



# TSA1036

## General Purpose PNP Transistor

**SOT-23**



Pin assignment:

1. Base
2. Emitter
3. Collector

**$BV_{CEO} = - 32V$**

**$I_C = - 600mA$**

**$V_{CE(SAT)} = 0.2V(\text{typ.}) @ I_C / I_B = 300mA / 30mA$**

### Features

- ◇ Driver stage of AF amplifier.
- ◇ General purpose switching application

### Structure

- ◇ Epitaxial planar type.
- ◇ Complementary to TSC2411CX

### Ordering Information

Part No.	Packing	Package	Marking
TSA1036CX	3kpcs / Reel	SOT-23	2T

### Absolute Maximum Rating ( $T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	- 40V	V
Collector-Emitter Voltage	$V_{CEO}$	- 32V	V
Emitter-Base Voltage	$V_{EBO}$	- 5	V
Collector Current	$I_C$	- 0.6	A
Collector Power Dissipation	$P_D$	225	mW
Operating Junction Temperature	$T_J$	+150	$^\circ C$
Operating Junction and Storage Temperature Range	$T_{STG}$	- 55 to +150	$^\circ C$

Note: 1. Single pulse,  $P_w = 380\mu S$ , Duty  $\leq 2\%$

### Electrical Characteristics ( $T_a = 25^\circ C$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
<b>Static</b>						
Collector-Base Voltage	$I_C = - 10\mu A, I_E = 0$	$BV_{CBO}$	- 40	- 100	--	V
Collector-Emitter Breakdown Voltage	$I_C = - 1mA, I_B = 0$	$BV_{CEO}$	- 32	- 60	--	V
Emitter-Base Breakdown Voltage	$I_E = - 100\mu A, I_C = 0$	$BV_{EBO}$	- 5	--	--	V
Collector Cutoff Current	$V_{CB} = - 20V, I_E = 0$	$I_{CBO}$	--	--	- 1.0	$\mu A$
Emitter Cutoff Current	$V_{EB} = - 4V, I_C = 0$	$I_{EBO}$	--	--	- 1.0	$\mu A$
Collector-Emitter Saturation Voltage	$I_C / I_B = - 100mA / - 10mA$	$V_{CE(SAT)1}$	--	--	- 0.5	V
Collector-Emitter Saturation Voltage	$I_C / I_B = - 300mA / - 30mA$	$V_{CE(SAT)2}$	--	- 0.20	- 0.75	V
DC Current Transfer Ratio	$V_{CE} = - 3V, I_C = 100mA$	$h_{FE}$	82	--	390	
Transition Frequency	$V_{CE} = - 10V, I_C = - 1mA,$ $f = 100MHz$	$f_T$	--	200	--	MHz
Output Capacitance	$V_{CB} = - 10V, f = 1MHz$	$C_{ob}$	--	7	--	pF

