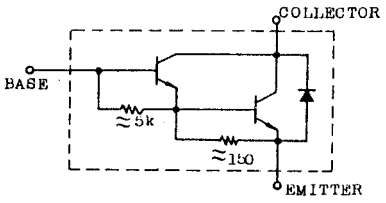
MOSPEC

DARLINGTON SILICON POWER TRANSISTORS

...designed for general-purpose amplifier, hammer drive ,pulse motor drive and low speed switching ,applications.

FEATURES:

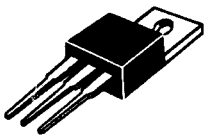
* Collector-Emitter Sustaining Voltage-
  $V_{CEO(SUS)}$ = 60 V (Min) - 2SD635
  = 80 V (Min) - 2SD634
  = 100 V (Min) - 2SD633
* Collector-Emitter Saturation Voltage
  $V_{CE(sat)}$ = 2.0 V (Max.) @ I_C = 7.0 A, I_B = 14m A
* DC Current Gain hFE = 2000(Min) @ I_C = 3.0 A,V_{CE}=3.0V



EQUIVALENT CIRCUIT

NPN
2SD633
2SD634
2SD635

7 AMPERE
DARLINGTON
POWER TRANSISTORS
NPN SILICON
60-100 VOLTS
40 WATTS



TO-220

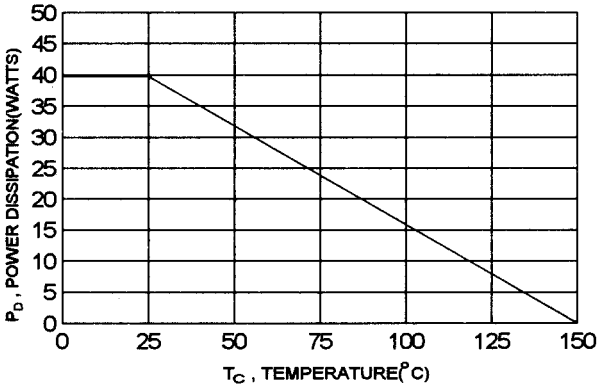
MAXIMUM RATINGS

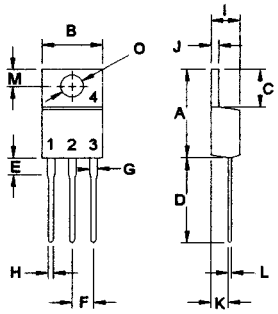
Characteristic	Symbol	2SD635	2SD634	2SD633	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	100	V
COllector-Base Voltage	V_{CBO}	60	80	100	V
Emitter-Base Voltage	V_{EBO}	5.0			V
Collector Current-Continuous -Peak	I_C I_{CM}	7.0 10			A
Base Current	I_B	0.2			A
Total Power Dissipation @T_C= 25°C Derate above 25°C	P_D	40 0.32			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	Rθjc	3.125	°C/W

FIGURE -1 POWER DERATING





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

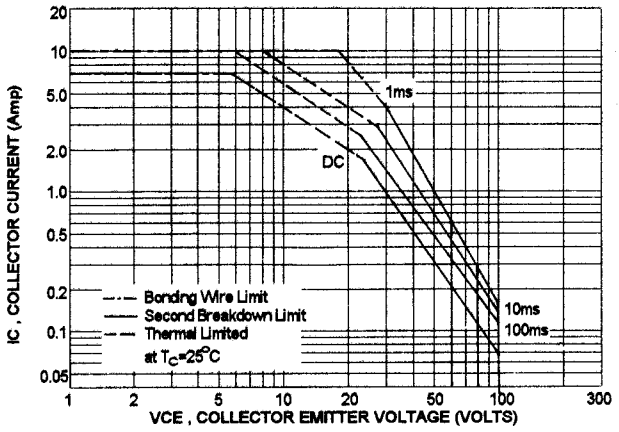
DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

