

## HIGH CURRENT NPN SILICON TRANSISTOR

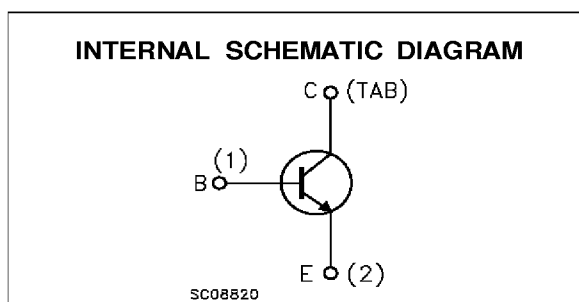
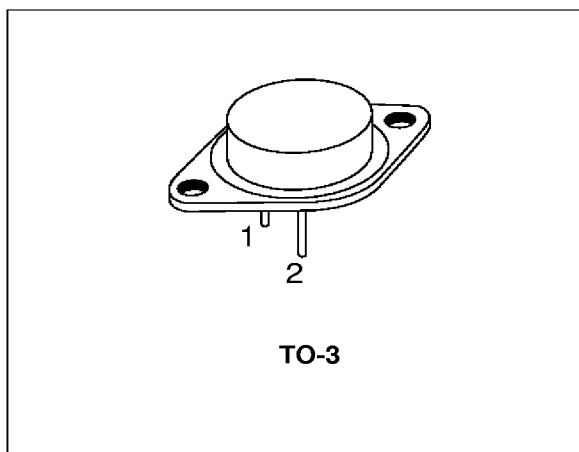
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

### APPLICATIONS

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

### DESCRIPTION

The BUX20 is a silicon multi-epitaxial 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 $T_{case} \leq 25$ °C	350	W
$T_{stg}$	Storage Temperature	-65 to 200	°C
$T_j$	Max Operating Junction Temperature	200	°C

## BUX20

### 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 ( $I_B = 0$ )	$V_{CE} = 100 V$			3	mA
$I_{CEX}$	Collector Cut-off Current	$V_{CE} = 160 V$ $V_{BE} = -1.5V$			3	mA
		$T_{case} = 125^{\circ}C$ $V_{CE} = 160 V$ $V_{BE} = -1.5V$			12	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5 V$			1	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 200 mA$	125			V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	$I_E = 50 mA$	7			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 25 A$ $I_B = 2.5 A$		0.3	0.6	V
		$I_C = 50 A$ $I_B = 5 A$		0.55	1.2	V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 50 A$ $I_B = 5 A$		1.35	2	V
$h_{FE*}$	DC Current Gain	$I_C = 25 A$ $V_{CE} = 2 V$	20		60	
		$I_C = 50 A$ $V_{CE} = 4 V$	10			
$I_{S/b}$	Second Breakdown Collector Current	$V_{CE} = 40 V$ $t = 1 s$	1.5			A
		$V_{CE} = 20 V$ $t = 1 s$	17.5			A
$f_T$	Transistor Frequency	$V_{CE} = 15 V$ $I_C = 2 A$ $f = 10 MHz$	8			MHz
$t_{on}$	Turn-on Time See fig.2	$I_C = 50 A$ $I_{B1} = 5 A$ $V_{CC} = 60 V$		0.4	1.5	$\mu s$
$t_s$ $t_f$	Storage Time Fall Time See fig.2	$I_C = 50 A$ $I_{B1} = 5 A$ $I_{B2} = -5 A$ $V_{CC} = 60V$		0.85	1.2	$\mu s$
				0.1	0.3	$\mu s$
	Clamped $E_{s/b}$ Collector Current See fig.1	$V_{clamp} = 125 V$ $L = 500 \mu H$	50			A

\* Pulsed: Pulse duration = 300 $\mu s$ , 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

