

HIGH CURRENT NPN SILICON TRANSISTOR

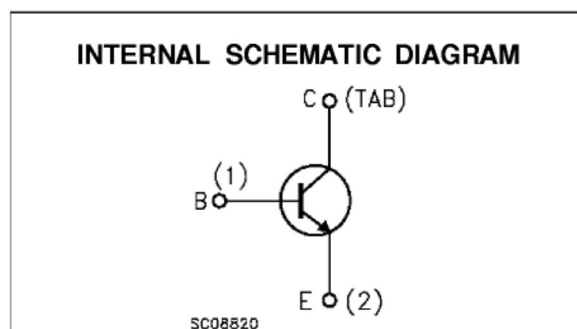
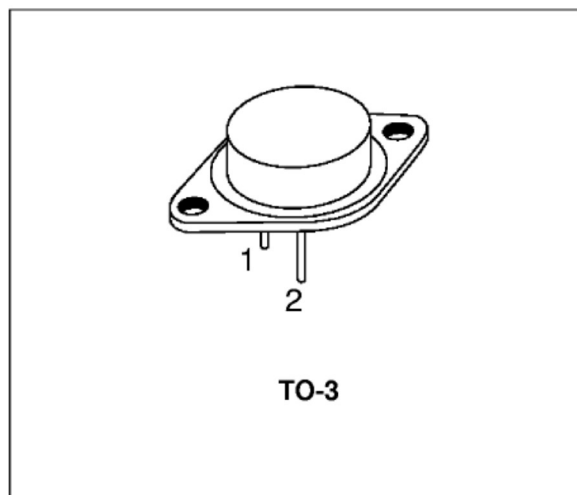
- SGS-THOMSON PREFERRED SALESType
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

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

DESCRIPTION

The BUX20 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.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	160	V
V_{CEX}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	160	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	125	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	50	A
I_{CM}	Collector Peak Current ($t_p = 10$ ms)	60	A
I_B	Base Current	10	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 ($I_B = 0$)	$V_{CE} = 100\text{ V}$			3	mA
I_{CEX}	Collector Cut-off Current	$V_{CE} = 160\text{ V}$ $T_{case} = 125^{\circ}C$ $V_{CE} = 160\text{ V}$			3 12	mA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			1	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 200\text{ mA}$	125			V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	$I_E = 50\text{ mA}$	7			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 25\text{ A}$ $I_C = 50\text{ A}$		0.3 0.55	0.6 1.2	V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 50\text{ A}$ $I_B = 5\text{ A}$		1.35	2	V
h_{FE*}	DC Current Gain	$I_C = 25\text{ A}$ $I_C = 50\text{ A}$	20 10		60	
$I_{S/b}$	Second Breakdown Collector Current	$V_{CE} = 40\text{ V}$ $V_{CE} = 20\text{ V}$	1.5 17.5			A A
f_T	Transistor Frequency	$V_{CE} = 15\text{ V}$ $f = 10\text{ MHz}$	8			MHz
t_{on}	Turn-on Time See fig.2	$I_C = 50\text{ A}$ $V_{CC} = 60\text{ V}$		0.4	1.5	μs
t_s t_f	Storage Time Fall Time See fig.2 See fig.2	$I_C = 50\text{ A}$ $I_{B2} = -5\text{ A}$		0.85 0.1	1.2 0.3	μs μs
	Clamped $E_{s/b}$ Collector Current See fig.1	$V_{clamp} = 125\text{ V}$ $L = 500\text{ }\mu H$	50			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

