MOSPEC

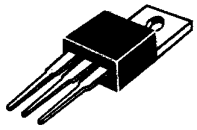
PNP SILICON POWER TRANSISTORS

...designed for use in power amplifier applications

PNP
2SA1012

5 AMPERE
POWER
TRANASISTORS
50 VOLTS
25 WATTS

FEATURES:
* Low Collector-Emitter Saturation Voltage
  $V_{CE(sat)}$=0.4 V(Max) @I_C=3.0A,I_B=0.15A
* DC Current Gain
  hFE= 70-240@I_C= 1.0A
* High Speed Switching Time
  t_{stg} =1.0 us (Typ.)



TO-220

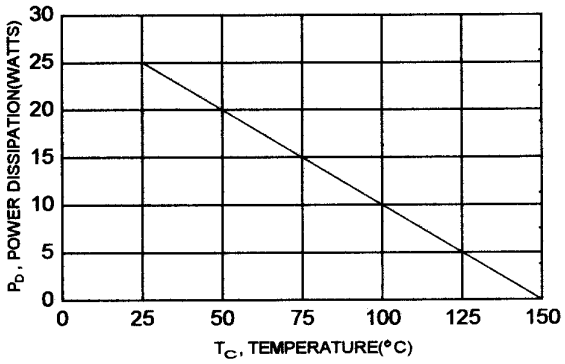
MAXIMUM RATINGS

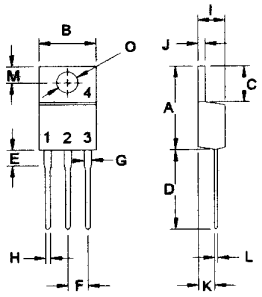
Characteristic	Symbol	2SA1012	Unit
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage	V_{CBO}	60	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current - Continuous - Peak	I_C I_{CM}	5 8	A
Base current	I_B	1	A
Total Power Dissipation @T_C = 25°C Derate above 25°C	P_D	25 0.2	W W/°C
Operating 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	5.0	°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= 10 mA, I_B= 0)	$V_{(BR)CEO}$	50		V
Collector Cutoff Current (V_{CB}= 50 V, I_E= 0)	I_{CBO}		10	uA
Emitter Cutoff Current (V_{EB}= 5.0 V, I_C= 0)	I_{EBO}		10	uA
ON CHARACTERISTICS (1)				
DC Current Gain (I_C= 1.0 A, V_{CE}= 1.0 V)* (I_C= 3.0 A, V_{CE}= 1.0 V)	hFE(2) hFE	70 30	240	
Collector-Emitter Saturation Voltage (I_C= 3.0 A, I_B= 150 mA)	$V_{CE(sat)}$		0.4	V
Base-Emitter Saturation Voltage (I_C= 3.0 A, I_B= 150 mA)	$V_{BE(sat)}$		1.2	V
DYNAMIC CHARACTERISTICS				
Current-Gain-Bandwidth Product (I_C = 1.0 A, V_{CE} = 4.0 V, f = 1.0 MHz)	f_T	10		MHz

SWITCHING CHARATERISTICS

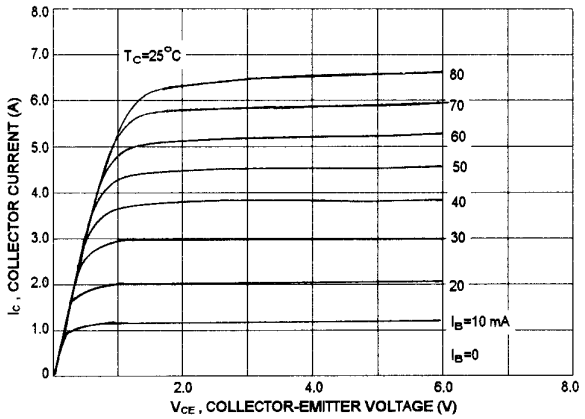
Turn-on Time	V_{CC}= 30 V, I_C= 3.0 A I_{B1}= -I_{B2}= 150 mA PW= 20 us	t_{on}	0.2(typ)		us
Storage Time		t_s	1.0(typ)		us
Fall Time		t_f	0.2(typ)		us

