

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 -

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

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

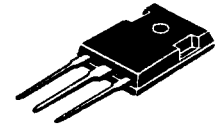
* Switching Time - $t_f = 0.8 \text{ us (Max.) @ } I_C = 10 \text{ A -BUV48}$
 $I_C = 8 \text{ A -BUV48A}$

NPN
BUV48
BUV48A

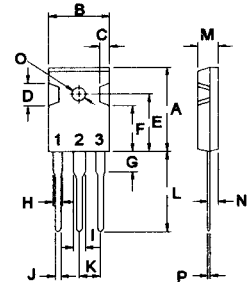
15 AMPERE
POWER
TRANSISTORS
400 - 450 VOLTS
150 WATTS

MAXIMUM RATINGS

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



TO-247(3P)



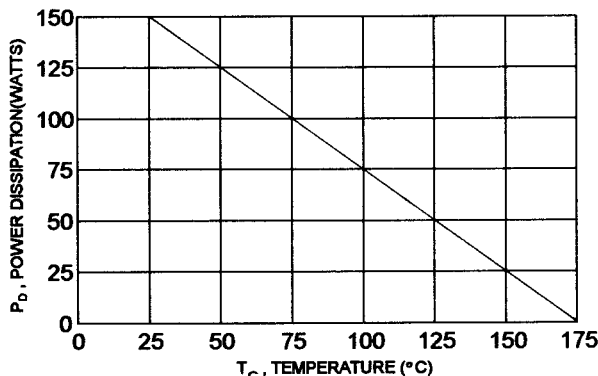
PIN 1.BASE
 2.COLLECTOR
 3.EMITTER

THERMAL CHARACTERISTICS

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

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

FIGURE -1 POWER DERATING



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) ($I_c = 200\text{ mA}$, $I_B = 0$, $L = 25\text{ mH}$) 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)

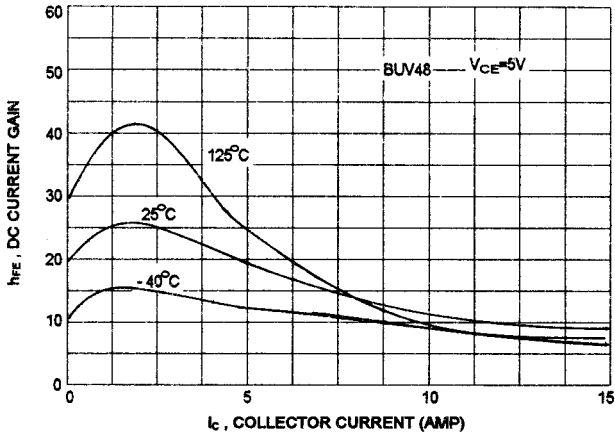
Collector - Emitter Saturation Voltage ($I_c = 10\text{ A}$, $I_B = 2.0\text{ A}$) ($I_c = 8.0\text{ A}$, $I_B = 1.6\text{ A}$) ($I_c = 15\text{ A}$, $I_B = 3.0\text{ A}$) ($I_c = 12\text{ A}$, $I_B = 2.4\text{ A}$) BUV48 BUV48A BUV48 BUV48A	$V_{CE(sat)}$		1.5 1.5 5.0 5.0	V
Base - Emitter Saturation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

