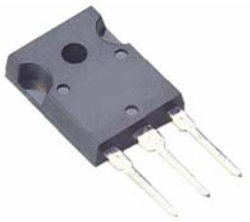
BD249C / BD250C

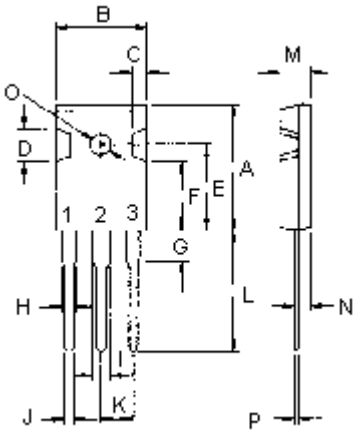
Complementary Power Transistors



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.



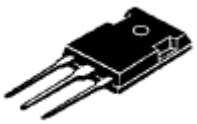
Pin 1. Base
2. Collector
3. Emitter

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

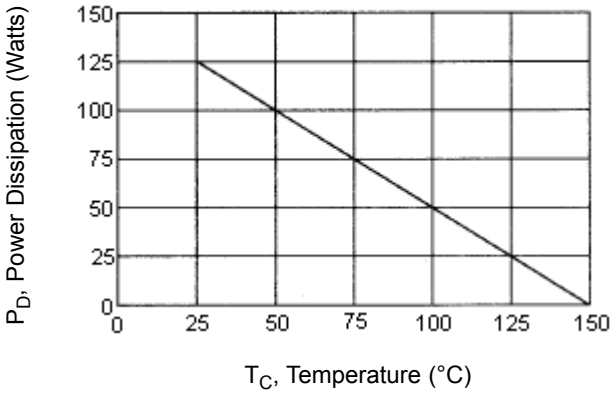
Maximum Ratings

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°C Derate above 25°C	P_D	125 1.0	W W/°C
Operation and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	°C

Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	Rθjc	1.0	°C/W

Figure - 1 Power Derating



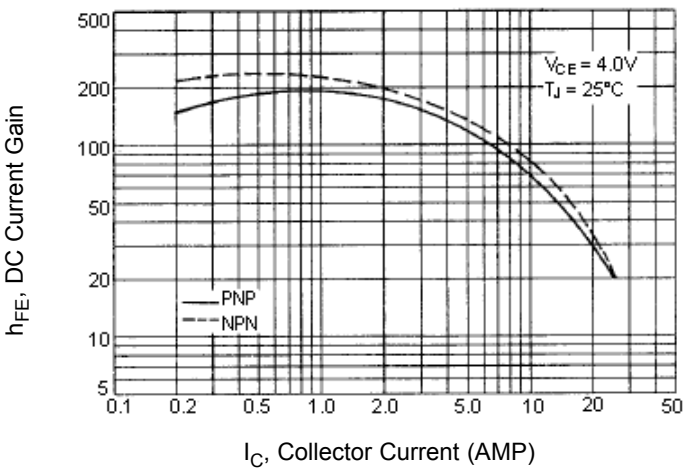
Electrical Characteristics (T_c = 25°C unless otherwise noted)

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

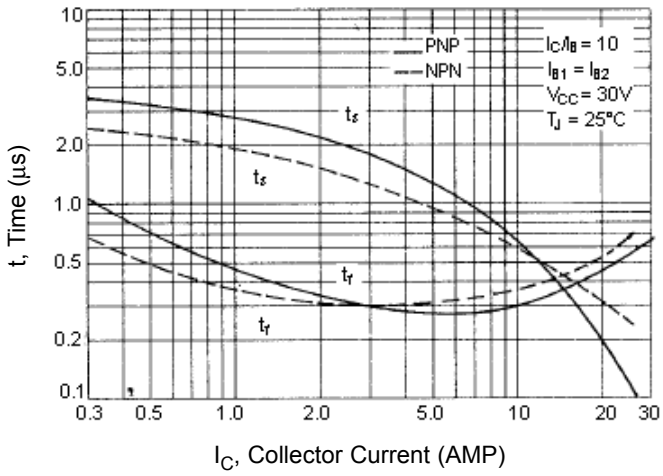
(1) Pulse Test : Pulse Width = 300µs, Duty Cycle ≤2.0%

