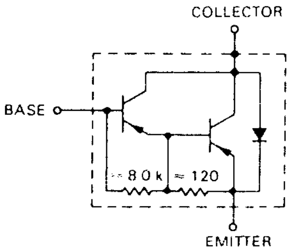
PLASTIC MEDIUM- POWER SILICON TRANSISTORS

...designed for general-purpose amplifier and low speed switching applications

FEATURES:

- Collector-Emitter Sustaining Voltage-
  $V_{CEO(SUS)}$ = 40 V (Min) - 2N6666
  = 60 V (Min) - 2N6667
  = 80 V (Min) - 2N6668
- Collector-Emitter Saturation Voltage
  $V_{CE(sat)}$ = 2.0 V (Max.) @ I_C = 3.0 A - 2N6666
  = 2.0 V (Max.) @ I_C = 5.0 A - 2N6667, 2N6668
- DC Current Gain hFE = 3000(Typ) @ I_C = 4.0 A
- Complementary to 2N6386, 2N6387, 2N6388



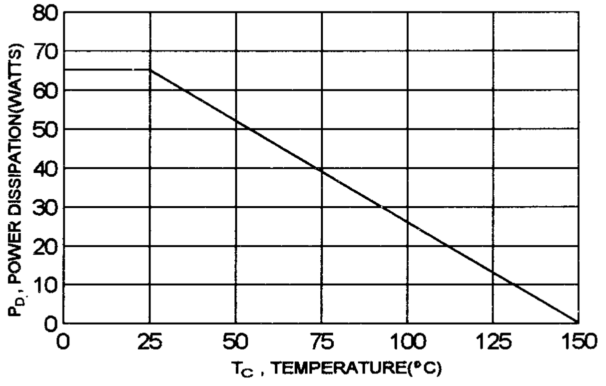
MAXIMUM RATINGS

Characteristic	Symbol	2N6666	2N6667	2N6668	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	80	V
COllector-Base Voltage	V_{CBO}	40	60	80	V
Emitter-Base Voltage	V_{EBO}	5.0			V
Collector Current-Continuous -Peak	I_C I_{CM}	8.0 15	10 15	10 15	A
Base Current	I_B	0.25			A
Total Power Dissipation @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

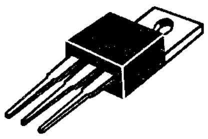
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.92	°C/W

FIGURE -1 POWER DERATING

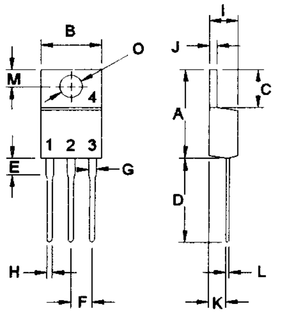


PNP
2N6666
2N6667
2N6668

8 AND 10 AMPERE
DARLINGTON
POWER TRANSISTORS
PNP SILICON
40-80 VOLTS
65 WATTS



TO-220



PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
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

BOCA SEMICONDUCTOR CORP

ELECTRICAL CHARACTERISTICS (T_c = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit

OFF CHARACTERISTICS

Collector - Emitter Sustaining Voltage (1)	$V_{CEO(sus)}$			V
(I_C = 200 mA, I_B = 0) 2N6666		40		
2N6667		60		
2N6668		80		
Collector Cutoff Current	I_{CEO}			mA
(V_{CE} = 40 V, I_B = 0) 2N6666			1.0	
(V_{CE} = 60 V, I_B = 0) 2N6667			1.0	
(V_{CE} = 80 V, I_B = 0) 2N6668			1.0	
Collector Cutoff Current	I_{CEX}			mA
(V_{CE} = 40 V, $V_{BE(off)}$ = 1.5 V) 2N6666			0.3	
(V_{CE} = 60 V, $V_{BE(off)}$ = 1.5 V) 2N6667			0.3	
(V_{CE} = 80 V, $V_{BE(off)}$ = 1.5 V) 2N6668			0.3	
(V_{CE} = 40 V, $V_{BE(off)}$ = 1.5 V, T_C = 125°C) 2N6666			3.0	
(V_{CE} = 60 V, $V_{BE(off)}$ = 1.5 V, T_C = 125°C) 2N6667			3.0	
(V_{CE} = 80 V, $V_{BE(off)}$ = 1.5 V, T_C = 125°C) 2N6668			3.0	
Emitter Cutoff Current (V_{EB} = 5.0 V,I_C= 0)	I_{EBO}		5.0	mA

ON CHARACTERISTICS (1)

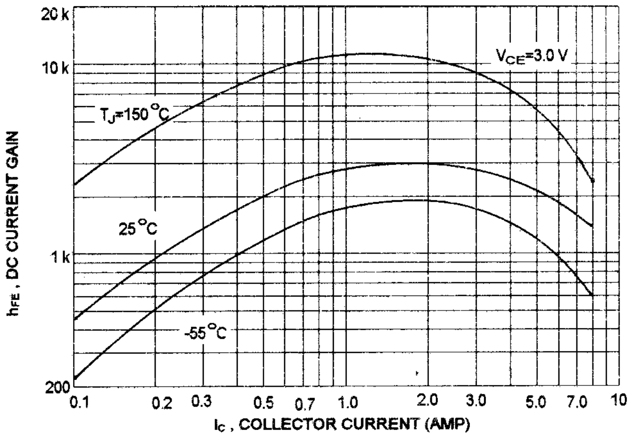
DC Current Gain	hFE			
(I_C = 3.0 A, V_{CE} = 3.0 V) 2N6666		1000	20000	
(I_C = 5.0 A, V_{CE} = 3.0 V) 2N6667, 2N6668		1000	20000	
(I_C = 8.0 A, V_{CE} = 3.0 V) 2N6666		100		
(I_C = 10 A, V_{CE} = 3.0 V) 2N6667, 2N6668		100		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			V
(I_C = 3.0 A, I_B = 6 mA) 2N6666			2.0	
(I_C = 5.0 A, I_B = 10 mA) 2N6667, 2N6668			2.0	
(I_C = 8.0 A, I_B = 80 mA) 2N6666			3.0	
(I_C = 10 A, I_B = 100 mA) 2N6667, 2N6668			3.0	
Base-Emitter On Voltage	$V_{BE(on)}$			V
(I_C = 3.0 A, V_{CE} = 3.0 V) 2N6666			2.8	
(I_C = 5.0 A, V_{CE} = 3.0 V) 2N6667, 2N6668			2.8	
(I_C = 8.0 A, V_{CE} = 3.0 V) 2N6666			4.5	
(I_C = 10 A, V_{CE} = 3.0 V) 2N6667, 2N6668			4.5	

