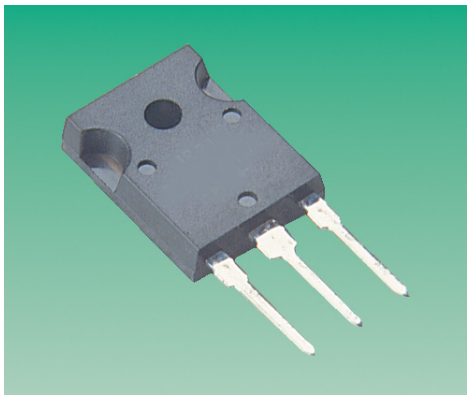
BUW12A

8A Power Transistors

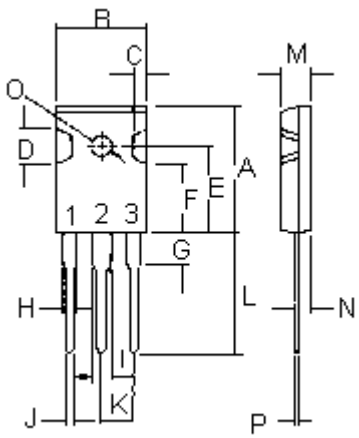
High Voltage Switching



Features:

High Voltage Power Transistor is a fast switching high voltage transistor, more specially intended for operating in industrial.

- Collector-Emitter Sustaining Voltage - $V_{CEO(sus)}$ = 450V (Minimum) - BUW12A.
- Low Collector-Emitter Saturation Voltage - $V_{CE(sat)}$ = 1.5V (Maximum) at I_C = 6.0A, I_B = 1.2A.



Pin 1. Base
2. Collector
3. Emitter

Dimensions	Minimum	Maximum
A	20.63	22.38
B	15.38	16.20
C	1.90	2.70
D	5.10	6.10
E	14.81	15.22
F	11.72	12.84
G	4.20	4.50
H	1.82	2.46
I	2.92	3.23
J	0.89	1.53
K	5.26	5.66
L	18.50	21.50
M	4.68	5.36
N	2.40	2.80
O	3.25	3.65
P	0.55	0.70

Dimensions : Millimetres

NPN
BUW12A

8 Ampere
Power
Transistors
450 Volts
125 Watts

TO-247(3P)

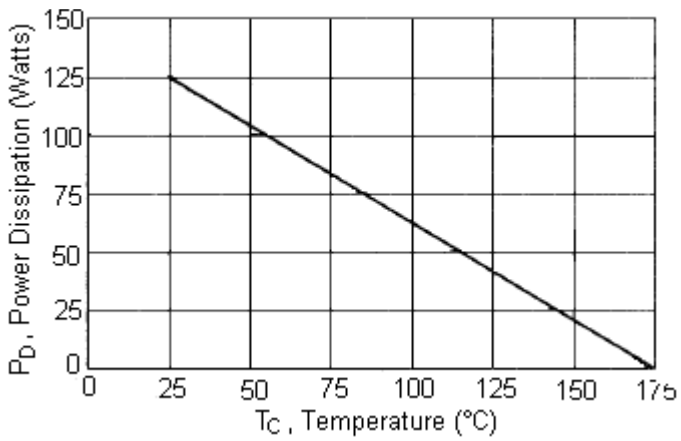
Maximum Ratings

Characteristic	Symbol	BUW12A	Unit
Collector-Emitter Voltage	V_{CEO}	450	V
Collector-Emitter Voltage (V_{BE} = 0)	V_{CES}	1000	
Emitter-Base Voltage	V_{EBO}	9.0	
Collector Current-Continuous -Peak	I_C	8.0 20	A
Base Current-Continuous	I_B	4.0	
Total Power Dissipation at T_C = 25°C Derate above 25°C	P_D	125 0.833	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +175	°C

Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	Rθjc	1.2	°C/W

Figure - 1 Power Derating

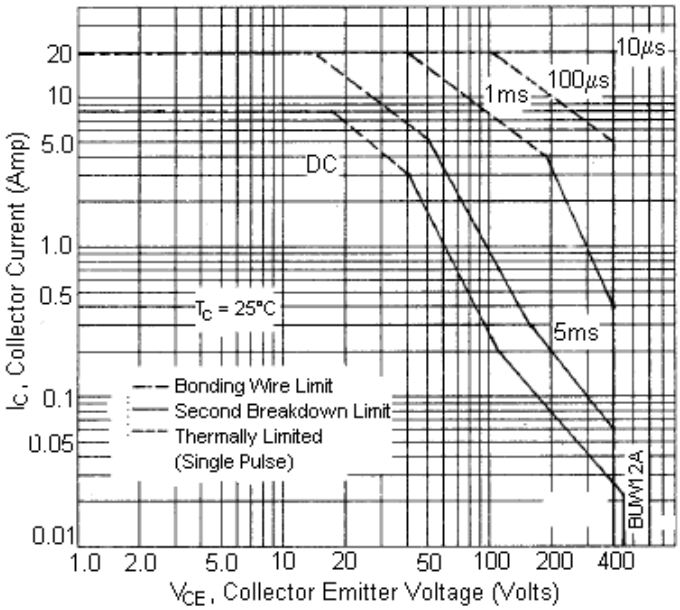


Electrical Characteristics (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Minimum	Maximum	Unit
OFF Characteristics					
Collector-Emitter Sustaining Voltage (1) (I_C = 100mA, I_B = 0, L = 25mH)	BUW12A	$V_{CEO(sus)}$	450	-	V
Collector Cut off Current (V_{CE} = 1000V, V_{BE} = 0)	BUW12A	I_{CES}	-	1.0	mA
Emitter Cut off Current (V_{EB} = 9.0V, I_C = 0)		I_{EBO}	-	10	
ON Characteristics (1)					
Collector-Emitter Saturation Voltage (I_C = 6.0A, I_B = 1.2A)		$V_{CE(sat)}$	-	1.5	V
Base-Emitter Saturation Voltage (I_C = 6.0A, I_B = 1.2A)		$V_{BE(sat)}$	-		
Switching Characteristics					
Turn On Time	V_{CC} = 240V, I_C = 6.0A I_{B1} = 1.2A, I_{B2} = -1.2A	t_{on}	-	1.0	µs
Storage Time		t_s	-	4.0	
Fall Time		t_f	-	0.8	

(1) Pulse Test: Pulse Width ≤300µs, Duty Cycle ≤2.0%

Active-Region Safe Operating Area



There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate I_C-V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of SOA curve is based on $T_{J(PK)}$ = 175°C; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)} \leq$175°C. At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

Specifications

$I_{C(av)}$ maximum (A)	V_{CEO} maximum (V)	V_{CES} maximum (V)	$V_{CE(Sat)}$ (V) at I_C = 6A	P_{tot} at 25°C (W)	Package	Type	Part Number
8	450	1000	1.5	125	TO-3P	NPN	BUW12A

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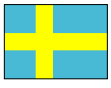

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