SGS-THOMSON MICROELECTRONICS

BUX22

HIGH CURRENT NPN SILICON TRANSISTOR

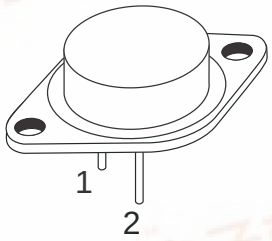
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

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

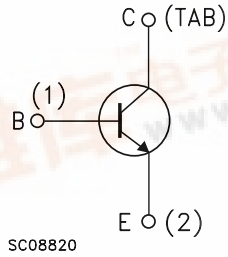
DESCRIPTION

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 (Ic = 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} ≤ 25 °C	350	W
T_{stg}	Storage Temperature	-65 to 200	°C
T_j	Max Operating Junction Temperature	200	°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	0.5	$^oC/W$

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			3	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			3 12	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 = 10 A I_B = 1 A I_C = 20 A I_B = 2.5 A		0.2 0.32	1 1.5	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 20 A I_B = 2.5 A		1.1	1.5	V
h_{FE}*	DC Current Gain	I_C = 10 A V_{CE} = 4 V I_C = 20 A V_{CE} = 4 V	20 10		60	
$I_{S/b}$	Second Breakdown Collector Current	V_{CE} = 140 V t = 1 s V_{CE} = 20 V t = 1 s	0.15 17.5			A A
f_T	Transistor Frequency	V_{CE} = 15 V I_C = 2 A f = 10 MHz	10			MHz
t_{on}	Turn-on Time	I_C = 20 A I_{B1} = 2.5 A V_{CC} = 100 V		0.22	1.3	µs
t_s t_f	Storage Time Fall Time	I_C = 20 A I_{B1} = 2.5 A I_{B2} = - 2.5 A V_{CC} = 100V		1.5 0.17	2 0.5	µs µs
	Clamped $E_{s/b}$ Collector Current	V_{clamp}= 250 V L = 500 µH	25			A

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