

SWITCHMODE SERIES NPN POWER TRANSISTORS

... designed for use in high-voltage, high-speed, power switching regulators, converters, inverters, motor control system application.

FEATURES:

*Collector-Emitter Sustaining Voltage-

$$V_{CE(sus)} = 400 \text{ V (Min) -BUV48}$$

$$= 450 \text{ V (Min) -BUV48A}$$

* Collector-Emitter Saturation Voltage -

$$V_{CE(sat)} = 1.5 \text{ V (Max.) @ } I_C = 10 \text{ A -BUV48}$$

$$I_C = 8 \text{ A -BUV48A}$$

* Switching Time - $t_f = 0.8 \text{ us (Max.) @ } I_C = 10 \text{ A -BUV48}$
 $I_C = 8 \text{ A -BUV48A}$

NPN

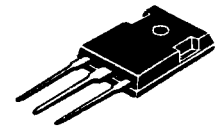
BUV48

BUV48A

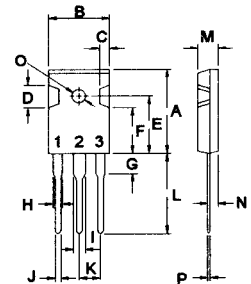
**15 AMPERE
POWER
TRANSISTORS
400 - 450 VOLTS
150 WATTS**

MAXIMUM RATINGS

Characteristic	Symbol	BUV48	BUV48A	Unit
Collector-Emitter Voltage	V_{CEO}	400	450	V
Collector-Emitter Voltage ($V_{BE} = -2.5\text{V}$)	V_{CEX}	850	1000	V
Emitter-Base Voltage	V_{EBO}	7		V
Collector Current - Continuous - Peak	I_C I_{CM}	15 30		A
Base current	I_B	4		A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	150 1.0		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +175		$^\circ\text{C}$



TO-247(3P)

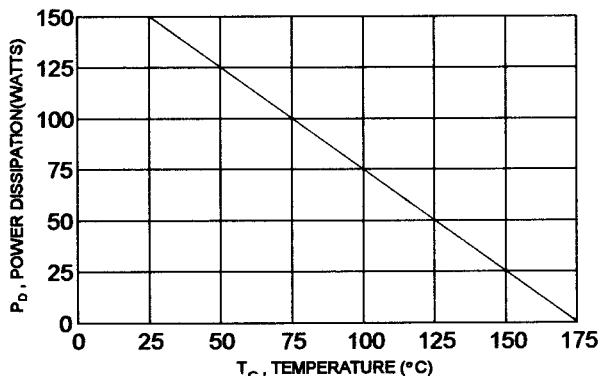


PIN 1.BASE
2.COLLECTOR
3.EMITTER

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.0	$^\circ\text{C/W}$

FIGURE -1 POWER DERATING



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
----------------	--------	-----	-----	------

OFF CHARACTERISTICS

Collector - Emitter Sustaining Voltage (1) ($I_c = 200\text{ mA}$, $I_B = 0$, $L = 25\text{ mH}$) BUV48 BUV48A	$V_{CEO(sus)}$	400 450		V
Collector Cutoff Current ($V_{CE} = V_{CEX}$, $V_{BE} = -2.5\text{ V}$) ($V_{CE} = V_{CEX}$, $V_{BE} = -2.5\text{ V}$, $T_c = 125^\circ\text{C}$)	I_{CEX}		0.2 2.0	mA
Collector Cutoff Current ($V_{CE} = V_{CEX}$, $R_{BE} < 10\text{ ohm}$) ($V_{CE} = V_{CEX}$, $R_{BE} < 10\text{ ohm}$, $T_c = 125^\circ\text{C}$)	I_{CER}		0.5 4.0	mA
Emitter Cutoff Current ($V_{EB} = 5.0\text{ V}$, $I_c = 0$)	I_{EBO}		1.0	mA

ON CHARACTERISTICS (1)

