

HIGH CURRENT NPN SILICON TRANSISTOR

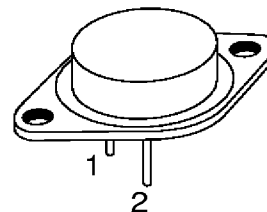
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

- MOTOR CONTROL
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

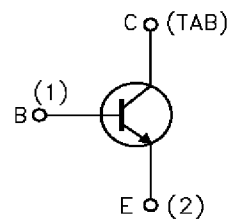
DESCRIPTION

The BUX41 is a silicon multi-epitaxial planar NPN transistor in Jedec TO-3 metal case, intended 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 ($I_E = 0$)	250	V
V_{CEX}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	250	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	200	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	15	A
I_{CM}	Collector Peak Current ($t_P = 10$ ms)	20	A
I_B	Base Current	3	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$	120	W
T_{stg}	Storage Temperature	-65 to 200	$^\circ C$
T_J	Max Operating Junction Temperature	200	$^\circ C$

BUX41

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.46	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 160\text{ V}$			1	mA
I_{CEX}	Collector Cut-off Current	$V_{CE} = 250\text{ V}$ $T_{case} = 125\text{ }^{\circ}\text{C}$			1	mA
		$V_{CE} = 250\text{ V}$ $V_{BE} = -1.5\text{ V}$			5	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			1	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 200\text{ mA}$	200			V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 50\text{ mA}$	7			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{ A}$ $I_C = 8\text{ A}$		0.38 0.6	1.2 1.6	V V
		$I_B = 0.5\text{ A}$ $I_B = 1\text{ A}$				
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 8\text{ A}$ $I_B = 1\text{ A}$		1.35	2	V
h_{FE*}	DC Current Gain	$I_C = 5\text{ A}$ $I_C = 8\text{ A}$	$V_{CE} = 4\text{ V}$ $V_{CE} = 4\text{ V}$		45	
$I_{S/b}$	Second Breakdown Collector Current	$V_{CE} = 30\text{ V}$ $V_{CE} = 135\text{ V}$	$t = 1\text{ s}$ $t = 1\text{ s}$			A A
f_T	Transistor Frequency	$V_{CE} = 15\text{ V}$ $f = 10\text{ MHz}$	8			MHz
t_{on}	Turn-on Time	$I_C = 8\text{ A}$ $V_{CC} = 150\text{ V}$		0.28	1	μs
t_s t_f	Storage Time Fall Time	$I_C = 8\text{ A}$ $I_{B2} = -1\text{ A}$		1.2 0.25	1.7 0.8	μs μs
	Clamped $E_{S/b}$ Collector Current	$V_{clamp} = 200\text{ V}$ $L = 500\text{ }\mu\text{H}$				A

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

TO-3 (H) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		11.7			0.460	
B	0.96		1.10	0.037		0.043
C			1.70			0.066
D			8.7			0.342
E			20.0			0.787
G		10.9			0.429	
N		16.9			0.665	
P			26.2			1.031
R	3.88		4.09	0.152		0.161
U			39.50			1.555
V		30.10			1.185	

