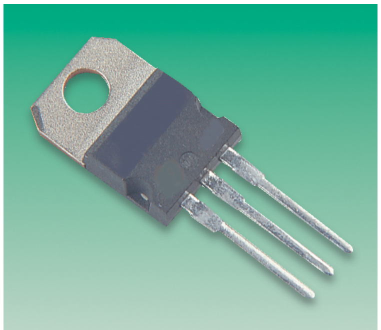
2N6668

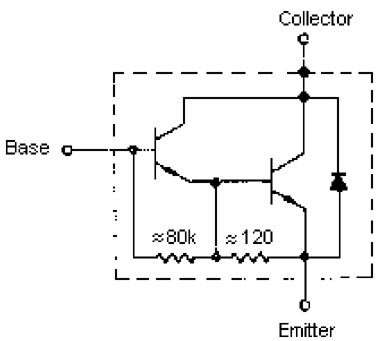
Darlington Power Transistor



Plastic Medium-Power Silicon Transistors are designed for general-purpose amplifier and low speed switching applications.

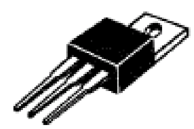
Features:

- Collector-Emitter Sustaining Voltage
  $V_{CEO(sus)}$ = 80V (Minimum).
- Collector-Emitter Saturation Voltage
  $V_{CE(sat)}$ = 2.0V (Maximum) at I_C = 5.0A.
- DC Current Gain h_{FE} = 3000 (Typical) at I_C = 4.0A.

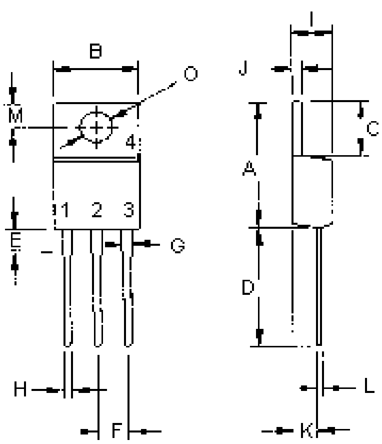


PNP
2N6668

10 Ampere
Darlington
Power Transistors
PNP Silicon
80 Volts
65 Watts



TO-220



Pin 1. Base
2. Collector
3. Emitter
4. Collector(Case)

Dimensions	Minimum	Maximum
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

Dimensions : Millimetres

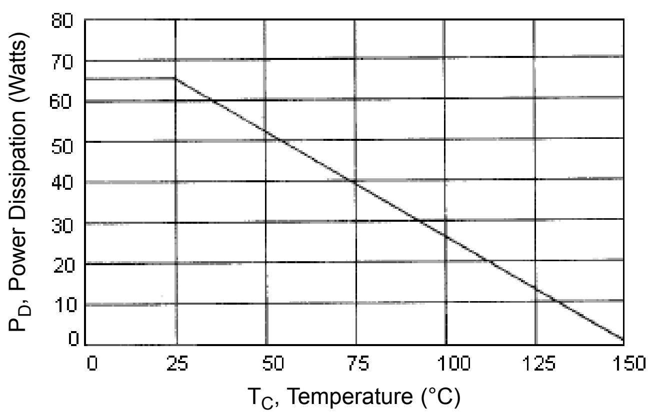
Maximum Ratings

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	80	V
Collector-Base Voltage	V_{CBO}		
Emitter-Base Voltage	V_{EBO}	5.0	
Collector Current-Continuous -Peak	I_C I_{CM}	10 15	A
Base Current	I_B	0.25	
Total Power Dissipation at T_C = 25°C Derate above 25°C	P_D	65 0.52	W W/°C
Operating 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	1.92	°C/W

Figure 1 - Power Derating

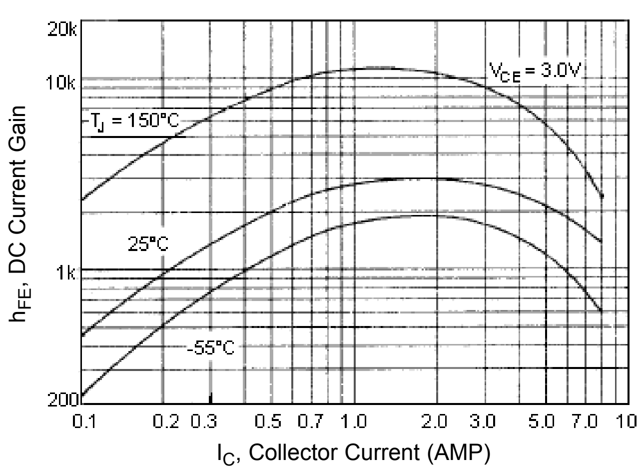


Electrical Characteristics (T_C = 25°C unless otherwise noted)

