

SWITCHMODE SERIES NPN POWER TRANSISTORS

... designed for use in high-voltage, high-speed, power switching in inductive circuit, they are particularly suited for 220 V switchmode power supply, DC and AC motor control.

FEATURES:

*Collector-Emitter Sustaining Voltage-

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

* Collector-Emitter Saturation Voltage -

$$V_{CE(sat)} = 1.5 \text{ V (Max.) @ } I_C = 5.0 \text{ A, } I_B = 1.0 \text{ A}$$

* Switching Time - $t_f = 0.8 \text{ us (Max.) @ } I_C = 5.0 \text{ A}$

NPN

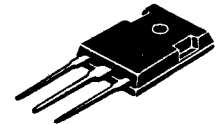
BUV47

BUV47B

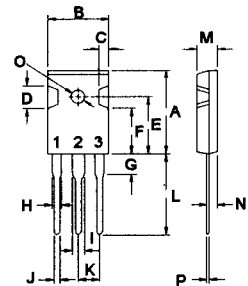
**9 AMPERE
POWER
TRANSISTORS
400 VOLTS
90 WATTS**

MAXIMUM RATINGS

Characteristic	Symbol	BUV47, BUV47B	Unit
Collector-Emitter Voltage	V_{CEO}	400	V
Collector-Base Voltage	V_{CBO}	850	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous - Peak	I_C I_{CM}	9.0 15	A
Base current	I_B	3.0	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	90 0.72	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$



TO-247(3P)



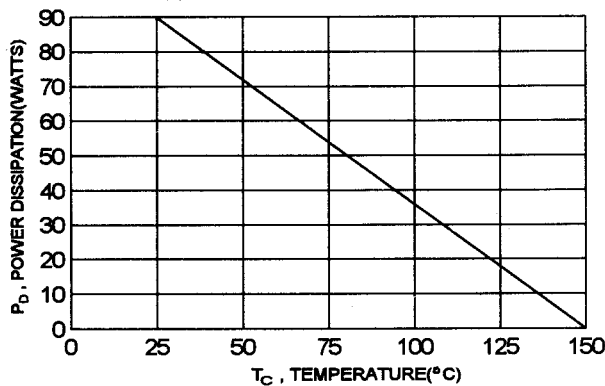
PIN 1.BASE
2.COLLECTOR
3.EMITTER

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.38	$^\circ\text{C/W}$

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 ($I_c = 0.2\text{ A}$, $I_B = 0$, $L = 25\text{ mH}$)	$V_{CE(sus)}$	400		V
Collector Cutoff Current ($V_{CE} = 850\text{ V}$, $R_{BE} = 10\text{ ohm}$)	I_{CER}		400	μA
Collector Cutoff Current ($V_{CE} = 850\text{ V}$, $V_{BE} = -2.5\text{ V}$)	I_{CEX}		150	μA
Emitter Cutoff Current ($V_{EB} = 5.0\text{ V}$, $I_c = 0$)	I_{EBO}		1.0	mA

ON CHARACTERISTICS (1)

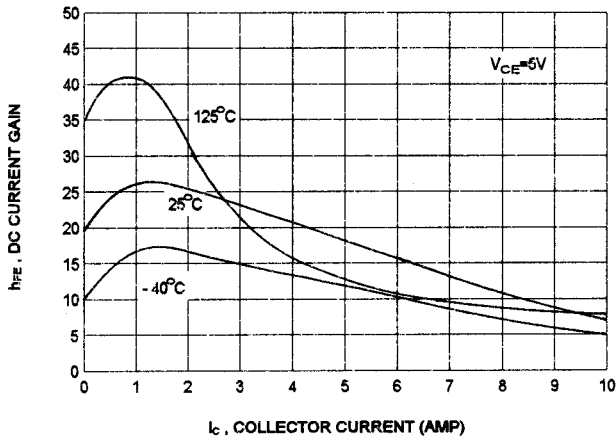
Collector-Emitter Saturation Voltage ($I_c = 5.0\text{ A}$, $I_B = 1.0\text{ A}$) ($I_c = 6.0\text{ A}$, $I_B = 1.2\text{ A}$) ($I_c = 8.0\text{ A}$, $I_B = 2.5\text{ A}$) ($I_c = 9.0\text{ A}$, $I_B = 3.0\text{ A}$)	BUV47 BUV47B BUV47 BUV47B	$V_{CE(sat)}$		1.5 1.5 3.0 3.0	V
Base-Emitter Saturation Voltage ($I_c = 5.0\text{ A}$, $I_B = 1.0\text{ A}$) ($I_c = 6.0\text{ A}$, $I_B = 1.2\text{ A}$)	BUV47 BUV47B	$V_{BE(sat)}$		1.6 1.6	V

SWITCHING CHARACTERISTICS

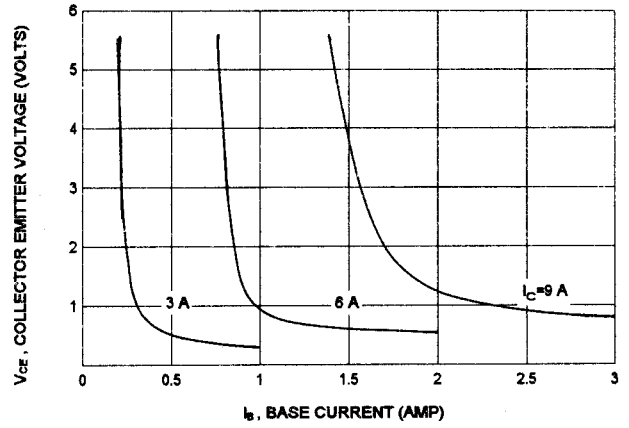
On Time	$V_{CC} = 150\text{ V}$, $I_c = 5.0\text{ A}$ $I_{B1} = -I_{B2} = 1.0\text{ A}$	t_{on}		1.0	μs
Storage Time		t_s		3.0	μs
Fall Time		t_f		0.8	μs

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

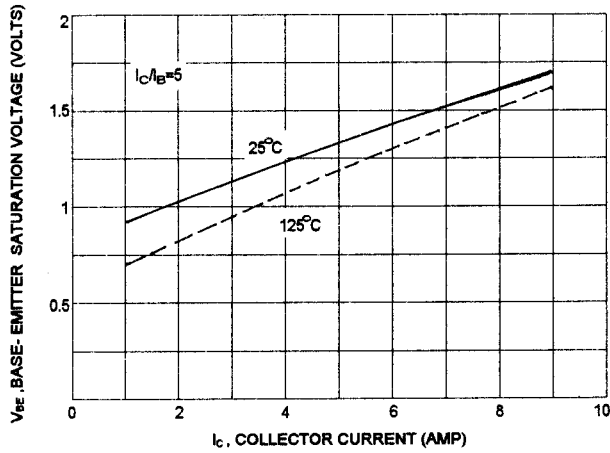
DC CURRENT GAIN



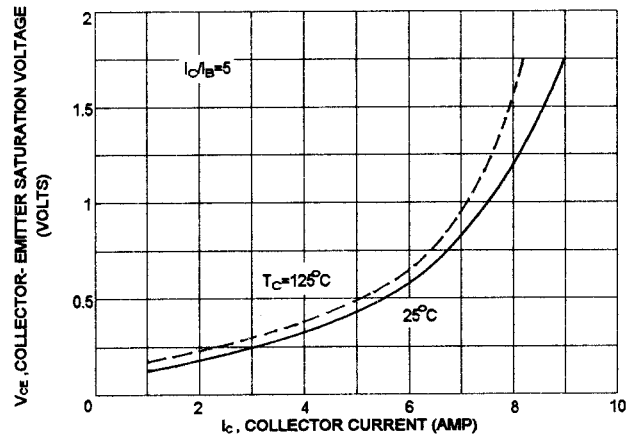
COLLECTOR SATURATION REGION



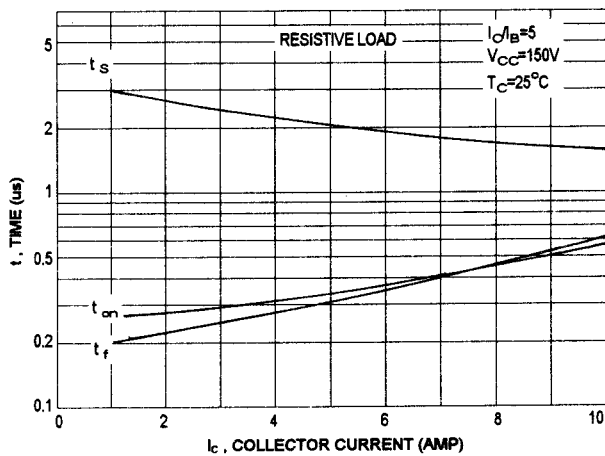
BASE-EMITTER SATURATION VOLTAGE



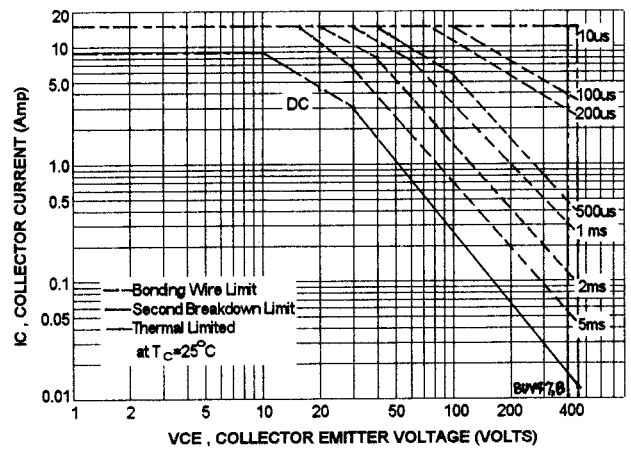
COLLECTOR-EMITTER SATURATION VOLTAGE



SWITCHING TIME



ACTIVE-REGION SAFE OPERATING AREA





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