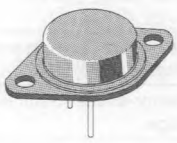
SGS-THOMSON MICROELECTRONICS

BUX14

HIGH VOLTAGE POWER SWITCH

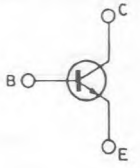
DESCRIPTION

The BUX14 is a silicon multiepitaxial mesa NPN transistor in Jedec TO-3 metal case, intended for high voltage, fast switching applications.



TO-3

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-emitter Voltage (V_{BE} = 0)	450	V
V_{CER}	Collector-emitter Voltage ($R_{BE} \leq 100\ \Omega$)	440	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	400	V
V_{EBO}	Base-emitter Voltage (I_C = 0)	7	V
I_C	Collector Current	10	A
I_{CM}	Collector Peak Current ($t_p \leq 10$ ms)	15	A
I_B	Base Current	2	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C	150	W
T_{stg}	Storage Temperature	– 65 to 200	°C
T_j	Junction Temperature	200	°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_{CES}	Collector Cutoff Current (V_{BE} = 0)	V_{CE} = 450 V V_{CE} = 450 V T_{case} = 125 °C			1.5 6	mA mA
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = 320 V			1.5	mA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 7 V			1	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 100 mA	400			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 3 A I_B = 0.6 A I_C = 6 A I_B = 1.2 A			0.6 1.5	V V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = 6 A I_B = 1.2 A			1.5	V
h_{FE}*	DC Current Gain	I_C = 3 A V_{CE} = 4 V I_C = 6 A V_{CE} = 4 V	15 8		60	
f_T	Transition Frequency	I_C = 1 A V_{CE} = 15 V f = 10 MHz	8			MHz
t_{on}	Turn-on Time	I_C = 6 A I_{B1} = 1.2 A V_{CC} = 150 V			1.4	µs
t_s	Storage Time	I_C = 6 A I_{B1} = − I_{B2} = 1.2 A V_{CC} = 150 V			3	µs
t_f	Fall Time				1.2	µs

* Pulsed : pulse duration = 300 µs, duty cycle < 2 %.