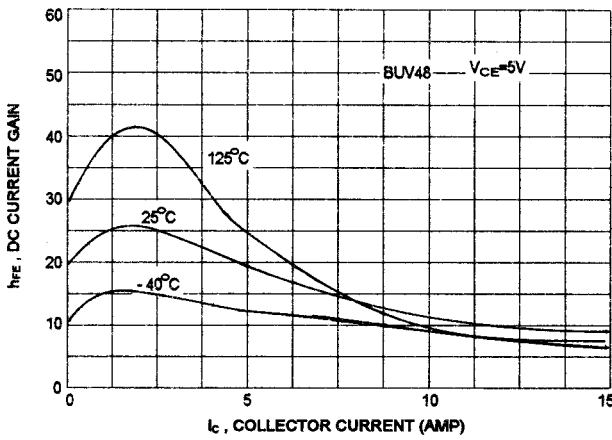
Collector - Emitter Saturation Voltage ($I_c = 10\text{ A}$, $I_B = 2.0\text{ A}$) ($I_c = 8.0\text{ A}$, $I_B = 1.6\text{ A}$) ($I_c = 15\text{ A}$, $I_B = 3.0\text{ A}$) ($I_c = 12\text{ A}$, $I_B = 2.4\text{ A}$) BUV48 BUV48A BUV48 BUV48A	$V_{CE(sat)}$		1.5 1.5 5.0 5.0	V
Base - Emitter Saturation Voltage ($I_c = 10\text{ A}$, $I_B = 2.0\text{ A}$) ($I_c = 8.0\text{ A}$, $I_B = 1.6\text{ A}$) BUV48 BUV48A	$V_{BE(sat)}$		1.6 1.6	V

SWITCHING CHARACTERISTICS

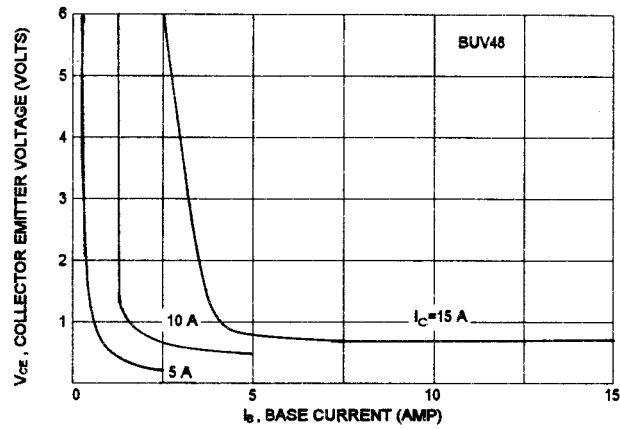
Turn On Time	$I_c = 10\text{ A}$, $I_{B1} = 2.0\text{ A}$, $I_{B2} = -2.0\text{ A}$ BUV48 $V_{CC} = 150\text{ V}$ $I_c = 8\text{ A}$, $I_{B1} = 1.6\text{ A}$, $I_{B2} = -1.6\text{ A}$ BUV48A	t_{on}		1.0	us
Storage Time		t_s		3.0	us
Fall Time		t_f		0.8	us

