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## HIGH POWER NPN SILICON TRANSISTORS

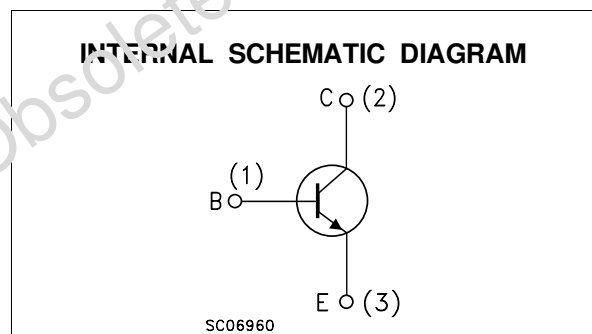
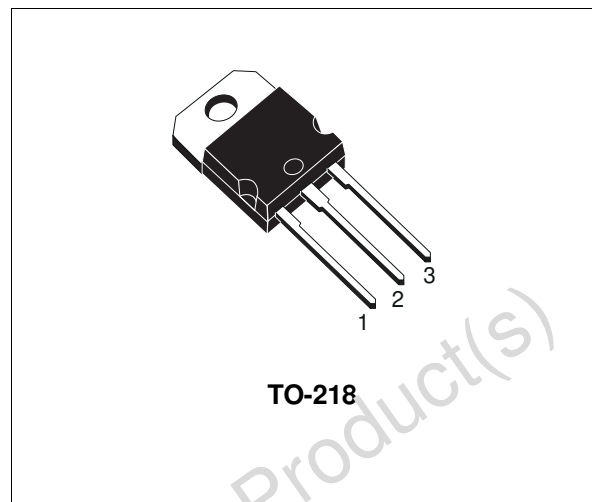
- STMicroelectronics PREFERRED SALESTYPES
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN

### 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	$^{\circ}C/W$
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### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEX}$	Collector Cut-off Current ( $V_{BE} = -1.5V$ )	$V_{CE} = V_{CEX}$ $V_{CE} = V_{CEX}$ $T_C = 125^{\circ}C$			1 3	mA mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5V$			1	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 0.2A$ $L = 25mH$ for <b>BUW48</b> for <b>BUW49</b>	60 80			V V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	$I_E = 50mA$	7			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 20A$ $I_B = 2A$ for <b>BUW48</b> $I_C = 40A$ $I_B = 4A$ for <b>BUW48</b> $I_C = 15A$ $I_B = 1.5A$ for <b>BUW49</b> $I_C = 30A$ $I_B = 3A$ for <b>BUW49</b>			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 <b>BUW48</b> $I_C = 30A$ $I_B = 3A$ for <b>BUW49</b>			2.1 2	V V
$f_T$	Transition Frequency	$I_C = 1A$ $V_{CE} = 15V$ $f = 15MHz$		8		MHz

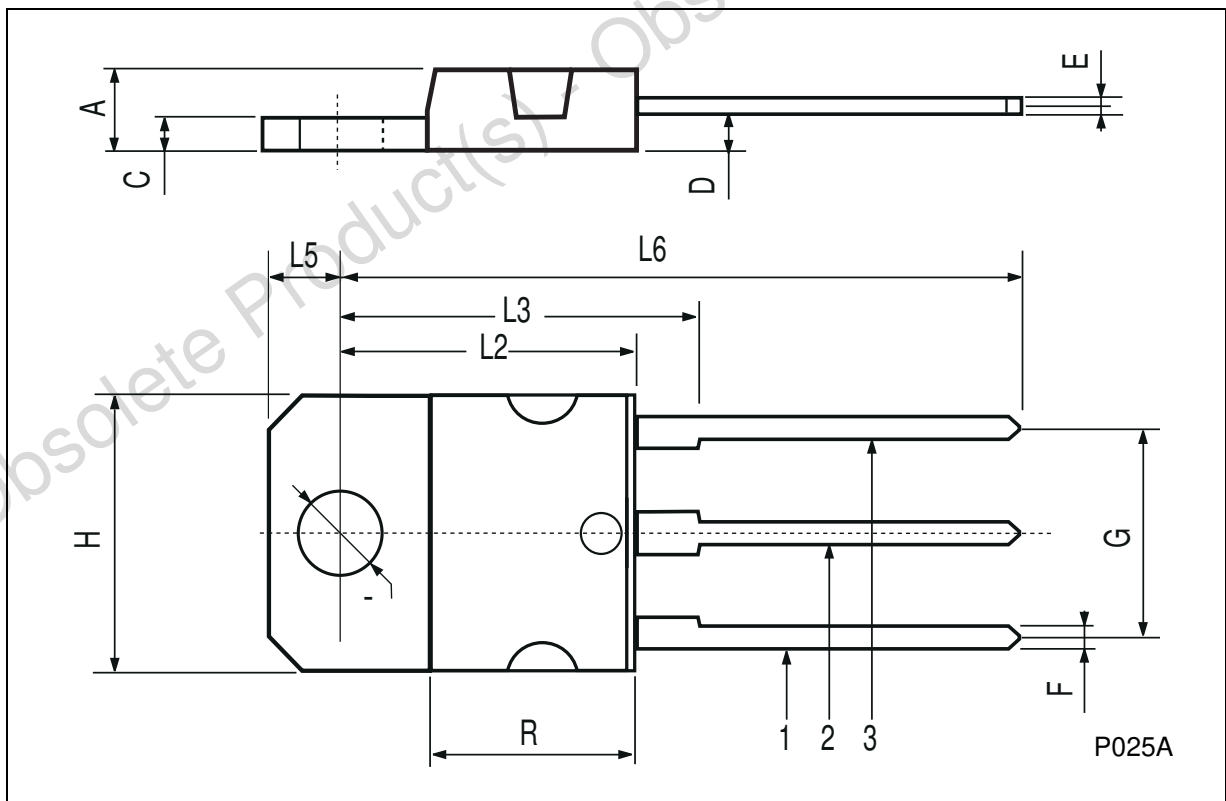
### RESISTIVE LOAD

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	$\mu s$ $\mu s$ $\mu s$
$t_s$ $t_f$	Storage Time Fall Time	for BUW48 $V_{CC} = 60V$ $I_C = 40A$ $I_{B1} = -I_{B2} = 4A$ $T_C = 100^{\circ}C$			1.65 0.5	$\mu s$ $\mu s$
$t_{on}$ $t_s$ $t_f$	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	$\mu s$ $\mu s$ $\mu s$
$t_s$ $t_f$	Storage Time Fall Time	for BUW49 $V_{CC} = 80V$ $I_C = 30A$ $I_{B1} = -I_{B2} = 4A$ $T_C = 100^{\circ}C$			1.65 0.5	$\mu s$ $\mu s$

\* Pulsed: Pulse duration = 300  $\mu s$ , 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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