PNP SILICON POWER TRANSISTOR

PNP
2N6594

The 2N6594 is a general-purpose,EPIBAS power transistor designed for low voltage amplifier power switching applications.It is a complement to the NPN 2N6569

Boca Semiconductor Corp
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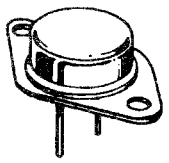
FEATURES:
* Safe Operating Area- Full Power Rating to 40V
* EPIBASE Performance in Gain and Speed
* Lower Voltage, Economical Complement to the 2N3055

12 AMPERE
PNP SILICON
POWER TRANSISTORS
40 VOLTS
100 WATTS



TO-3

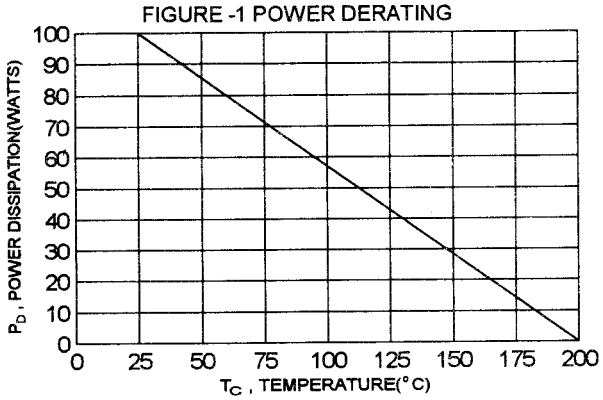
MAXIMUM RATINGS

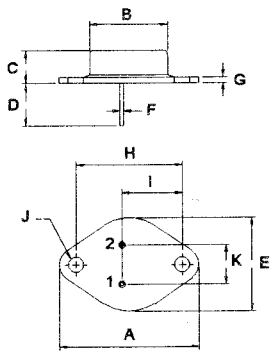
Characteristic	Symbol	2N6594	Unit
Collector-Emitter Voltage	V_{CEO}	40	V
Collector-Base Voltage	V_{CBO}	45	V
Collector-Base Voltage	V_{EBO}	5.0	V
Collector current - Continuous - Peak	I_C I_{CM}	12 24	A
Base current - Continuous	I_B	5.0	A
Emitter current - Continuous - Peak	I_E I_{EM}	17 34	A
Total Power Dissipation@T_C=25°C Derate above 25°C	P_D	100 0.572	W W/°C
Operating and Storage Junction Temperature Range	T_J,T_{STG}	- 65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	1.75	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector - Emitter Sustaining Voltage (1) (I_C = 100 mA, I_B = 0)	$V_{CEO(sus)}$	40		V
Collector Cutoff Current (V_{CEO} = 40 V, I_B = 0)	I_{CEO}		1.0	mA
Collector Cutoff Current (V_{CBO} = 45 V, I_E = 0)	I_{CBO}		1.0	mA
Emitter Cutoff Current (V_{EB} = 5.0 V , I_C = 0)	I_{EBO}		5.0	mA
ON CHARACTERISTICS(1)				
DC Current Gain (I_C = 4.0 A, V_{CE} = 3.0 V) (I_C = 12 A, V_{CE} = 4.0 V)	hFE	15 5.0	200 100	
Collector-Emitter Saturation Voltage (I_C = 4.0 A, I_B = 0.4 A) (I_C = 12 A, I_B = 2.4 A)	$V_{CE(sat)}$		1.5 4.0	V
Base-Emitter Saturation Voltage (I_C = 4.0 A, I_B = 0.4 A)	$V_{BE(sat)}$		2.0	V
DYNAMIC CHARACTERISTICS				
Current -Gain-Bandwidth Product (2) (I_C = 1.0A, V_{CE} = 4.0 V, f = 0.5 MHz)	f_T	1.5	20	MHz
SWITCHING CHARACTERISTICS				
Delay Time	t_d		0.4	us
Rise Time	t_r		1.5	us
Storage Time	t_s		5.0	us
Fall Time	t_f		1.5	us

V_{CC} = 30 V, I_C = 2.0 A, I_{B1} = -I_{B2} = 0.2 A, t_p = 25 us, Duty Cycle ≤ 2.0%

