

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	$R_{\theta JA}$	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, $P_w \leq 350\mu s$, $Duty \leq 2\%$

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$I_C = -50\mu A, I_E = 0$	BV_{CBO}	-40	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = -1mA, I_B = 0$	BV_{CEO}	-25	--	--	V
Emitter-Base Breakdown Voltage	$I_E = -50\mu A, I_C = 0$	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	$V_{CB} = -10V, f = 1MHz$	C_{ob}	--	15	--	pF

* Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

Figure 1. DC Current Gain

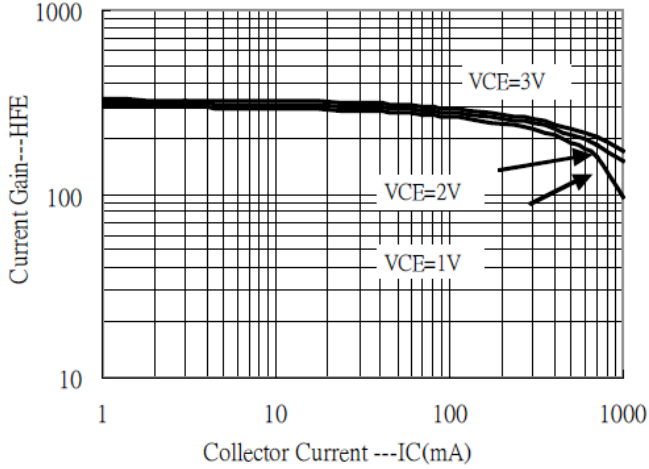


Figure 2. VCE(SAT) v.s. IC

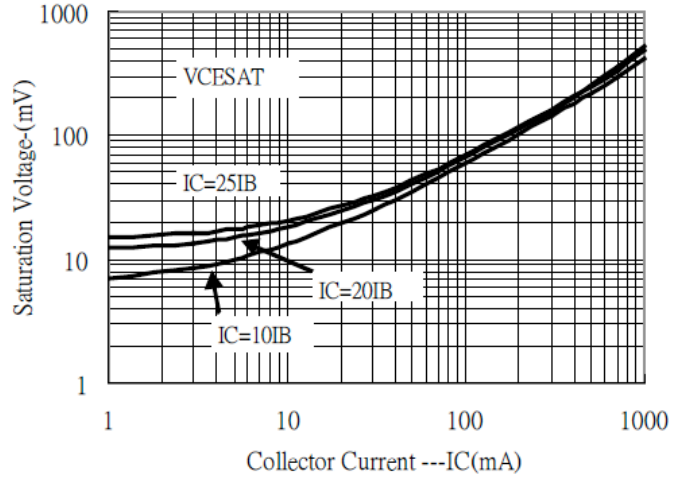


Figure 3. VBE(SAT) v.s. IC

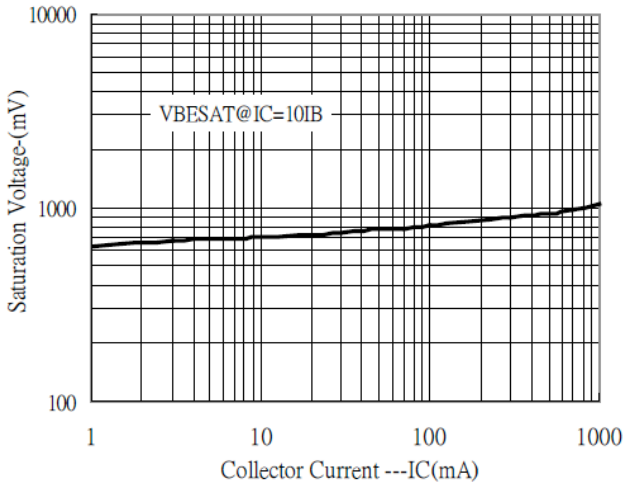


Figure 4. Cutoff Frequency vs. IC

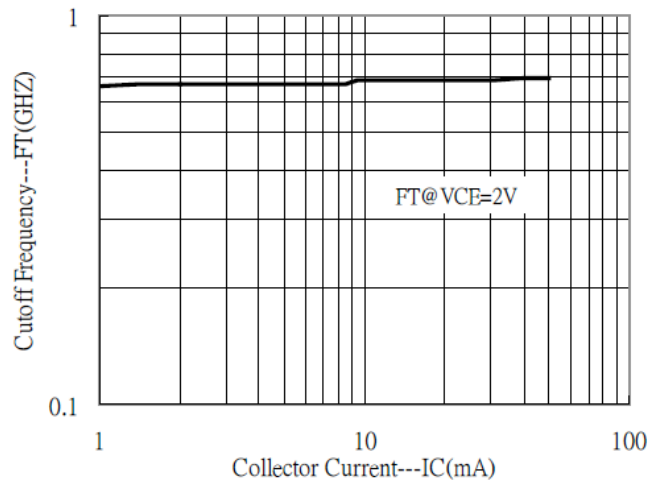
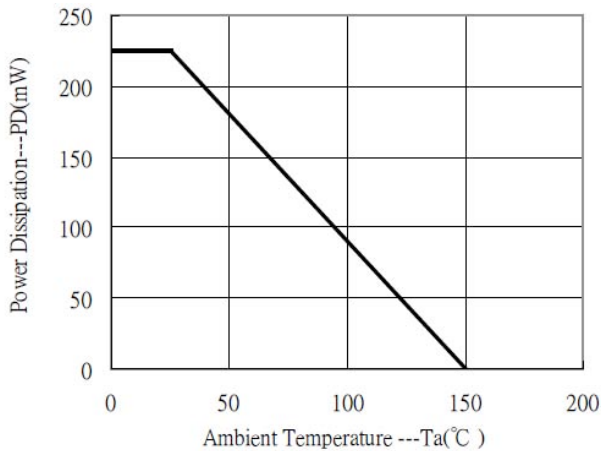
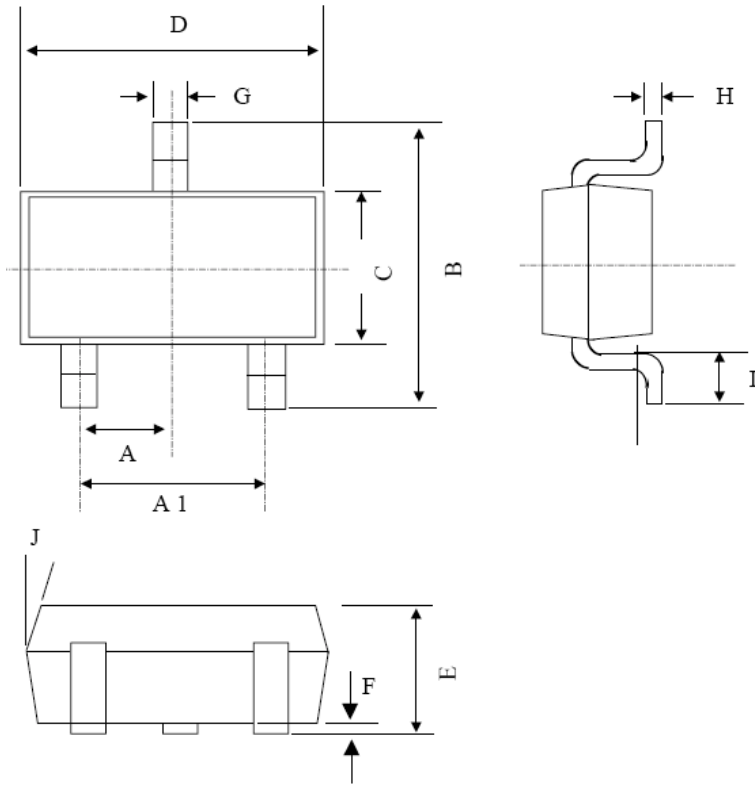


Figure 5. Power Derating Curve



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°

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