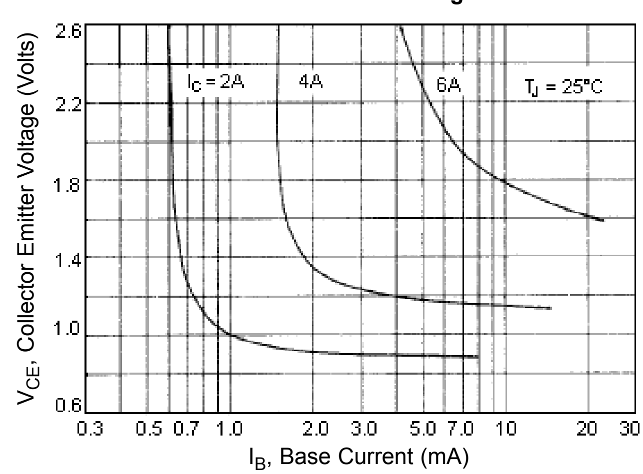
Characteristic	Symbol	Minimum	Maximum	Unit
OFF Characteristics				
Collector-Emitter Sustaining Voltage (1) (I_C = 200mA, I_B = 0)	$V_{CEO(SUS)}$	80	-	V
Collector Cut off Current (V_{CE} = 80V, I_B = 0)	I_{CEO}	-	1.0	
Collector Cut off Current (V_{CE} = 80V, $V_{BE(off)}$ = 1.5V) (V_{CE} = 80V, $V_{BE(off)}$ = 1.5V, T_C = 125°C)	I_{CEX}	-	0.3 3.0	mA
Emitter Cut off Current (V_{EB} = 5.0V, I_C = 0)	I_{EBO}	-	5.0	
ON Characteristics (1)				
DC Current Gain (I_C = 5.0A, V_{CE} = 3.0V) (I_C = 10A, V_{CE} = 3.0V)	h_{FE}	1000 100	20,000	-
Collector-Emitter Saturation Voltage (I_C = 5.0A, I_B = 10mA) (I_C = 10A, I_B = 100mA)	$V_{CE(sat)}$	-	2.0 3.0	V
Base-Emitter On Voltage (I_C = 5.0A, V_{CE} = 3.0V) (I_C = 10A, V_{CE} = 3.0V)	$V_{BE(on)}$	-	2.8 4.5	
Dynamic Characteristics				
Small-Signal Current Gain (I_C = 1.0A, V_{CE} = 5.0V, f = 1.0KHz)	h_{fe}	1000	-	-
Output Capacitance (V_{CB} = 10V, I_E = 0, f = 1.0MHz)	C_{ob}	-	200	pF

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

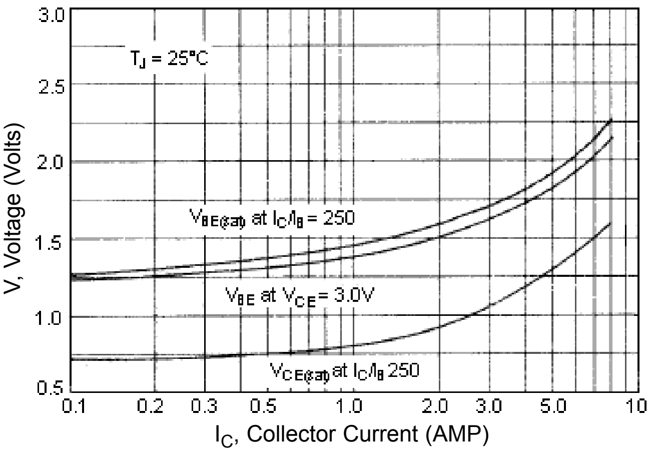
DC Current Gain



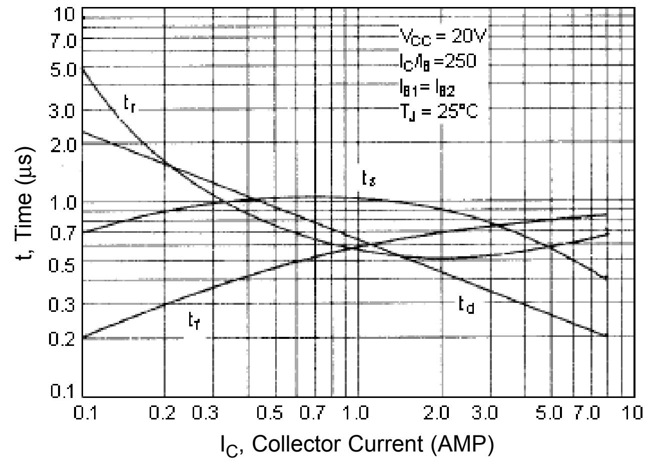
Collector Saturation Region



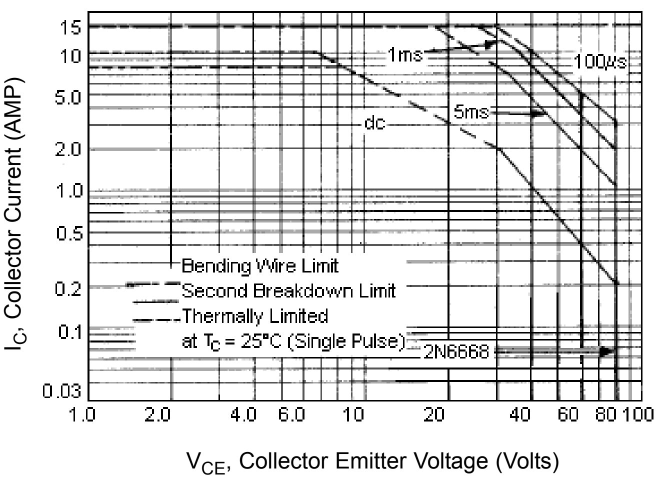
"ON" Voltages



Switching Time



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 $T_{J(PK)} \leq 150°C$, 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 = 5A	P_{tot} at 25°C (W)	Package	Type	Part Number
10	80	1000	65	TO-220	PNP	2N6668

Notes:

International Sales Offices: