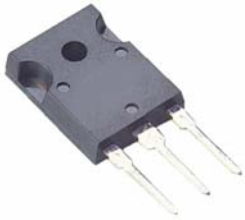


# BD249C / BD250C



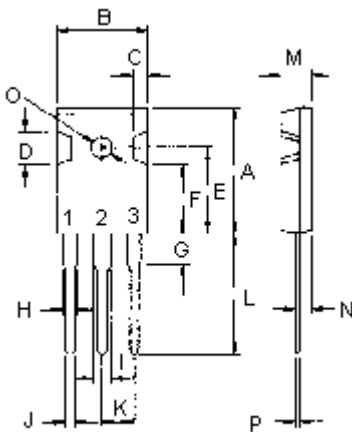
## Complementary Power Transistors



Designed for use in general purpose power amplifier and switching applications.

### Features:

- Collector-Emitter sustaining Voltage.  
 $V_{CEO(sus)} = 100V$  (Minimum)
- DC Current Gain  $h_{FE} = 25$  (Minimum) at  $I_C = 1.5A$ .
- Current Gain Bandwidth Product  $f_T = 3.0MHz$  (Minimum) at  $I_C = 1.0A$ .



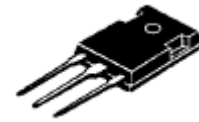
- Pin 1. Base  
2. Collector  
3. Emitter

Dimensions	Minimum	Maximum
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

Dimensions : Millimetres

NPN BD249C	PNP BD250C
---------------	---------------

25 Ampere  
Complementary  
Silicon Power  
Transistors  
100 Volts  
125 Watts



TO-218

### Maximum Ratings

Characteristic	Symbol	Rating	Unit
Collector Emitter Voltage	$V_{CEO}$	100	V
Collector Base Voltage	$V_{CBO}$	115	
Emitter Base Voltage	$V_{EBO}$	5.0	
Collector Current-Continuous -Peak	$I_C$	25 40	A
Base Current	$I_B$	5	
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	$P_D$	125 1.0	W W/ $^\circ C$
Operation and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ C$



# BD249C / BD250C

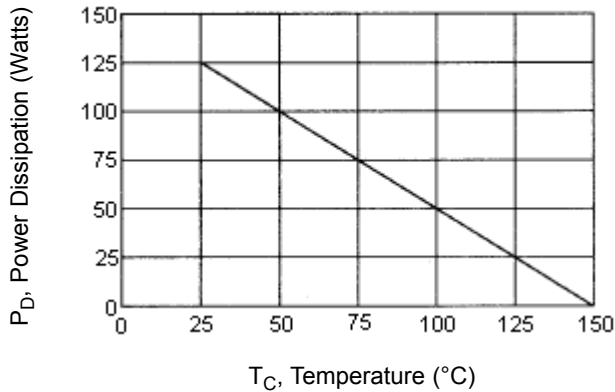


## Complementary Power Transistors

### Thermal Characteristics

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

Figure - 1 Power Derating



### Electrical Characteristics ( $T_C = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Minimum	Maximum	Unit
<b>OFF Characteristics</b>				
Collector-Emitter Breakdown Voltage (1) ( $I_C = 30\text{mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	100	-	V
Collector Cut off Current ( $V_{CE} = 60\text{V}$ , $I_B = 0$ )	$I_{CEO}$	-	1.0	mA
Collector Cut off Current ( $V_{CE} = 100\text{V}$ , $V_{EB} = 0$ )	$I_{CES}$	-	0.7	
Emitter Cut off Current ( $V_{EB} = 5.0\text{V}$ , $I_C = 0$ )	$I_{EBO}$	-	1.0	
<b>ON Characteristics (1)</b>				
DC Current Gain ( $V_{CE} = 4.0\text{V}$ , $I_C = 1.5\text{A}$ ) ( $V_{CE} = 4.0\text{V}$ , $I_C = 15\text{A}$ ) ( $V_{CE} = 4.0\text{V}$ , $I_C = 25\text{A}$ )	$h_{FE}$	25 10 5.0	-	-
Collector-Emitter Saturation Voltage ( $I_C = 15\text{A}$ , $I_B = 1.5\text{A}$ ) ( $I_C = 25\text{A}$ , $I_B = 5.0\text{A}$ )	$V_{CE(sat)}$	-	1.8 4.0	V
Base-Emitter On Voltage ( $I_C = 15\text{A}$ , $V_{CE} = 4.0\text{V}$ ) ( $I_C = 25\text{A}$ , $V_{CE} = 4.0\text{V}$ )	$V_{BE(on)}$	-	2.0 4.0	
<b>Dynamic Characteristics</b>				
Current Gain Bandwidth Product (2) ( $I_C = 1.0\text{A}$ , $V_{CE} = 10\text{V}$ , $f = 1\text{MHz}$ )	$f_T$	3.0	-	MHz