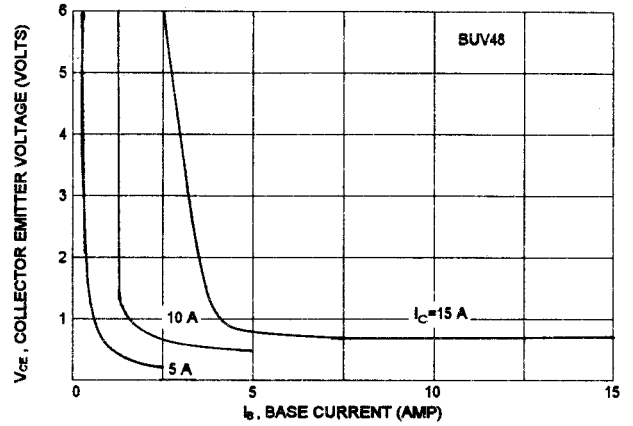
Turn On Time	$I_c = 10\text{ A}$, $I_{B1} = 2.0\text{ A}$, $I_{B2} = -2.0\text{ A}$ BUV48 $V_{CC} = 150\text{ V}$ $I_c = 8\text{ A}$, $I_{B1} = 1.6\text{ A}$, $I_{B2} = -1.6\text{ A}$ BUV48A	t_{on}	1.0	us
Storage Time		t_s	3.0	us
Fall Time		t_f	0.8	us

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

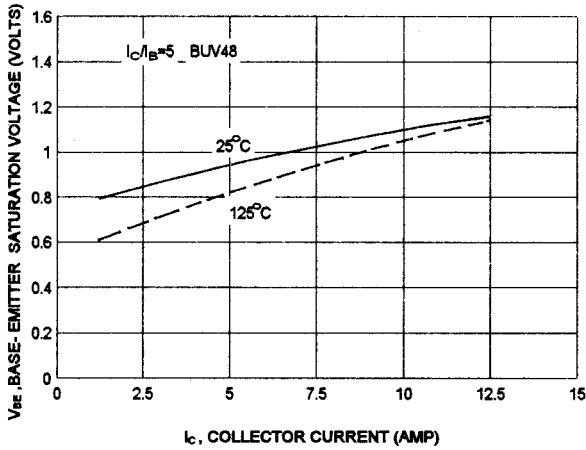
DC CURRENT GAIN



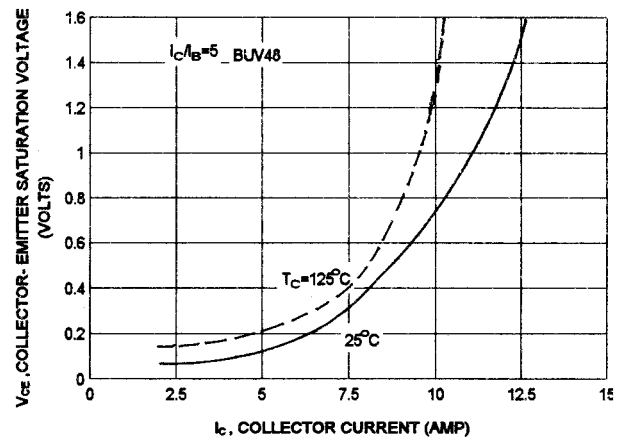
COLLECTOR SATURATION REGION



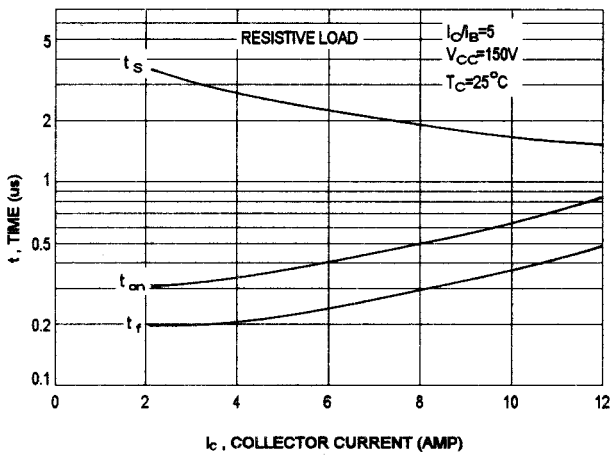
BASE-EMITTER SATURATION VOLTAGE



COLLECTOR-EMITTER SATURATION VOLTAGE



SWITCHING TIME



ACTIVE-REGION SAFE OPERATING AREA

