

HIGH POWER NPN SILICON TRANSISTORS

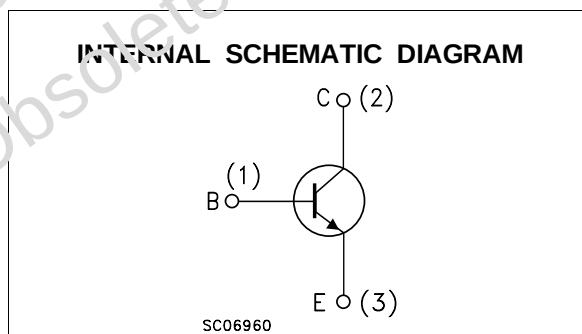
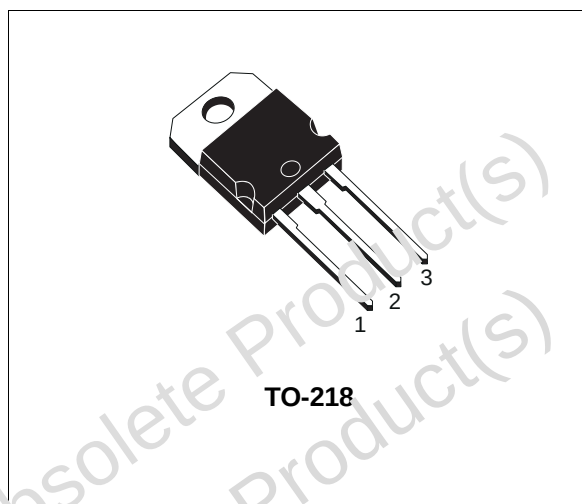
- STMicroelectronics PREFERRED SALESTYPES
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN

APPLICATION

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

DESCRIPTION

The BUW48 and BUW49 are Multi-Epitaxial Planar NPN transistor in TO-218 plastic package. They are intended for use in high frequency and efficiency converters such as motor controllers and industrial equipment.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BUW48	BUW49	
V_{CEV}	Collector-Emitter Voltage ($V_{BE} = -1.5\text{ V}$)	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 ($t_p < 5\text{ ms}$)	45	40	A
I_B	Base Current	8	6	A
I_{BM}	Base Peak Current ($t_p < 5\text{ ms}$)	12	10	A
P_{tot}	Total Dissipation at $T_c = 25\text{ }^{\circ}\text{C}$	150		W
T_{stg}	Storage Temperature	-65 to 175		$^{\circ}\text{C}$
T_j	Max. Operating Junction Temperature	175		$^{\circ}\text{C}$

BUW48 BUW49

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	1	°C/W
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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

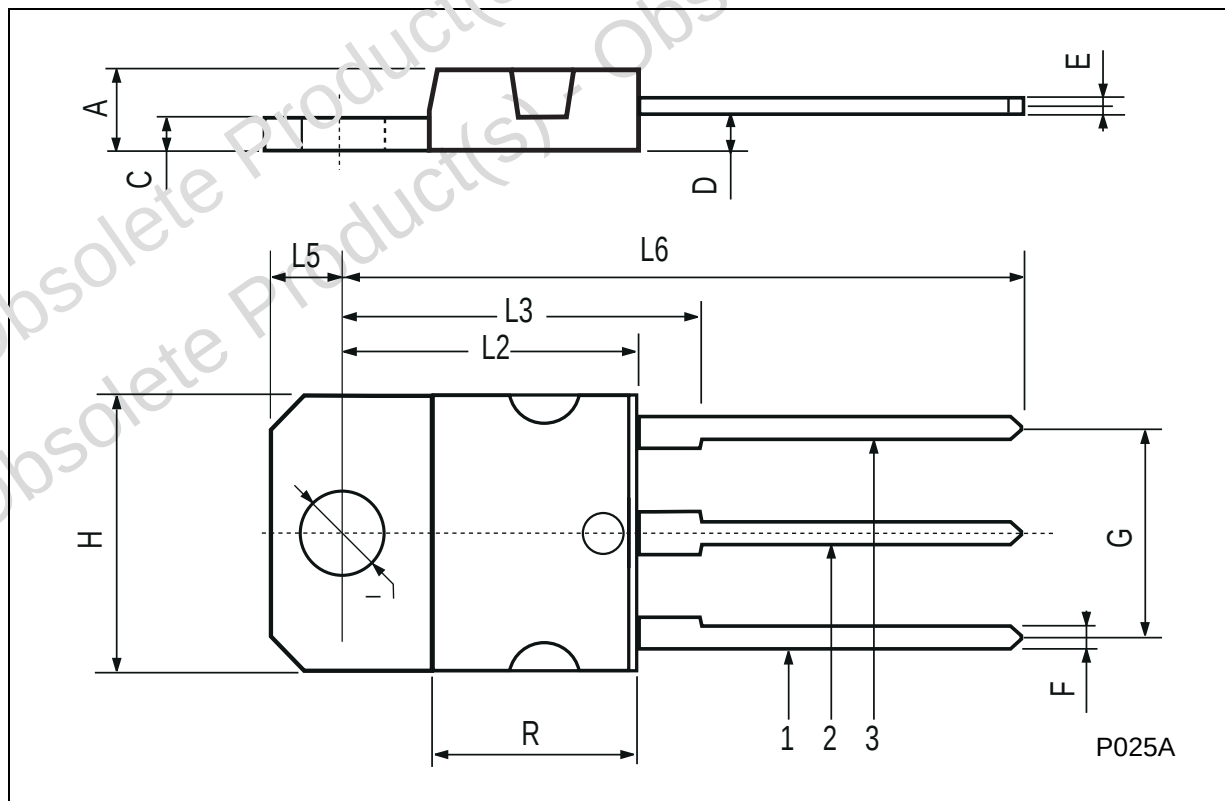
RESISTIVE LOAD

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t _{on}	Turn-on Time	for BUW48		1.2	1.5	μs
t _s	Storage Time	V _{CC} = 60V I _C = 40A		0.6	1.1	μs
t _f	Fall Time	I _{B1} = -I _{B2} = 4A		0.17	0.25	μs
t _s	Storage Time	for BUW48			1.65	μs
t _f	Fall Time	V _{CC} = 60V I _C = 40A I _{B1} = -I _{B2} = 4A T _C = 100°C			0.5	μs
t _{on}	Turn-on Time	for BUW49		0.8	1.2	μs
t _s	Storage Time	V _{CC} = 80V I _C = 30A		0.6	1.1	μs
t _f	Fall Time	I _{B1} = -I _{B2} = 4A		0.15	0.25	μs
t _s	Storage Time	for BUW49			1.65	μs
t _f	Fall Time	V _{CC} = 80V I _C = 30A I _{B1} = -I _{B2} = 4A T _C = 100°C			0.5	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



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