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

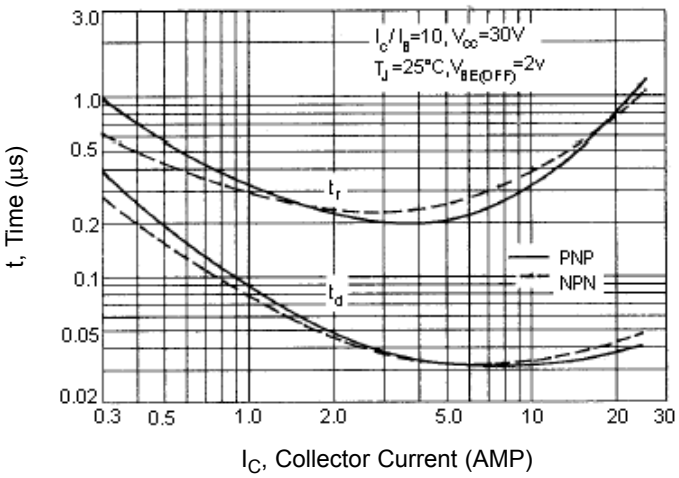
DC Current Gain



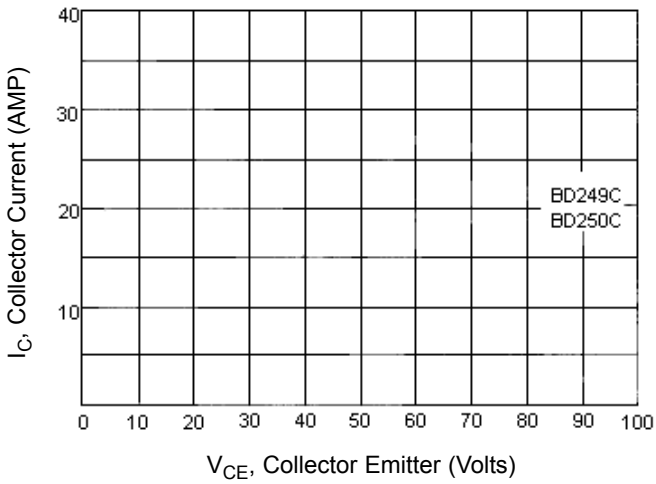
Turn-Off Time



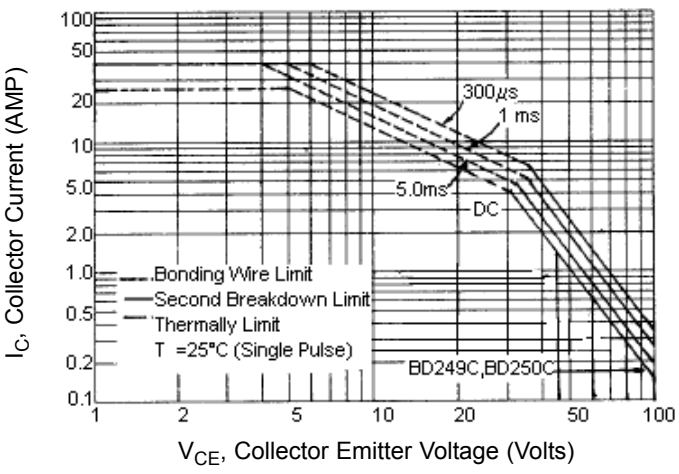
Turn-On Time



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°C; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)}$ ≤150°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.

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

Notes:

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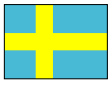

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