SGS-THOMSON MICROELECTRONICS

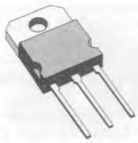
BUX10P

HIGH CURRENT, HIGH SPEED, POWER TRANSISTOR

ADVANCE DATA

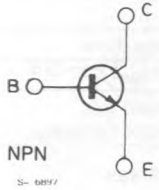
DESCRIPTION

The BUX10P is a silicon multiepitaxial planar NPN transistor in SOT-93 case, intended for use in switching and linear applications in military and industrial equipment.



SOT-93

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage (I_E = 0)	160	V
V_{CEX}	Collector-emitter Voltage (V_{BE} = 1.5 V)	160	V
V_{CEO}	Collector-emitter (I_B = 0)	125	V
V_{EBO}	Emitter-base Voltage (I_C = 0)	7	V
I_C	Collector Current	25	A
I_{CM}	Collector Peak Current (t_p = 10 ms)	30	A
I_B	Base Current	5	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C	106	W
T_{stg}	Storage Temperature	– 65 to 150	°C
T_j	Junction Temperature	150	°C

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	1.17	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = 100 V			1.5	mA
I_{CEX}	Collector Cutoff Current	V_{CE} = 160 V V_{BE} = – 1.5 V			1.5	mA
		T_{case} = 125 °C				
		V_{CE} = 160 V V_{BE} = – 1.5 V			6	mA
I_{EBO}	Emitter Cutoff 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 = 10 A I_B = 1 A		0.3	0.6	V
		I_C = 20 A I_B = 2 A		0.7	1.2	V
$V_{BE(sat)}$	Base-emitter Saturation Voltage	I_C = 20 A I_B = 2 A		1.6	2	V
h_{FE}	DC Current Gain	I_C = 10 A V_{CE} = 2 V	20		60	
		I_C = 20 A V_{CE} = 4 V	10			
$I_{s/b}$	Second Breakdown Collector Current	V_{CE} = 30 V t = 1 s	3.53			A
		V_{CE} = 48 V t = 1 s	1			A
f_T	Transition Frequency	I_C = 1 A V_{CE} = 15 V f = 10 MHz	8			MHz
t_{on}	Turn-on Time	I_C = 20 A I_{B1} = 2 A V_{CC} = 30 V		0.5	1.5	µs
t_s	Storage Time	I_C = 20 A I_{B1} = I_{B2} = 2 A V_{CC} = 30 V		0.6	1.2	µs
t_f	Fall Time			0.15	0.3	µs
	Clamped $E_{s/b}$ Collector Current	V_{clamp} = 125 V L = 500 µH	20			A

Safe Operating Areas.