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

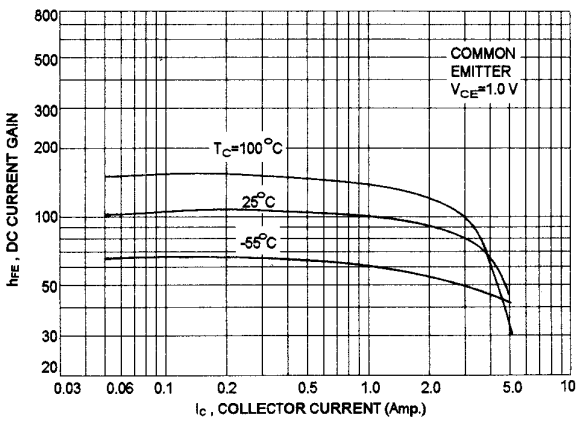
* hFE(2) Classification :

70 O 140	120 Y 240

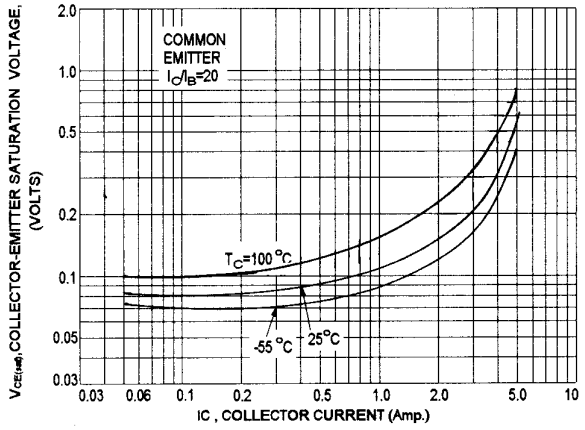
Ic - Vce



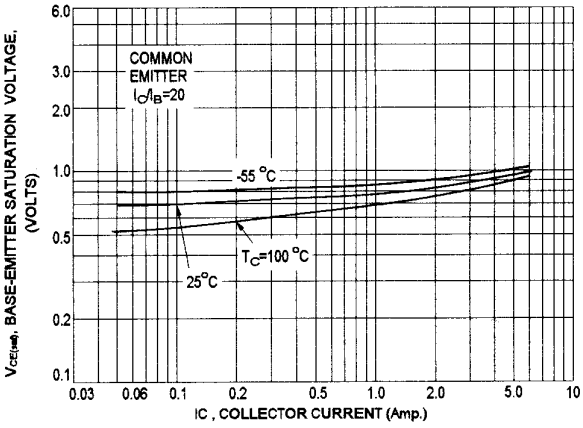
DC CURRENT GAIN



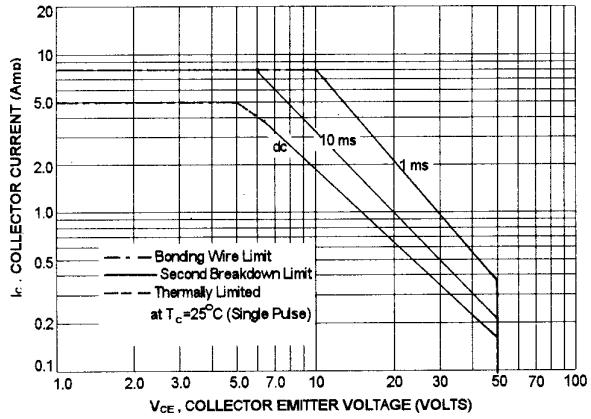
$V_{CE(sat)}$-I_C



$V_{BE(sat)}$-I_C



ACTIVE-REGION SAFE OPERATING AREA



Ic - Vbe