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

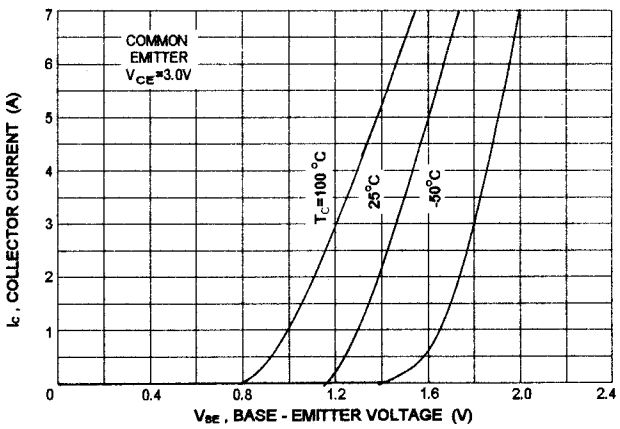
Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector - Emitter Breakdown Voltage (I_C = 50 mA, I_B = 0)	2SD633 2SD634 2SD635	$V_{(BR)CEO}$	 100 80 60		V
Collector Cutoff Current (V_{CE} = 100 V, I_E = 0) (V_{CE} = 80 V, I_E = 0) (V_{CE} = 60 V, I_E = 0)	 2SD633 2SD634 2SD635	I_{CBO}		 100 100 100	uA
Emitter Cutoff Current (V_{EB} = 5.0 V, I_C = 0)		I_{EBO}		 3.0	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 3.0 A, V_{CE} = 3.0 V) (I_C = 7.0 A, V_{CE} = 3.0 V)		hFE	 2000 1000	15000	
Collector-Emitter Saturation Voltage (I_C = 3.0 A, I_B = 6.0 mA) (I_C = 7.0 A, I_B = 14 mA)		$V_{CE(sat)}$		 1.5 2.0	V
Base-Emitter On Voltage (I_C = 3.0 A, I_B = 6.0 mA)		$V_{BE(sat)}$		 2.5	V
SWITCHING CHARATERISTICS					
On Time	I_C= 3.0 A, V_{CC}= 45 V I_{B1}= -I_{B2}= 6.0 mA PW= 20 us, Duty<1%	t_{on}		1.2	us
Storage Time		t_s		3.5	us
Fall Time		t_f		3.0	us

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

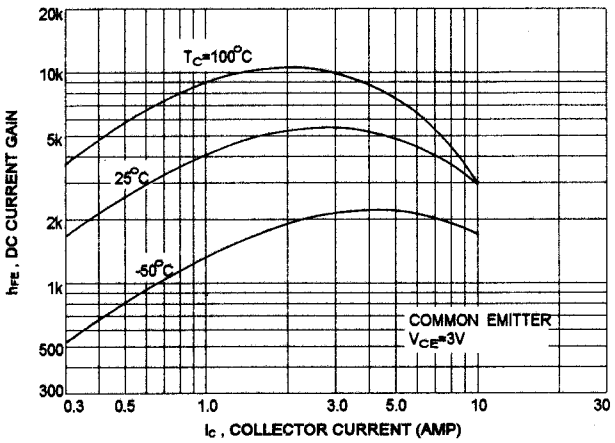
SAFE OPERATING AREA



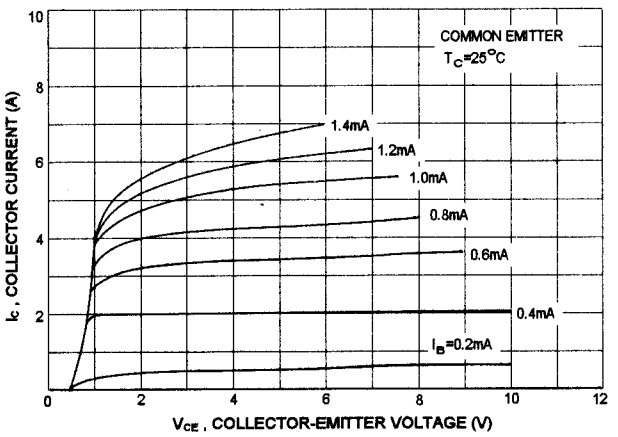
Ic - Vbe



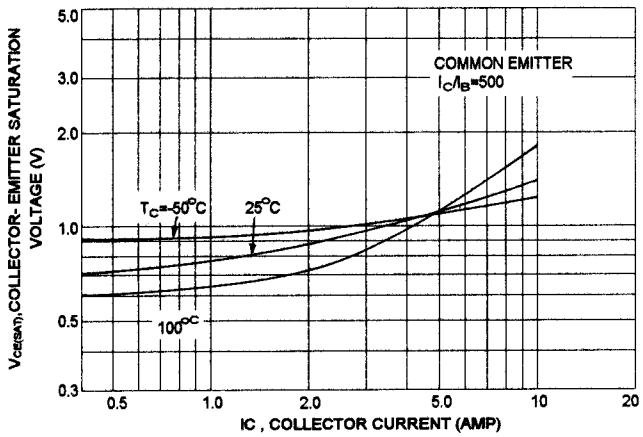
DC CURRENT GAIN



Ic - Vce



$V_{CE(sat)}$ - I_C



$V_{BE(sat)}$ - I_C