TSB1590

Low Vce(sat) PNP Transistor

SOT-23

Pin assignment:
1. Base
2. Emitter
3. Collector

BV_{CEO} = - 20V
Ic = - 1A
$V_{CE\ (SAT)}$, = - 0.18V(typ.) @Ic / Ib = - 0.5A / - 50mA

Features

- Low $V_{CE\ (SAT)}$.
- Excellent DC current gain characteristics

Structure

- Epitaxial planar type.
- Complementary to TSD2444CX

Ordering Information

Part No.	Packing	Package
TSB1590CX	Tape & Reel	SOT-23

Absolute Maximum Rating (Ta = 25 °C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Collector-Base Voltage		V_{CBO}	- 30V	V
Collector-Emitter Voltage		V_{CEO}	- 20V	V
Emitter-Base Voltage		V_{EBO}	- 5	V
Collector Current	DC	I_C	- 1	A
	Pulse		- 1.5 (note 1)	
Collector Power Dissipation		P_D	0.225	W
Operating Junction Temperature		T_J	+150	°C
Operating Junction and Storage Temperature Range		T_{STG}	- 55 to +150	°C

Note: 1. Single pulse, Pw = 10mS

Electrical Characteristics

Ta = 25 °C unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Collector-Base Voltage	I_C = - 50uA, I_E = 0	BV_{CBO}	- 30	--	--	V
Collector-Emitter Breakdown Voltage	I_C = - 1mA, I_B = 0	BV_{CEO}	- 20	--	--	V
Emitter-Base Breakdown Voltage	I_E = - 50uA, I_C = 0	BV_{EBO}	- 5	--	--	V
Collector Cutoff Current	V_{CB} = - 20V, I_E = 0	I_{CBO}	--	--	- 0.5	uA
Emitter Cutoff Current	V_{EB} = - 4V, I_C = 0	I_{EBO}	--	--	-0.5	uA
Collector-Emitter Saturation Voltage	I_C / I_B = - 500mA / - 50mA	$V_{CE(SAT)}$	--	- 0.18	- 0.4	V
DC Current Transfer Ratio	V_{CE} = - 3V, I_C = - 0.1A	h_{FE}	82	--	390	
Transition Frequency	V_{CE} = - 5V, I_C = - 50mA, f = 100MHz	f_T	--	150	--	MHz
Output Capacitance	V_{CB} = - 10V, f=1MHz	Cob	--	15	--	pF

