MOSPEC

NPN SILICON POWER TRANSISTORS

...designed for use in relay drivers,high-speed inverters,converters, and other general switching applications

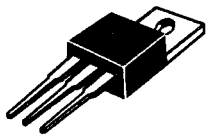
NPN

2SD1062

FEATURES:

* Low Collector-Emitter Saturation Voltage
  $V_{CE(sat)}$= 0.4V(Max) @I_C=6.0A,I_B=0.3A
* DC Current Gain
  hFE= 70-280@I_C= 1.0A
* Complememtary to PNP 2SB826

12 AMPERE
POWER
TRANASISTORS
50 VOLTS
40 WATTS



TO-220

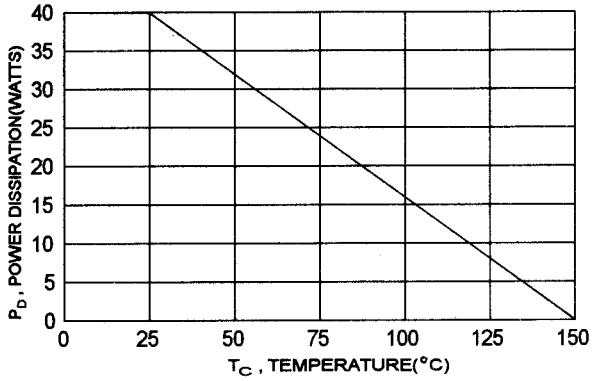
MAXIMUM RATINGS

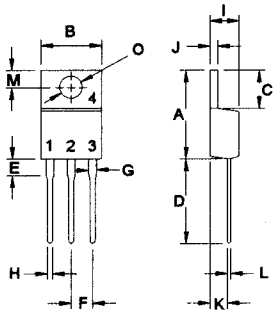
Characteristic	Symbol	2SD1062	Unit
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage	V_{CBO}	60	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous - Peak	I_C I_{CM}	12 15	A
Base current	I_B	4.0	A
Total Power Dissipation @T_C = 25°C Derate above 25°C	P_D	40 0.32	W W/°C
Operating and Storage Junction Temperature Range	T_J , T_{STG}	-55 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)

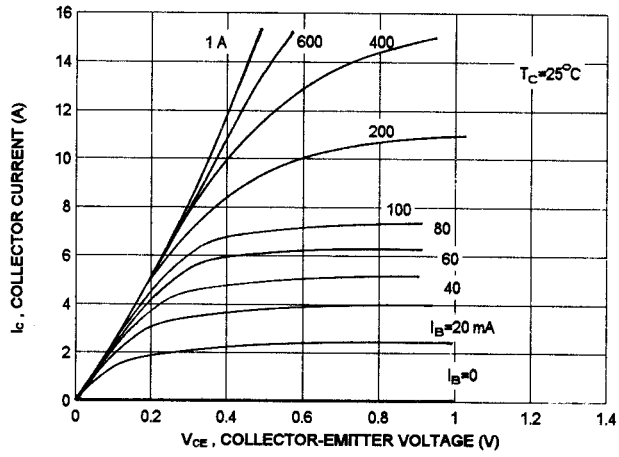
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C= 1.0 mA, I_E= 0)	$V_{(BR)CEO}$	50		V
Collector-Emitter Breakdown Voltage (I_C= 1.0 mA, I_B= 0)	$V_{(BR)CBO}$	60		V
Emitter-Base Breakdown Voltage (I_B= 1.0 mA, I_C= 0)	$V_{(BR)EBO}$	6.0		V
Collector Cutoff Current (V_{CB}= 40 V, I_E= 0)	I_{CBO}		100	uA
Emitter Cutoff Current (V_{EB}= 4.0 V, I_C= 0)	I_{EBO}		100	uA
ON CHARACTERISTICS (1)				
DC Current Gain (I_C= 1.0 A, V_{CE}= 2.0 V) * (I_C= 5.0 A, V_{CE}= 2.0 V)	hFE(2) hFE	70 30	280	
Collector-Emitter Saturation Voltage (I_C= 6.0 A, I_B= 300 mA)	$V_{CE(sat)}$		0.4	V
DYNAMIC CHARACTERISTICS				
Current-Gain-Bandwidth Product (I_C = 1.0 A, V_{CE} = 5.0 V, f = 1.0 MHz)	f_T	5.0		MHz
SWITCHING CHARATERISTICS				
Turn-on Time	V_{CC}= 20 V, I_C= 5.0A I_{B1}= -I_{B2}= 500mA PW= 20 us	t_{on}	1.0	us
Storage Time		t_s	1.2	us
Fall Time		t_f	0.5	us

