SGS-THOMSON MICROELECTRONICS

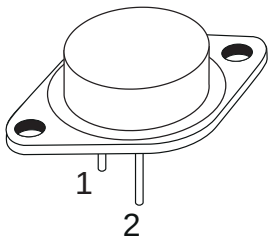
BUX12

HIGH CURRENT NPN SILICON TRANSISTOR

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

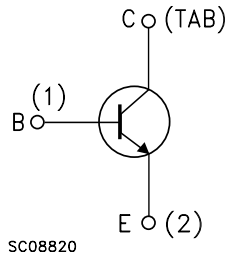
APPLICATIONS
- MOTOR CONTROL
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION
The BUX12 is a silicon multiepitaxial 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)	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 (Ic = 0)	7	V
I_C	Collector Current	20	A
I_{CM}	Collector Peak Current (t_P = 10 ms)	25	A
I_B	Base Current	4	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25\ ^oC$	150	W
T_{stg}	Storage Temperature	-65 to 200	^oC
T_j	Max Operating Junction Temperature	200	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1.17	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 200 V			1.5	mA
I_{CEX}	Collector Cut-off Current	V_{CE} = 300 V V_{BE} = -1.5V T_{case} = 125 ^oC V_{CE} = 300 V V_{BE} = -1.5V			1.5 6	mA 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	250			V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	I_E = 50 mA	7			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 5 A I_B = 0.5 A I_C = 10 A I_B = 1.25 A		0.22 0.5	1 1.5	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 10 A I_B = 1.25 A		1.23	1.5	V
h_{FE}	DC Current Gain	I_C = 5 A V_{CE} = 4 V I_C = 10 A V_{CE} = 4 V	20 10		60	
$I_{S/b}$	Second Breakdown Collector Current	V_{CE} = 30 V t = 1 s V_{CE} = 140 V t = 1 s	5 0.15			A A
f_T	Transistor Frequency	I_C = 1 A V_{CE} = 15 V f = 10 MHz	8			MHz
t_{on}	Turn-on Time See fig.2	I_C = 10 A I_{B1} = 1.25 A V_{CC} = 150V		0.28	1	µs
t_s t_f	Storage Time See fig.2 Fall Time See fig.2	I_C = 10 A I_{B1} = 1.25 A I_{B2} = -1.25 A V_{CC} = 150V		1.45 0.23	2 0.5	µs µs
	Clamped $E_{s/b}$ Collector Current	V_{clamp}=250 V L = 500 µH	10			A

* Pulsed: Pulse duration = 300µs, duty cycle ≤ 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