SGS-THOMSON MICROELECTRONICS

BUX98P

HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTOR

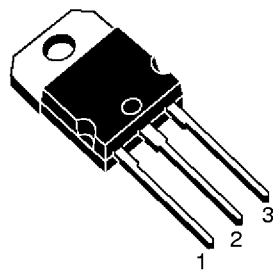
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

- SWITCH MODE POWER SUPPLIES
- MOTOR CONTROL
- HIGH FREQUENCY AND EFFICENCY CONVERTERS

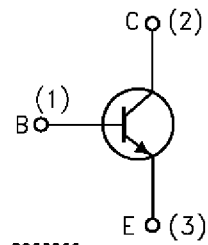
DESCRIPTION

The BUX98P is a silicon multiepitaxial mesa NPN transistor in Jedec TO-218 case, intended for use in switching and industrial applications from single and three-phase mains operations.



TO-218

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-Emitter Voltage (V_{EB} = - 1.5V)	850	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	450	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	7	V
I_E	Emitter Current	30	A
I_{EM}	Emitter Peak Current	45	A
I_B	Base Current	6	A
I_{BM}	Base Peak Current	10	A
P_{tot}	Total Dissipation at Tc < 25 °C	200	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	0.63	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current (R_{BE} = 5Ω)	V_{CE} = V_{CEV} V_{CE} = V_{CEV} T_c = 100°C			0.2 1	mA mA
I_{CEV}	Collector Cut-off Current	V_{CE} = V_{CEV} V_{BE} = -1.5V V_{CE} = V_{CEV} V_{BE} = -1.5V T_c = 100°C			0.2 1	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 = 0.2A L = 25mH	450			V
V_{EBO}	Emitter-Base Voltage(I_C=0)	I_E = 100mA		7		V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 20A I_B = 4A I_C = 20A I_B = 4A T_j = 100°C		0.35 0.7	0.9 2	V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 20A I_B = 4A I_C = 20A I_B = 4A T_j = 100°C		1.05 1	1.5 1.5	V V
di_c/d_t	Rate of Rise of on-state Collector Current	V_{CC} = 300V I_{B1} = 6A R_C =0 T_p =3µs T_j = 100°C	120	160		A/µs
$V_{CE(3\mu s)}$	Collector-Emitter Dynamic Voltage	V_{CC} = 300V I_{B1} = 6A R_C =15Ω T_j = 100°C		4.5	8	V
$V_{CE(5\mu s)}$	Collector-Emitter Dynamic Voltage	V_{CC} = 300V I_{B1} = 6A R_C =15Ω T_j = 100°C		2.5	4	V
t_s t_f t_c	Storage time Fall Time Crossover Time	V_{CC} = 50V V_{clamp} = 450V I_C = 20A I_B = 4A V_{BB} = - 5V R_{BB} = 0.62Ω L_C = 0.12mH T_j = 100°C		3 0.25 0.5	4.5 0.4 0.7	µs µs µs
V_{CEW}	Maximun Collector Emitter Voltage without Snubber	V_{CC} = 50V I_{CWoff} = 30A V_{BB} = - 5V I_{B1} = 4A L_C = 0.08mH R_{BB} = 0.62Ω T_j = 125°C	450			V

TO-218 (SOT-93) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		4.9	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.5			0.098	
E	0.5		0.78	0.019		0.030
F	1.1		1.3	0.043		0.051
G	10.8		11.1	0.425		0.437
H	14.7		15.2	0.578		0.598
L2	–		16.2	–		0.637
L3		18			0.708	
L5	3.95		4.15	0.155		0.163
L6		31			1.220	
R	–		12.2	–		0.480
Ø	4		4.1	0.157		0.161