



TSC2412

General Purpose NPN Transistor

SOT-23



Pin assignment:

1. Base
2. Emitter
3. Collector

$BV_{CEO} = 50V$

$I_C = 150mA$

$V_{CE(SAT)} = 0.2V(\text{typ.}) @ I_C / I_B = 50mA / 5mA$

Features

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

Structure

- ✧ Epitaxial planar type.
- ✧ Complementary to TSA1037CX

Ordering Information

Part No.	Packing	Package	Marking
TSC2412CX	3kpcs / Reel	SOT-23	C4

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	60V	V
Collector-Emitter Voltage	V_{CEO}	50V	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	I_C	150	mA
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
Static						
Collector-Base Voltage	$I_C = 100\mu A, I_E = 0$	BV_{CBO}	60	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 1mA, I_B = 0$	BV_{CEO}	50	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 50\mu A, I_C = 0$	BV_{EBO}	7	--	--	V
Collector Cutoff Current	$V_{CB} = 60V, I_E = 0$	I_{CBO}	--	--	0.1	μA
Emitter Cutoff Current	$V_{EB} = 7V, I_C = 0$	I_{EBO}	--	--	0.1	μA
Collector-Emitter Saturation Voltage	$I_C / I_B = 50mA / 5mA$	$V_{CE(SAT)1}$	--	0.2	0.4	V
DC Current Transfer Ratio	$V_{CE} = 6V, I_C = 1mA$	h_{FE}	180	--	820	
Transition Frequency	$V_{CE} = 12V, I_C = 2mA, f = 100MHz$	f_T	80	180	--	MHz
Output Capacitance	$V_{CB} = 5V, f = 1MHz$	C_{ob}	--	2	3.5	pF

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

Classification Of h_{FE}

Rank	R	S*	T
Range	180 - 390	270 - 560	410 - 820

Note: * is Typical

Electrical Characteristics Curve

Figure 1. Current Gain vs Collector Current

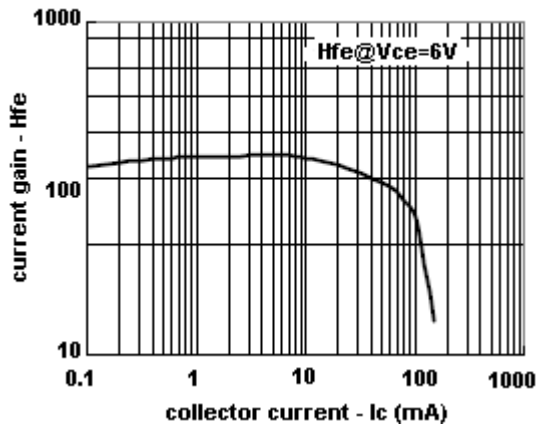


Figure 2. Saturation Voltage vs Collector Current

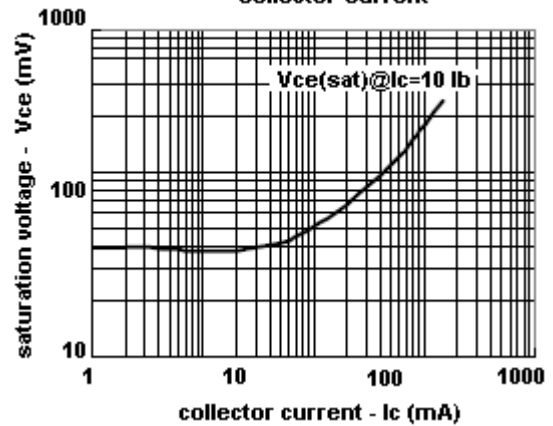


Figure 3. Saturation Voltage vs Collector Current

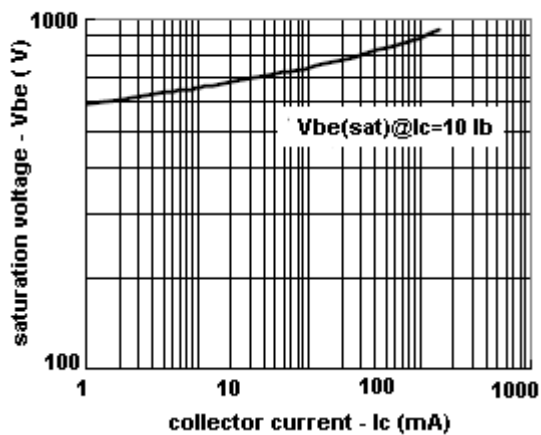


Figure 4. Power Derating Curves

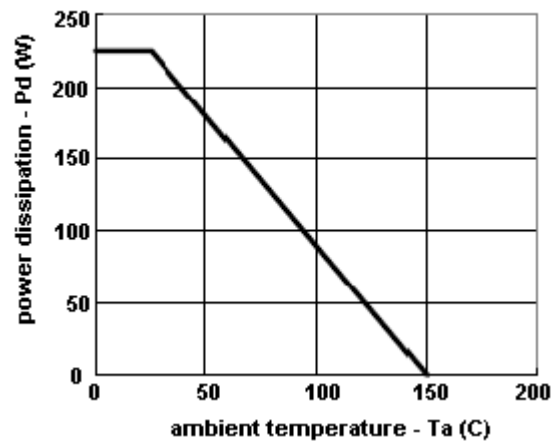
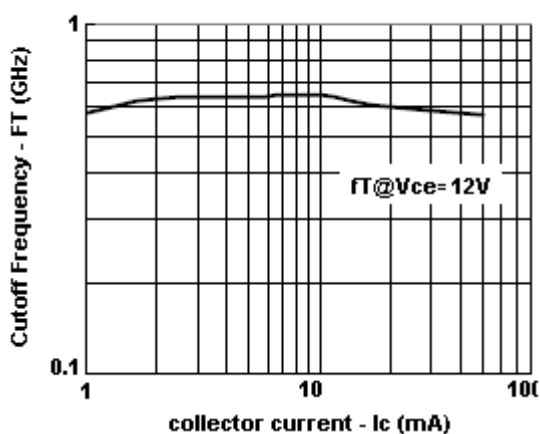
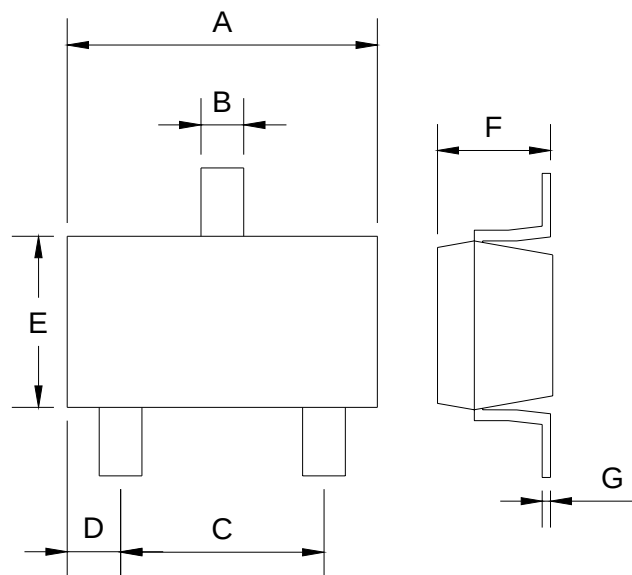


Figure 5. Cutoff Frequency vs Collector Current



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