DYNAMIC CHARACTERISTICS

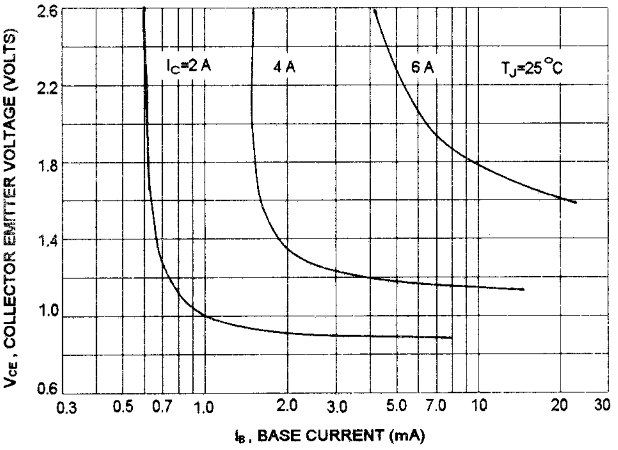
Small-Signal Current Gain (I_C = 1.0 A, V_{CE} = 5.0 V, f = 1.0 KHz)	h_{fe}	1000		
Output Capacitance (V_{CB} = 10 V,I_E = 0 , f = 1.0 MHZ)	C_{ob}		200	pF

(1) Pulse Test: Pulse width = 300μ s , Duty Cycle ≦ 2.0%

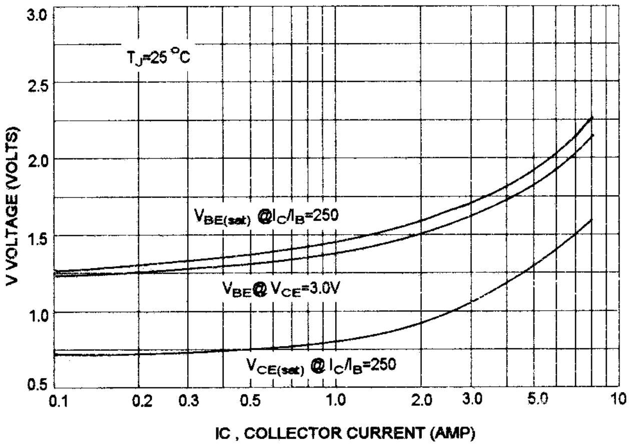
DC CURRENT GAIN



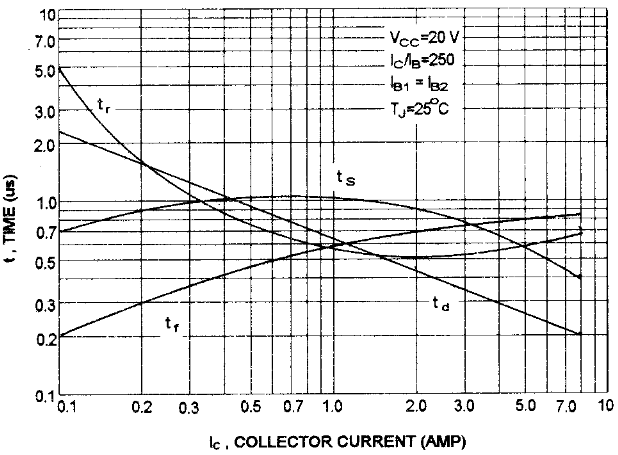
COLLECTOR SATURATION REGION



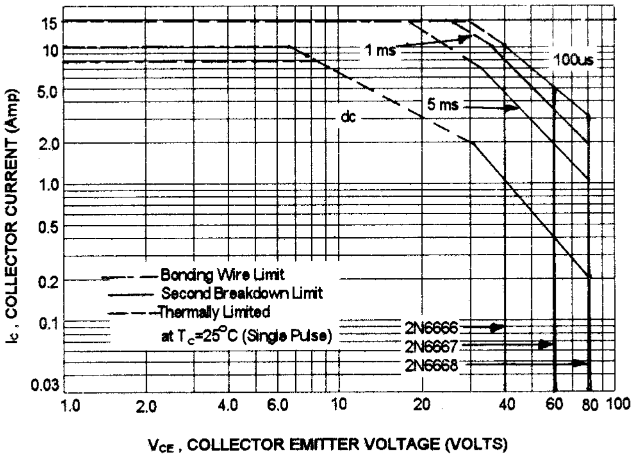
"ON" VOLTAGES



SWITCHING TIME



ACTIVE-REGION SAFE OPERATING AREA (SOA)



There are two limitation 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 curves indicate.

The data of SOA curve is base 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.