

## NPN SILICON POWER TRANSISTORS

... designed for use in general purpose power amplifier application

### FEATURES:

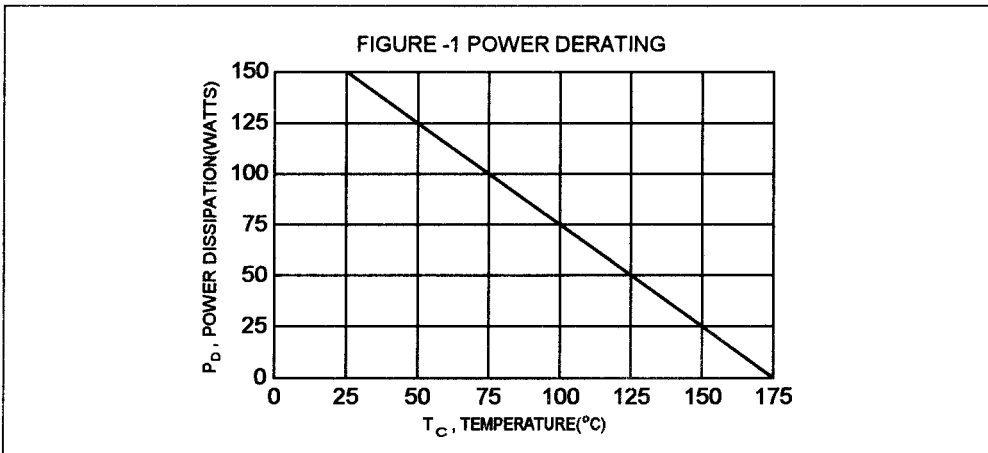
- \* Very Low Saturation Voltage and High Gain for reduced load Operation.
- \* Faster Switching Times
- \* Lower Switching Losses
- \* Lower On State Voltage Drop

### MAXIMUM RATINGS

Characteristic	Symbol	BUW50	Unit
Collector-Emitter Voltage	$V_{CEO}$	125	V
Collector-Emitter Voltage $V_{BE} = -1.5V$	$V_{CEV}$	250	V
Emitter-Base Voltage	$V_{EBO}$	7.0	V
Collector Current - Continuous - Peak	$I_C$ $I_{CM}$	25 50	A
Total Power Dissipation @ $T_C = 25^\circ C$ Derate above $25^\circ C$	$P_D$	150 1.0	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +175	$^\circ C$

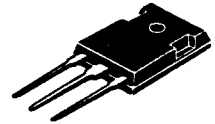
### THERMAL CHARACTERISTICS

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

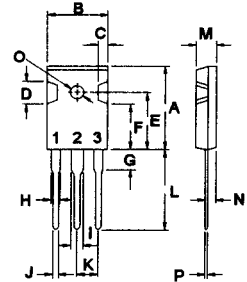


**NPN  
BUW50**

**25 AMPERE  
POWER  
TRANSISTORS  
125 VOLTS  
150 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
----------------	--------	-----	-----	------

**OFF CHARACTERISTICS**

Collector-Emitter Sustaining Voltage (1) ( $I_C = 0.2\text{ A}$ , $I_B = 0$ , $L = 25\text{ mH}$ )	$V_{CEO(sus)}$	125		V
Emitter-Base Voltage ( $I_E = 20\text{ mA}$ , $I_C = 0$ )	$V_{EBO}$	7.0		V
Collector Cutoff Current ( $V_{CE} = 250\text{ V}$ , $V_{BE} = -1.5\text{ V}$ )	$I_{CEV}$		100	$\mu\text{A}$
Emitter Cutoff Current ( $V_{EB} = 5.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$		1.0	mA

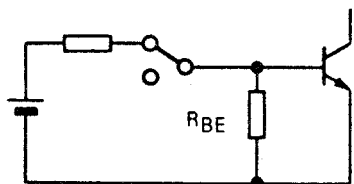
**ON CHARACTERISTICS (1)**

Collector-Emitter Saturation Voltage ( $I_C = 10\text{ A}$ , $I_B = 0.5\text{ A}$ ) ( $I_C = 20\text{ A}$ , $I_B = 2.0\text{ A}$ )	$V_{CE(sat)}$		0.9 1.0	V
Base-Emitter Saturation Voltage ( $I_C = 20\text{ A}$ , $I_B = 2.0\text{ A}$ )	$V_{BE(sat)}$		1.6	V

**SWITCHING CHARACTERISTICS**

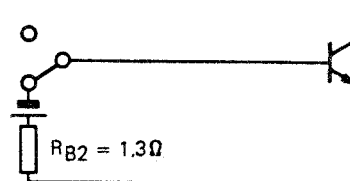
Turn-on Time	$V_{CC} = 60\text{ V}$ , $I_C = 10\text{ A}$ $I_{B1} = 1.0\text{ A}$ $PW = 20\text{ }\mu\text{s}$	$t_{on}$	1.9	$\mu\text{s}$
Storage Time		$t_s$	1.5	$\mu\text{s}$
Fall Time		$t_f$	0.5	$\mu\text{s}$

(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$



TRANSISTOR FORWARD BIASED

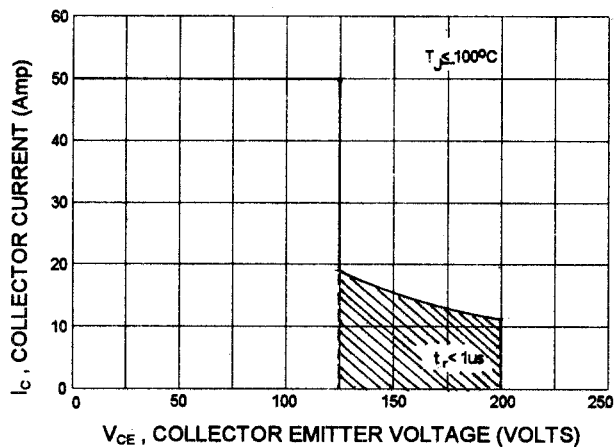
- During the turn-on
- During the turn-off without negative base-emitter voltage and  $4.7\Omega \leq R_{BE} \leq 50\Omega$



TRANSISTOR FORWARD BIASED

- During the turn-off without negative base-emitter voltage

FORWARD BIASED SAFE OPERATING AREA



REVERSE BIASED SAFE OPERATING AREA

