

HIGH VOLTAGE DARLINGTON POWER TRANSISTORS

... designed for use in high-voltage switching igniter application

FEATURES:

*Collector-Emitter Sustaining Voltage-

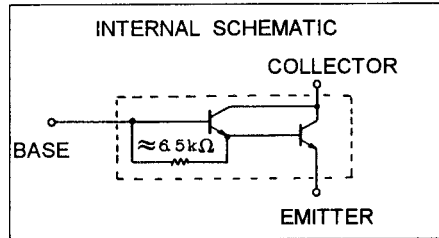
$$V_{CEO(SUS)} = 250 \text{ V (Min)}$$

* Collector-Emitter Saturation Voltage -

$$V_{CE(sat)} = 2.0 \text{ V (Max.) @ } I_C = 4.0 \text{ A, } I_B = 40\text{mA}$$

* High DC current Gain

$$hFE = 2000 \text{ (Min) @ } I_C = 2.0\text{A, } V_{CE} = 2.0\text{V}$$

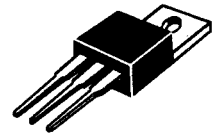


NPN
2SD1088

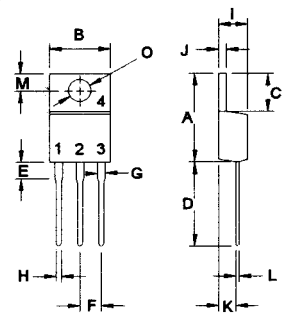
6 AMPERE
POWER DARLINGTON
TRANSISTORS
250 VOLTS
30 WATTS

MAXIMUM RATINGS

Characteristic	Symbol	2SD1088	Unit
Collector-Emitter Voltage	V_{CEO}	250	V
Collector-Base Voltage	V_{CBO}	300	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	I_C	6.0	A
- Peak	I_{CM}	10	
Base current	I_B	1.0	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	30 0.24	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$



TO-220



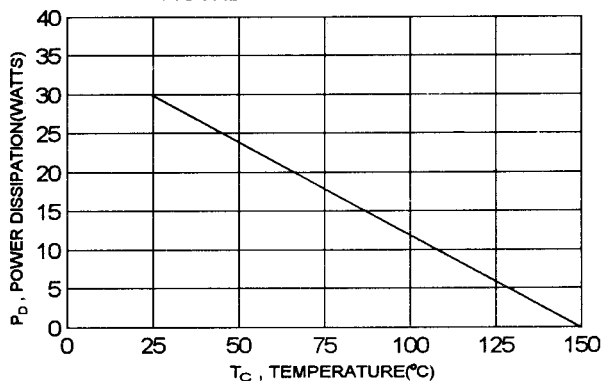
PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	4.16	$^\circ\text{C/W}$

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

FIGURE -1 POWER DERATING



ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage ($I_C = 0.5\text{ A}$, $L = 40\text{ mH}$)	$V_{CE(sus)}$	250		V
Collector Cutoff Current ($V_{CB} = 300\text{ V}$, $I_E = 0$)	I_{CBO}		500	μA
Emitter Cutoff Current ($V_{EB} = 5.0\text{ V}$, $I_C = 0$)	I_{EBO}		500	μA

ON CHARACTERISTICS (1)

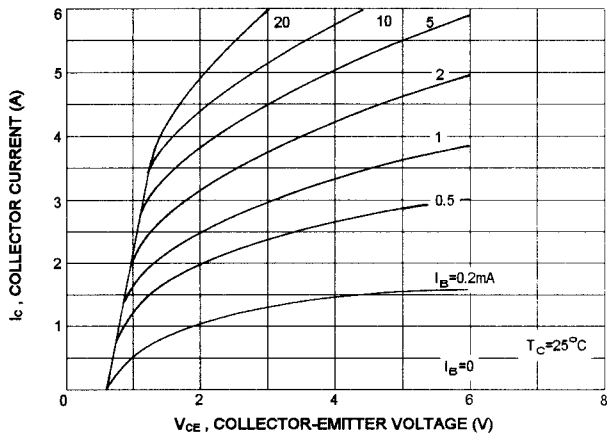
DC Current Gain ($I_C = 2.0\text{ A}$, $V_{CE} = 2.0\text{ V}$) ($I_C = 4.0\text{ A}$, $V_{CE} = 2.0\text{ V}$)	hFE	2000 200		
Collector-Emitter Saturation Voltage ($I_C = 4.0\text{ A}$, $I_B = 40\text{ mA}$)	$V_{CE(sat)}$		2.0	V
Base-Emitter Saturation Voltage ($I_C = 4.0\text{ A}$, $I_B = 40\text{ mA}$)	$V_{BE(sat)}$		2.5	V