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

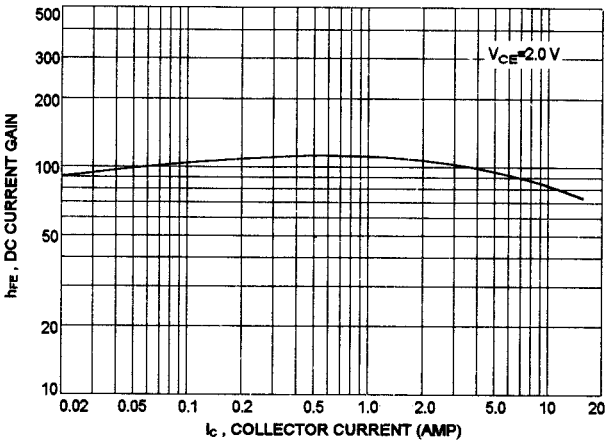
* hFE(2) Classification :

70	Q	140	100	R	200	140	S	280

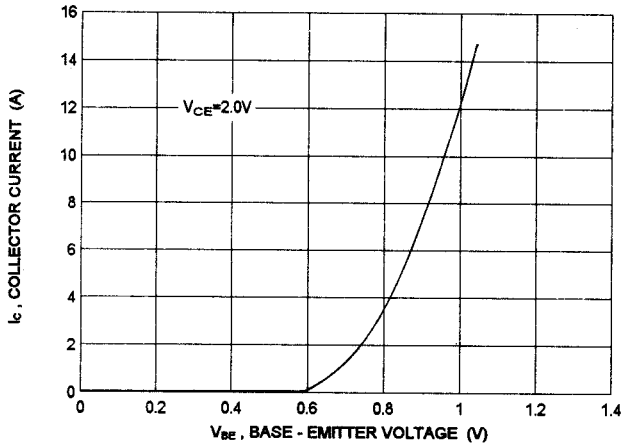
Ic - Vce



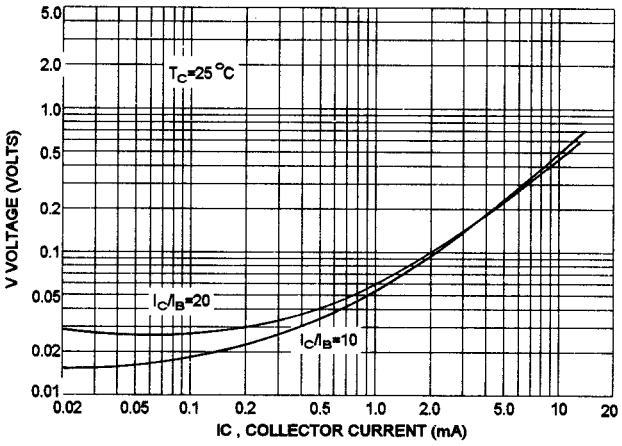
DC CURRENT GAIN



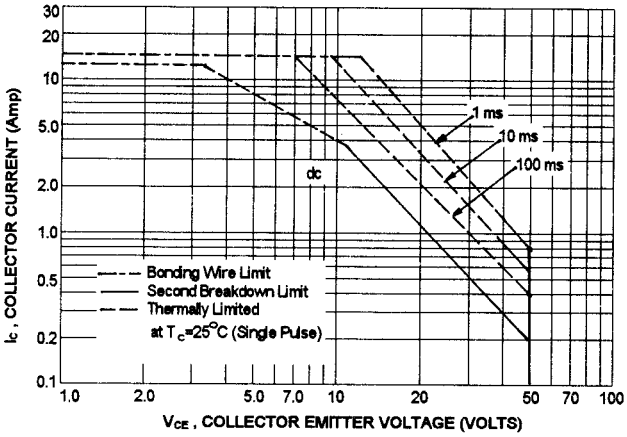
Ic - Vbe



$V_{CE(sat)}$-I_C



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 $T_{J(PK)}$≤150°C,At high case temperatures, thermal limita - tion will reduce the power that can be handled to values less than the limitations imposed by second breakdown.