Note : pulse test: pulse width  $\leq 380\mu S$ , duty cycle  $\leq 2\%$

### 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

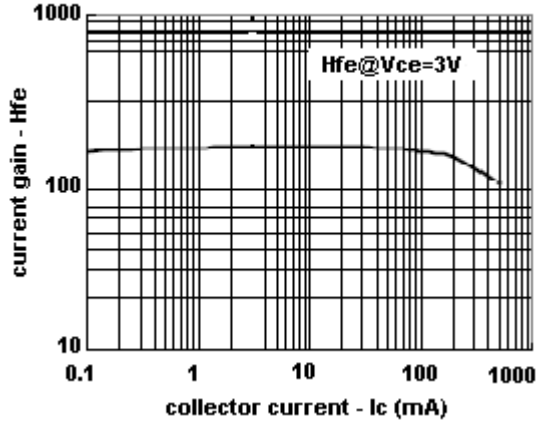


Figure 2. Saturation Voltage vs Collector Current

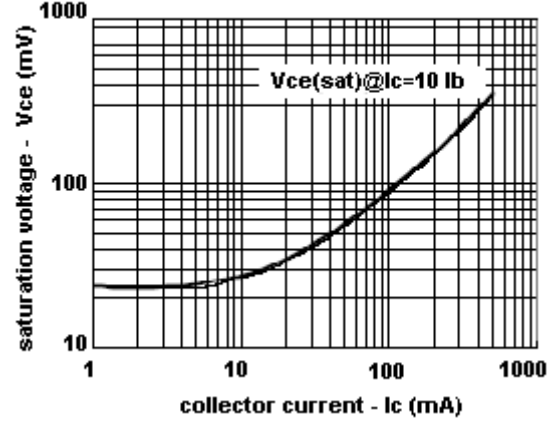


Figure 3. Saturation Voltage vs Collector Current

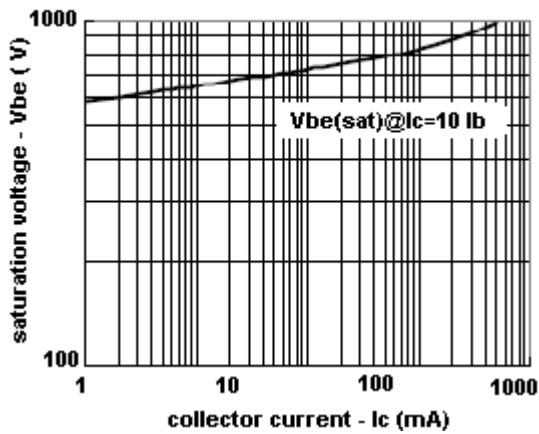


Figure 4. Power Derating Curves

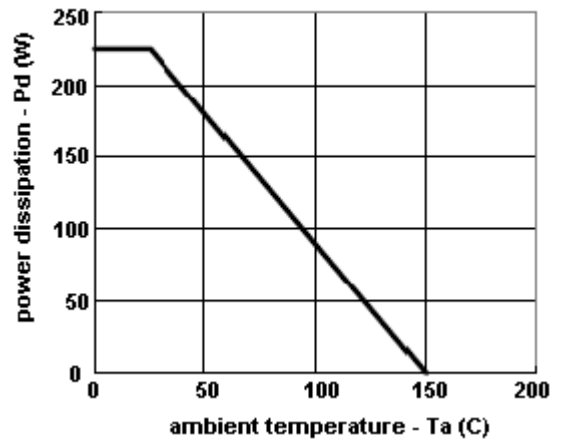
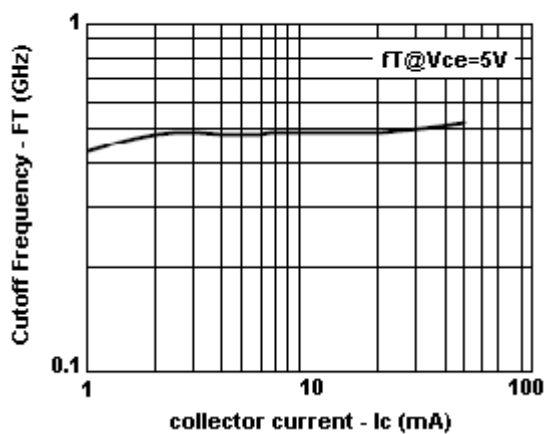
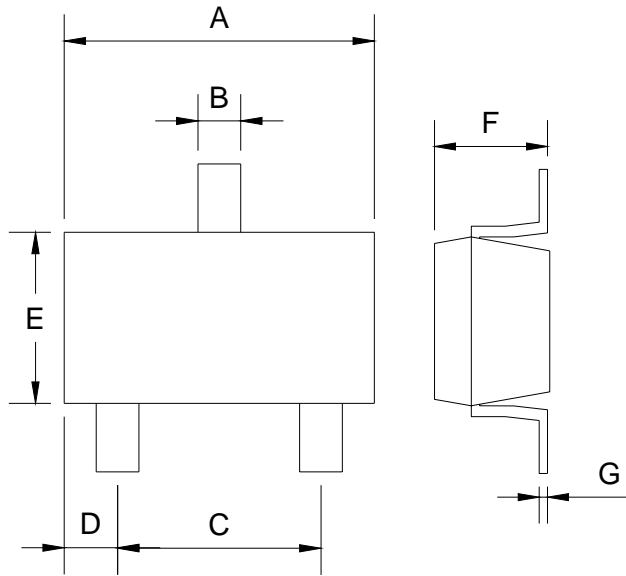


Figure 5. Cutoff Frequency vs Collector Current



### 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