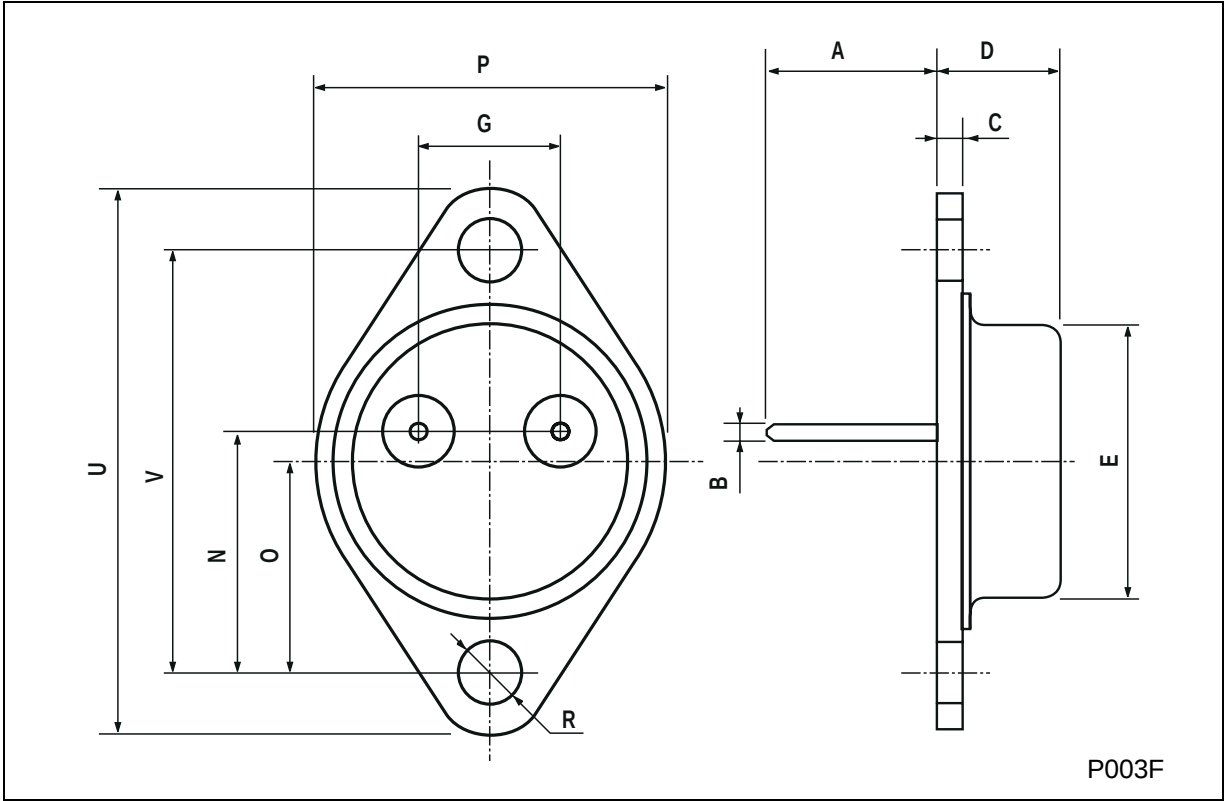
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 200\text{ V}$			3	mA
I_{CEX}	Collector Cut-off Current	$V_{CE} = 300\text{ V}$ $T_{case} = 125^{\circ}C$ $V_{BE} = -1.5V$			3	mA
		$V_{CE} = 300\text{ V}$ $V_{BE} = -1.5V$			12	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			1	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage	$I_C = 200\text{ mA}$	250			V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 50\text{ mA}$	7			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ A}$ $I_C = 20\text{ A}$		0.2 0.32	1 1.5	V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 20\text{ A}$		1.1	1.5	V
h_{FE}^*	DC Current Gain	$I_C = 10\text{ A}$ $I_C = 20\text{ A}$	20 10		60	
$I_{S/b}$	Second Breakdown Collector Current	$V_{CE} = 140\text{ V}$ $V_{CE} = 20\text{ V}$	$t = 1\text{ s}$ $t = 1\text{ s}$	0.15 17.5		A A
f_T	Transistor Frequency	$V_{CE} = 15\text{ V}$ $f = 10\text{ MHz}$	$I_C = 2\text{ A}$	10		MHz
t_{on}	Turn-on Time	$I_C = 20\text{ A}$ $V_{CC} = 100\text{ V}$	$I_{B1} = 2.5\text{ A}$	0.22	1.3	μs
t_s t_f	Storage Time Fall Time	$I_C = 20\text{ A}$ $I_{B2} = -2.5\text{ A}$	$I_{B1} = 2.5\text{ A}$ $V_{CC} = 100V$	1.5 0.17	2 0.5	μs μs
	Clamped $E_{S/b}$ Collector Current	$V_{clamp} = 250\text{ V}$ $L = 500\text{ }\mu H$	25			A

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 2\%$

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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