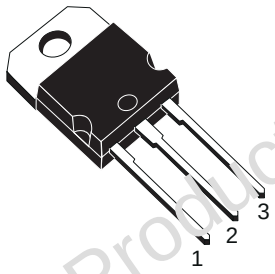
BUW48
BUW49

HIGH POWER NPN SILICON TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN



TO-218

APPLICATION

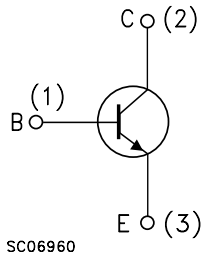
- SWITCHING REGULATORS
- MOTOR CONTROL
- HIGH FREQUENCY AND EFFICENCY CONVERTERS

DESCRIPTION

The BUW48 and BUW49 are Multi-Epitaxial Planar NPN transistor in TO-218 plastic package.

They are intented for use in high frequency and efficiency converters such us motor controllers and industrial equipment.

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BUW48	BUW49	
V_{CEV}	Collector-Emitter Voltage (V_{BE} = -1.5 V)	120	160	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	60	80	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	7		V
I_C	Collector Current	30		A
I_{CM}	Collector Peak Current (t_p < 5 ms)	45	40	A
I_B	Base Current	8	6	A
I_{BM}	Base Peak Current (t_p < 5 ms)	12	10	A
P_{tot}	Total Dissipation at T_c = 25 °C	150		W
T_{stg}	Storage Temperature	-65 to 175		°C
T_j	Max. Operating Junction Temperature	175		°C

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-case	Max	1	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector Cut-off Current (V_{BE} = -1.5V	V_{CE} = V_{CEX} V_{CE} = V_{CEX} T_C =125°C			1 3	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_B = 0)	I_C = 0.2A L = 25 mH for **BUW48** for **BUW49**	60 80			V V
V_{EBO}	Emitter-base Voltage (I_C = 0)	I_E = 50 mA	7			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 20A I_B = 2A for **BUW48** I_C = 40A I_B = 4A for **BUW48** I_C = 15A I_B = 1.5A for **BUW49** I_C = 30A I_B = 3A for **BUW49**			0.6 1.4 0.5 1.2	V V V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 40A I_B = 4A for **BUW48** I_C = 30A I_B = 3A for **BUW49**			2.1 2	V V
f_T	Transition Frequency	I_C = 1A V_{CE} = 15V f = 15 MHz		8		MHz

RESISTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_{on} t_s t_f	Turn-on Time Storage Time Fall Time	for BUW48 V_{CC} = 60V I_C = 40A I_{B1} = -I_{B2} = 4A		1.2 0.6 0.17	1.5 1.1 0.25	µs µs µs
t_s t_f	Storage Time Fall Time	for BUW48 V_{CC} = 60V I_C = 40A I_{B1} = -I_{B2} = 4A T_C =100°C			1.65 0.5	µs µs
t_{on} t_s t_f	Turn-on Time Storage Time Fall Time	for BUW49 V_{CC} = 80V I_C = 30A I_{B1} = -I_{B2} = 4A		0.8 0.6 0.15	1.2 1.1 0.25	µs µs µs
t_s t_f	Storage Time Fall Time	for BUW49 V_{CC} = 80V I_C = 30A I_{B1} = -I_{B2} = 4 T_C =100°C			1.65 0.5	µs µs

* Pulsed: Pulse duration = 300 µs, duty cycle < 1.5 %

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