Note : pulse test: pulse width <=380uS, duty cycle <=2%

Classification Of h_{FE}

Rank	P	Q	R
Range	82 - 180	120 - 270	180 - 390

Electrical Characteristics Curve

Figure 1. Current Gain vs Collector Current

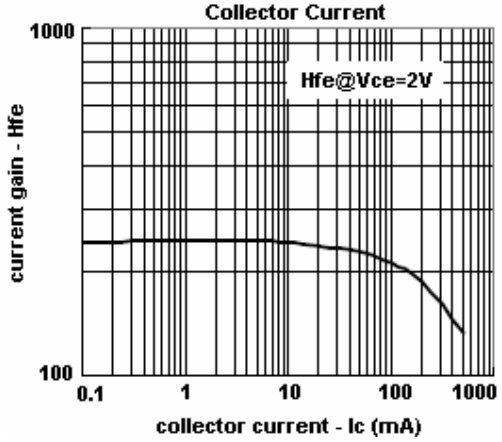


Figure 2. Saturation Voltage vs Collector Current

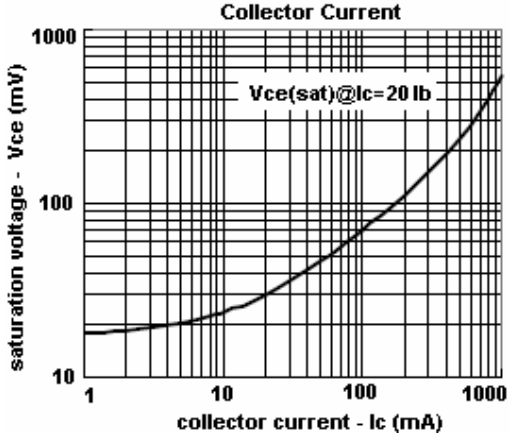


Figure 3. Saturation Voltage vs Collector Current

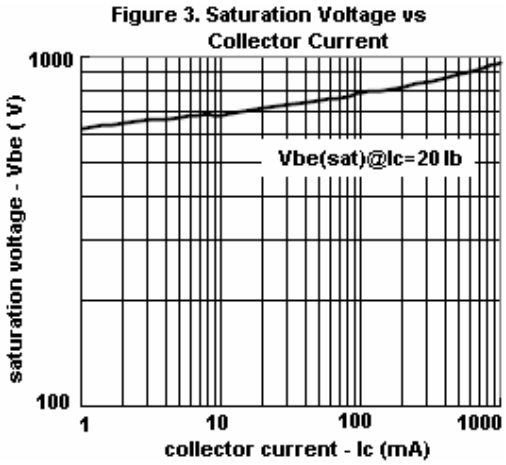


Figure 4. Power Derating Curves

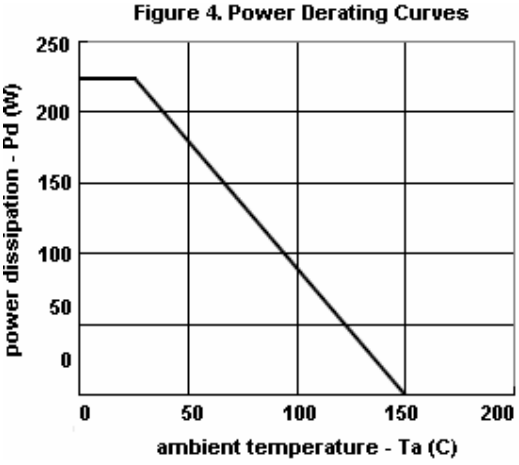
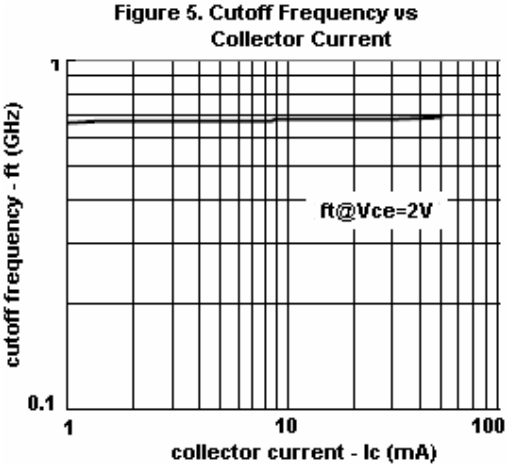
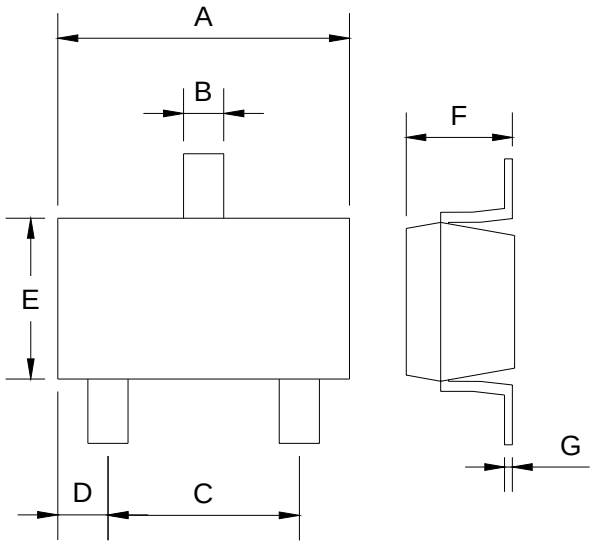


Figure 5. Cutoff Frequency vs Collector Current



SOT-23 Mechanical Drawing



SOT-23 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.110	0.120
B	0.30	0.50	0.012	0.020
C	1.70	2.30	0.067	0.091
D	0.25	0.65	0.010	0.026
E	1.2	1.60	0.047	0.063
F	0.89	1.30	0.035	0.051
G	0.08	0.17	0.003	0.006

Marking: **BK**