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

(2)  $f_T = |h_{fe}| \cdot f_{test}$

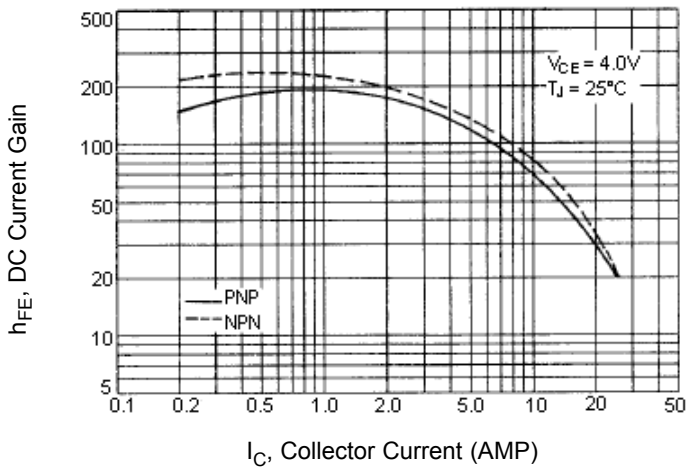


# BD249C / BD250C

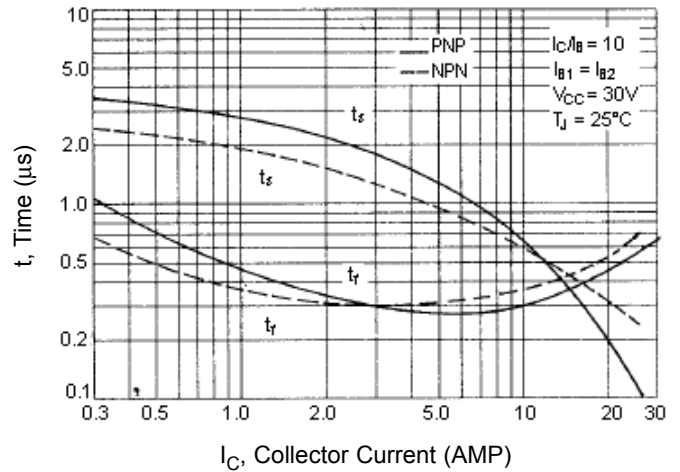
## Complementary Power Transistors



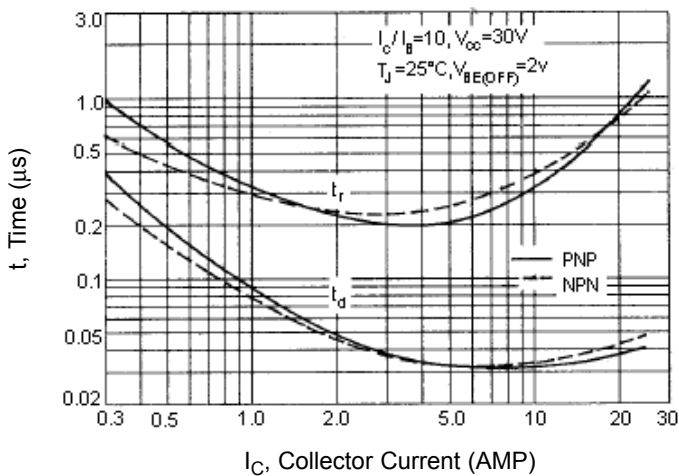
DC Current Gain



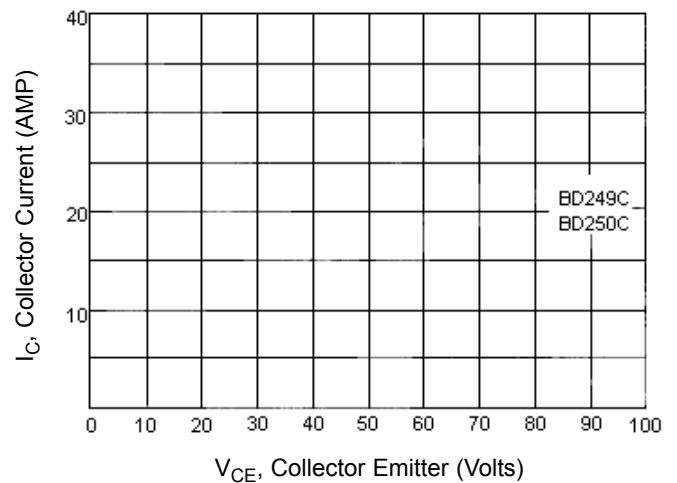
Turn-Off Time



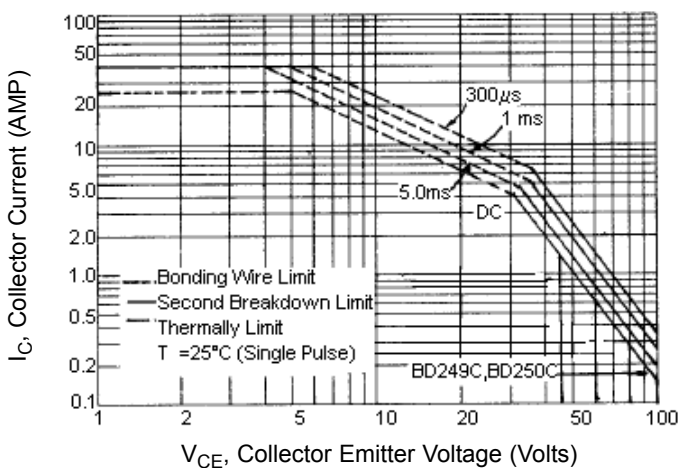
Turn-On Time



Reverse Base Safe Operating Area



Active-Region Safe Operating Area (SOA)



There are two limitations 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 the curves indicate.

The data of SOA curve is based on  $T_{J(PK)} = 150^\circ C$ ;  $T_C$  is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(PK)} \leq 150^\circ C$ . At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.



# BD249C / BD250C



## Complementary Power Transistors

### Specifications

$I_{C(av)}$ maximum (A)	$V_{CEO}$ maximum (V)	$h_{FE}$ minimum at $I_C = 1.5A$	$P_{tot}$ at 25°C (W)	Package	Type	Part Number
25	100	25	125	TO-218	NPN	BD249C
					PNP	BD250C



# BD249C / BD250C



## Complementary Power Transistors

### Notes:

### International Sales Offices:



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