

SOT-23



Pin Definition:

1. Base
2. Emitter
3. Collector

PRODUCT SUMMARY

BV_{CBO}	-40V
BV_{CEO}	-25V
I_C	-1A
V_{CE(SAT)}	-0.18V @ I _C / I _B = -500mA / -50mA

Features

- Low V_{CE(SAT)} -0.4 @ I_C / I_B = -150mA / -15mA
- Complementary part with TSD2444

Structure

- Epitaxial Planar Type
- PNP Silicon Transistor

Ordering Information

Part No.	Package	Packing
TSB1590CX RF	SOT-23	3Kpcs / 7" Reel

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V _{CBO}	-40	V
Collector-Emitter Voltage	V _{CEO}	-25	V
Emitter-Base Voltage	V _{EBO}	-6	V
Collector Current	I _C	-1	A
Collector Power Dissipation	P _D	225	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	556	°C/W
Operating Junction Temperature	T _J	+150	°C
Operating Junction and Storage Temperature Range	T _{STG}	- 55 to +150	°C

Note: Single pulse, Pw≤350us, Duty≤2%

Electrical Specifications (Ta = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	I _C = -50uA, I _E = 0	BV _{CBO}	-40	--	--	V
Collector-Emitter Breakdown Voltage	I _C = -1mA, I _B = 0	BV _{CEO}	-25	--	--	V
Emitter-Base Breakdown Voltage	I _E = -50uA, I _C = 0	BV _{EBO}	-6	--	--	V
Collector Cutoff Current	V _{CB} = -35V, I _E = 0	I _{CBO}	--	--	-100	nA
Emitter Cutoff Current	V _{EB} = -6V, I _C = 0	I _{EBO}	--	--	-100	nA
Collector-Emitter Saturation Voltage	I _C / I _B = -500mA / -50mA	*V _{CE(SAT)}	--	-0.18	-0.4	V
Base-Emitter Saturation Voltage	I _C / I _B = -500mA / -50mA	*V _{BE(SAT)}	--	-0.9	-1.3	V
DC Current Transfer Ratio	V _{CE} = -3V, I _C = -100mA	*h _{FE1}	120	--	560	
	V _{CE} = -3V, I _C = -800mA	*h _{FE2}	80	--	--	
Transition Frequency	V _{CE} = -5V, I _C = -50mA, f = 100MHz	f _T	--	150	--	MHz
Output Capacitance	V _{CB} = -10V, f = 1MHz	Cob	--	15	--	pF

* Pulse Test: Pulse Width ≤380uS, Duty Cycle ≤2%

Electrical Characteristics Curve ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Figure 1. DC Current Gain