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

(2) $f_T = |h_{fe}| \cdot f_{test}$

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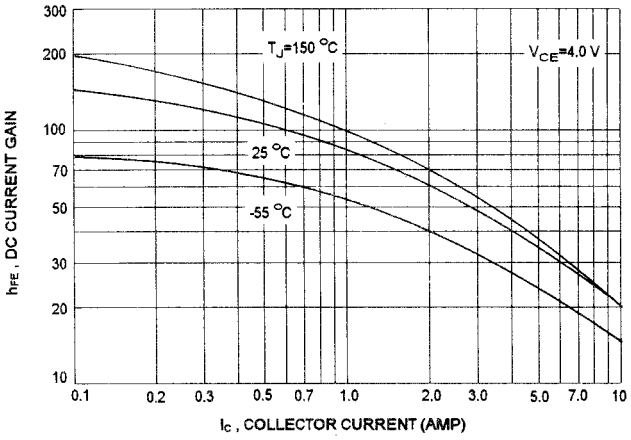
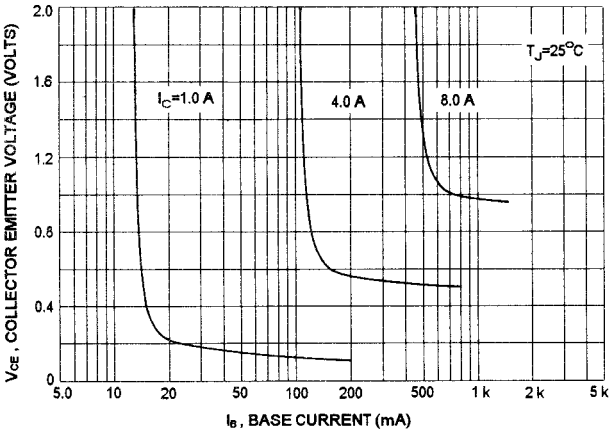
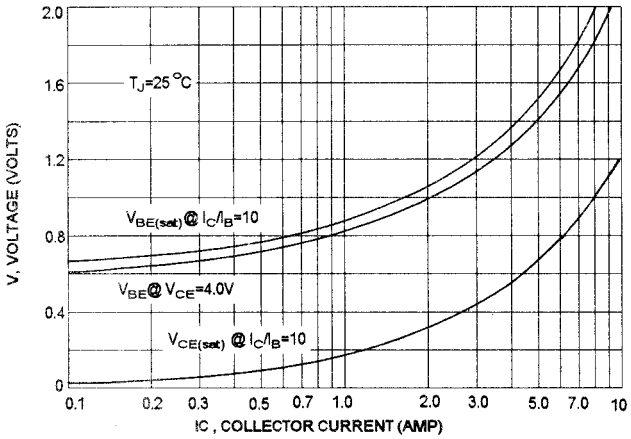
DC CURRENT GAIN



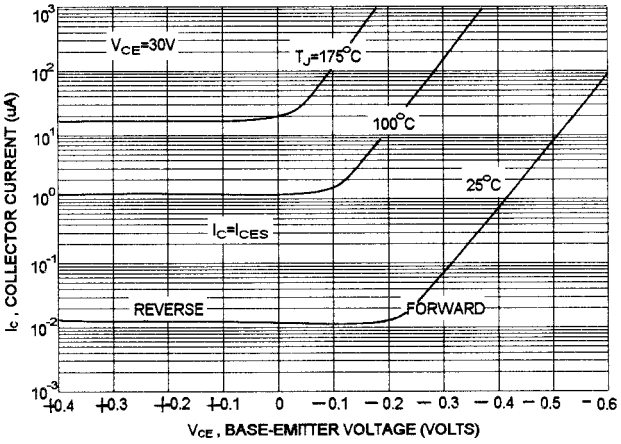
COLLECTOR SATURATION REGION



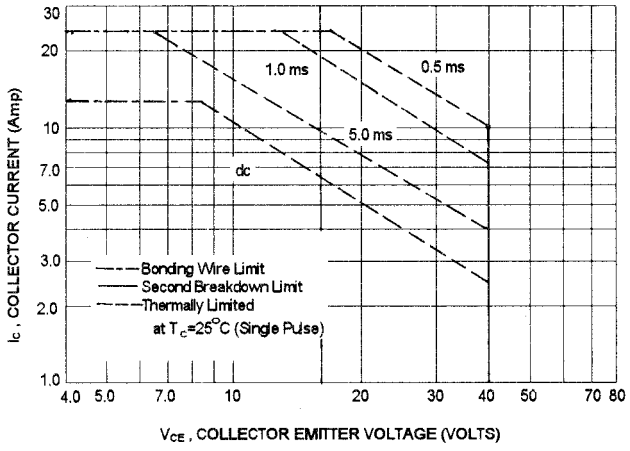
"ON"VOLTAGES



COLLECTOR CUT-OFF REGION



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 $T_{J(PK)}$=200 °C;T_C is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)}$≤200°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.

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