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

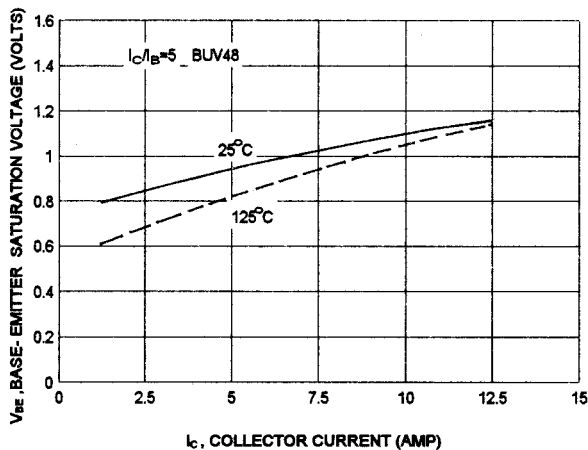
DC CURRENT GAIN



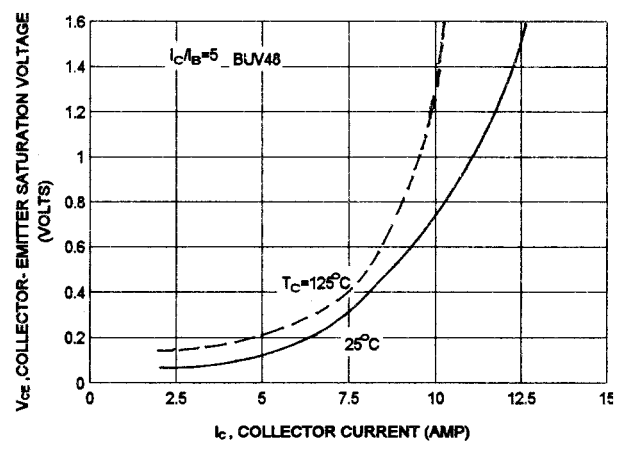
COLLECTOR SATURATION REGION



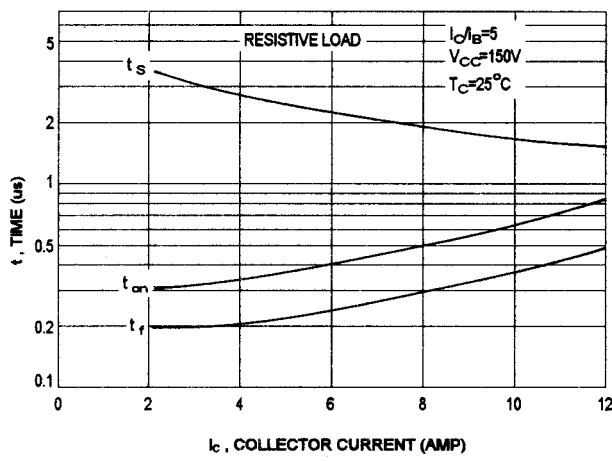
BASE-EMITTER SATURATION VOLTAGE



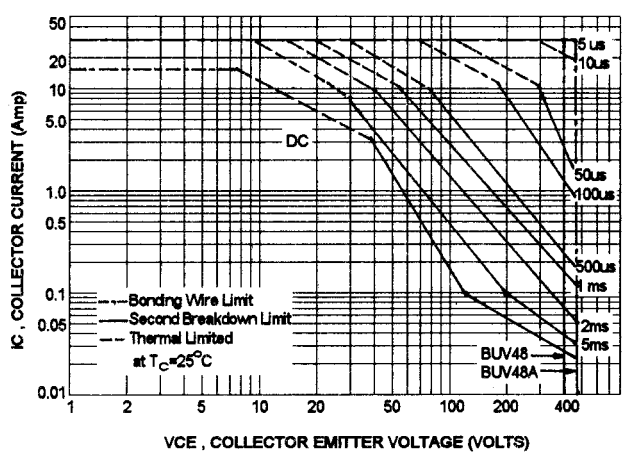
COLLECTOR-EMITTER SATURATION VOLTAGE



SWITCHING TIME



ACTIVE-REGION SAFE OPERATING AREA



Notice

MOSPEC reserves the rights to make changes of the content herein the document anytime without notification. MOSPEC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies. Please refer to MOSPEC website for the last document.

MOSPEC disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially incurred.

Application shown on the herein document are examples of standard use and operation. Customers are responsible for comprehending suitable use in particular applications. MOSPEC makes no representation or warranty that such application will be suitable for the specified use without further testing or modification.

The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by MOSPEC for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of MOSPEC or others.

These MOSPEC products are intended for usage in general electronic equipment. Please make sure to consult with MOSPEC before you use these MOSPEC products in equipment which require specialized quality and/or reliability, and in equipment which could have major impact to the welfare of human life (atomic energy control, aeronautics , traffic control, combustion control, safety devices etc.)