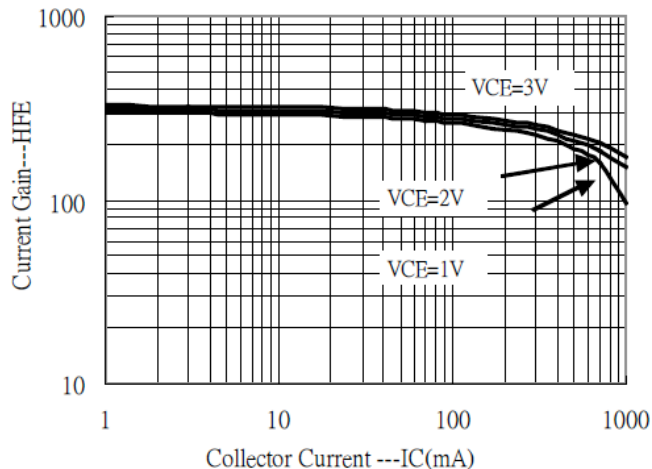


Figure 2. $V_{CE(SAT)}$ v.s. I_C

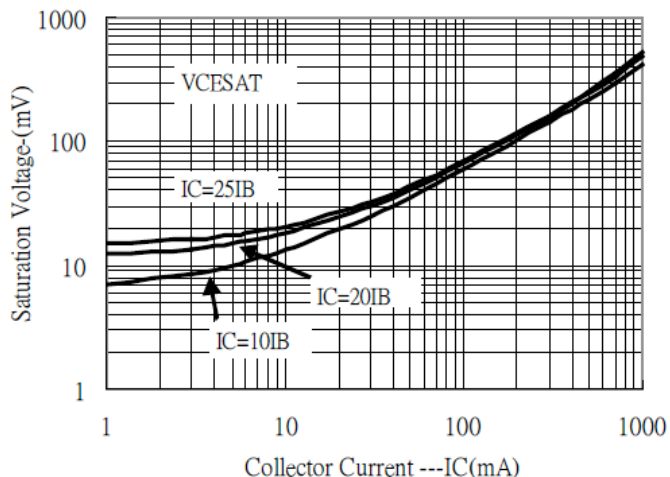


Figure 3. $V_{BE(SAT)}$ v.s. I_C

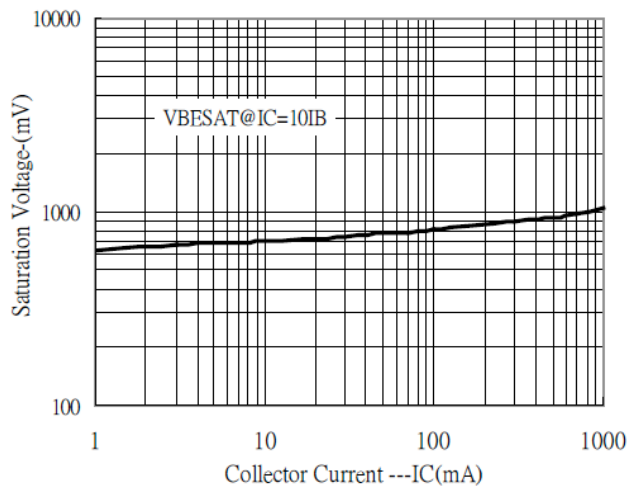


Figure 4. Cutoff Frequency vs. I_C

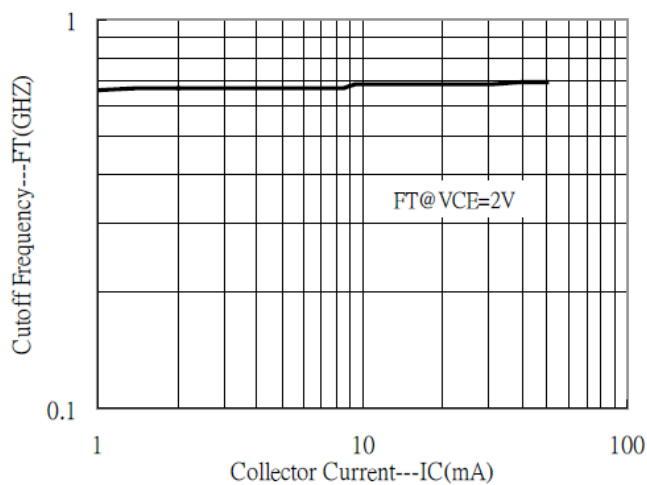
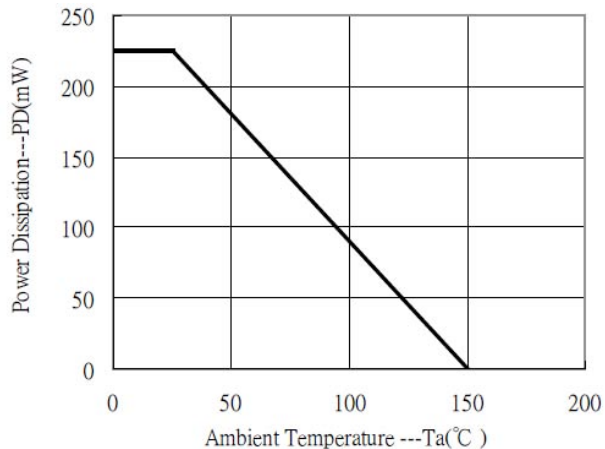
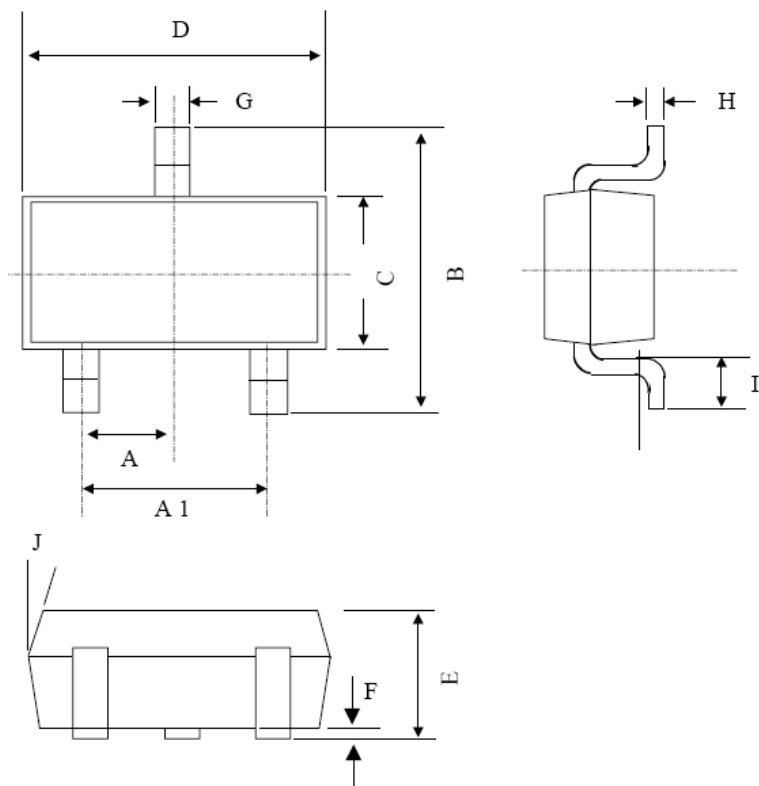


Figure 5. Power Derating Curve



SOT-23 Mechanical Drawing



SOT-23 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX.
A	0.95 BSC		0.037 BSC	
A1	1.9 BSC		0.074 BSC	
B	2.60	3.00	0.102	0.118
C	1.40	1.70	0.055	0.067
D	2.80	3.10	0.110	0.122
E	1.00	1.30	0.039	0.051
F	0.00	0.10	0.000	0.004
G	0.35	0.50	0.014	0.020
H	0.10	0.20	0.004	0.008
I	0.30	0.60	0.012	0.024
J	5°	10°	5°	10°

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.