

HIGH VOLTAGE POWER TRANSISTOR

The BUW12 and BUW12A Type are a fast switching high voltage transistor, more specially intended for operating in industrial.

FEATURES:

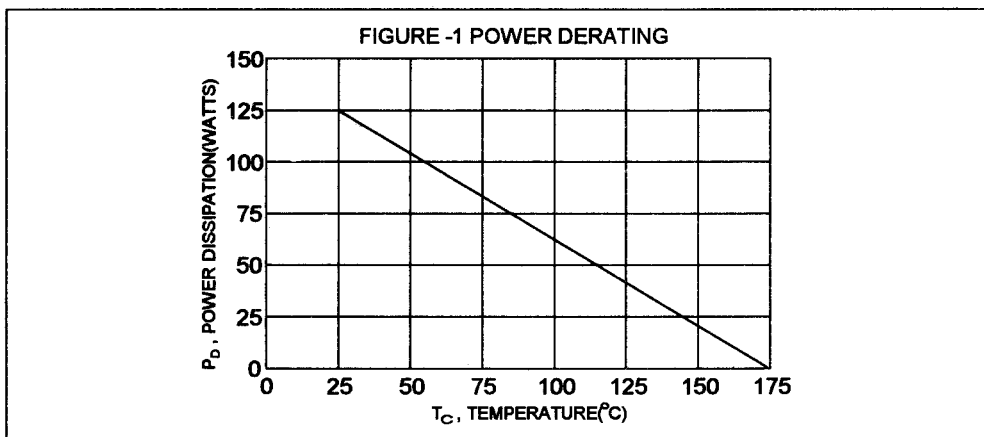
- * Collector-Emitter Sustaining Voltage -
 $V_{CE(sus)} = 400 \text{ V (Min.) - BUW12}$
 $= 450 \text{ V (Min.) - BUW12A}$
- * Low Collector-Emitter Saturation Voltage -
 $V_{CE(sat)} = 1.5\text{V (Max.) @ } I_C = 6.0 \text{ A, } I_B = 1.2 \text{ A}$

MAXIMUM RATINGS

Characteristic	Symbol	BUW12	BUW12A	Unit
Collector-Emitter Voltage	V_{CEO}	400	450	V
Collector-Emitter Voltage ($V_{BE}=0$)	V_{CES}	850	1000	V
Emitter-Base Voltage	V_{EBO}	9.0		V
Collector Current - Continuous - Peak	I_C	8.0 20		A
Base Current - Continuous	I_B	4.0		A
Total Power Dissipation @ $T_C=25^\circ\text{C}$ Derate above 25°C	P_D	125 0.833		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	- 65 to +175		$^\circ\text{C}$

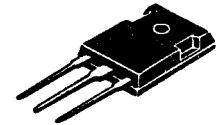
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.2	$^\circ\text{C/W}$

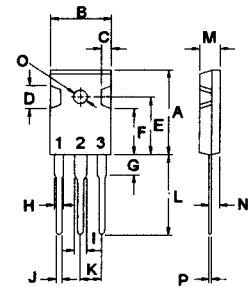


NPN
BUW12
BUW12A

8 AMPERE
POWER
TRANSISTORS
400-450 VOLTS
125 WATTS



TO-247(3P)



PIN 1.BASE
2.COLLECTOR
3.EMITTER

DIM	MILLIMETERS	
	MIN	MAX
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

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector - Emitter Sustaining Voltage (1) ($I_c = 100\text{ mA}$, $I_b = 0$, $L = 25\text{ mH}$)	BUW12 BUW12A	$V_{CE(sus)}$	400 450	V
Collector Cutoff Current ($V_{CE} = 850\text{ V}$, $V_{BE} = 0$) ($V_{CE} = 1000\text{ V}$, $V_{BE} = 0$)	BUW12 BUW12A	I_{CES}	1.0 1.0	mA
Emitter Cutoff Current ($V_{EB} = 9.0\text{ V}$, $I_c = 0$)		I_{EBO}	10	mA

ON CHARACTERISTICS (1)

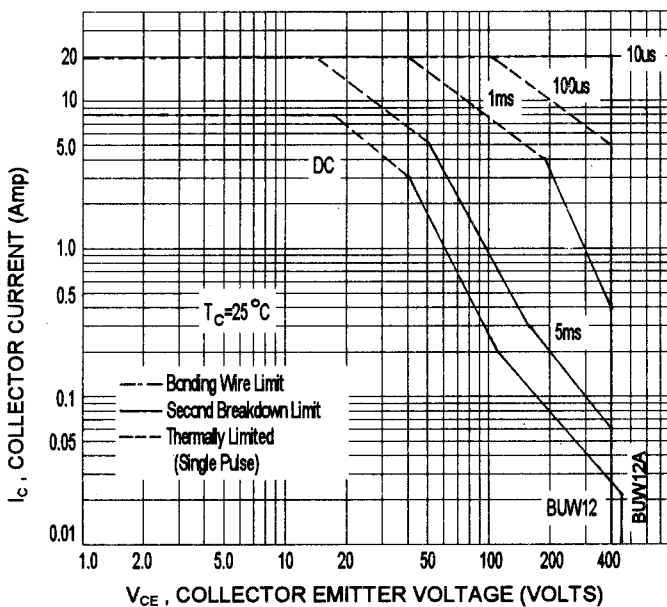
Collector - Emitter Saturation Voltage ($I_c = 6.0\text{ A}$, $I_b = 1.2\text{ A}$)		$V_{CE(sat)}$	1.5	V
Base - Emitter Saturation Voltage ($I_c = 6.0\text{ A}$, $I_b = 1.2\text{ A}$)		$V_{BE(sat)}$	1.5	V

SWITCHING CHARACTERISTICS

Turn On Time	$V_{CC} = 240\text{V}$, $I_c = 6.0\text{A}$ $I_{B1} = 1.2\text{A}$, $I_{B2} = -1.2\text{A}$	t_{on}	1.0	us
Storage Time		t_s	4.0	us
Fall Time		t_f	0.8	us

(1) Pulse Test: Pulse width $\leq 300\text{ us}$, Duty Cycle $\leq 2.0\%$

ACTIVE-REGION SAFE OPERATING AREA



There are two limitation 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 curves indicate.

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



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