SWITCHING CHARACTERISTICS

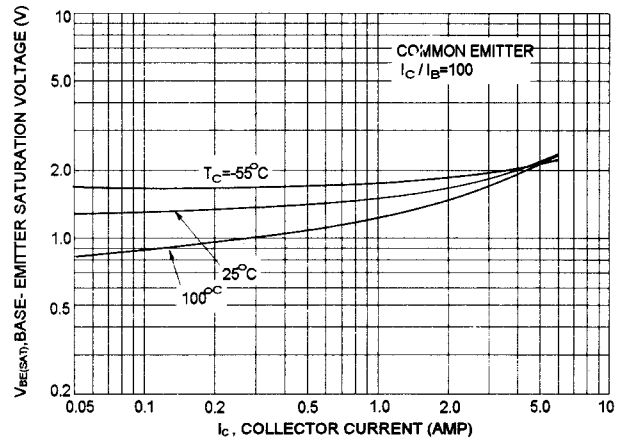
On Time	$V_{CC} = 100\text{ V}$, $I_C = 4.0\text{ A}$ $I_{B1} = -I_{B2} = 40\text{ mA}$ $R_L = 25\text{ ohm}$	t_{on}	1.0(typ)		μs
Storage Time		t_s	8.0(typ)		μs
Fall Time		t_f	5.0(typ)		μs

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

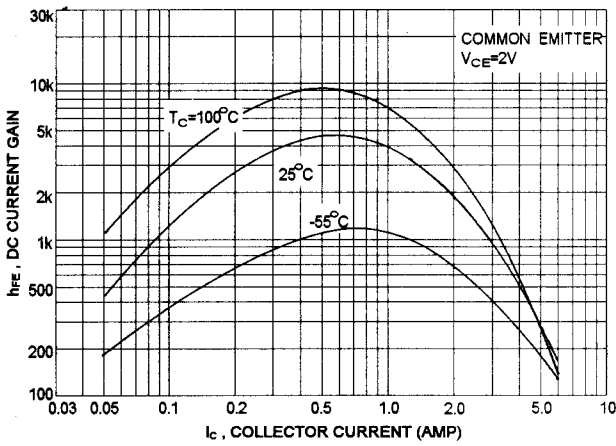
$I_c - V_{ce}$



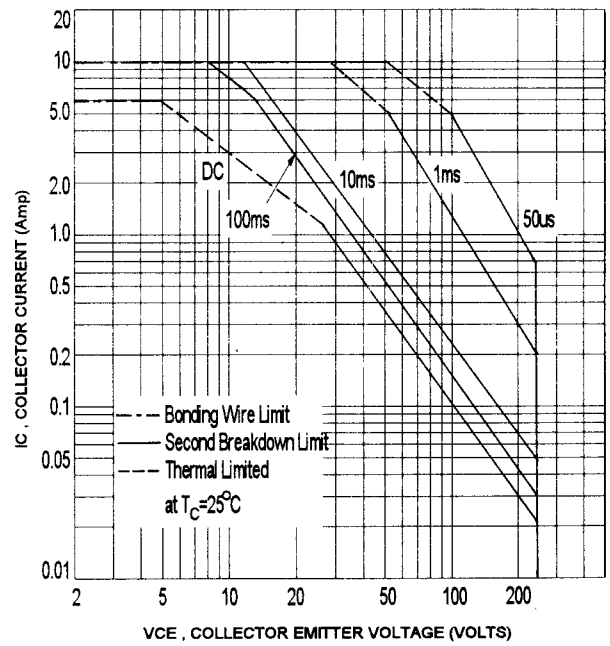
$V_{BE(sat)} - I_c$



DC CURRENT GAIN



SAFE OPERATING AREA (SOA)



$V_{CE(sat)} - I_c$

