

TSC 		TSD2444 Low Vce(sat) NPN Transistor																																			
SOT-23  Pin assignment: 1. Base 2. Emitter 3. Collector		BV_{CEO} = 20V I_c = 1A V_{CE} (SAT), = 0.2V(typ.) @I_c / I_b = 0.5A / 50mA																																			
Features ✧ LOW V_{CE} (SAT). ✧ Excellent DC current gain characteristics		Ordering Information <table><tr><th>Part No.</th><th>Packing</th><th>Package</th></tr><tr><td>TSD2444CX</td><td>Tape & Reel</td><td>SOT-23</td></tr></table>		Part No.	Packing	Package	TSD2444CX	Tape & Reel	SOT-23																												
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Structure ✧ Epitaxial planar type. ✧ Complementary to TSB1590CX																																					
Absolute Maximum Rating (Ta = 25 °C unless otherwise noted) <table><tr><th>Parameter</th><th>Symbol</th><th>Limit</th><th>Unit</th></tr><tr><td>Collector-Base Voltage</td><td>V_{CBO}</td><td>40V</td><td>V</td></tr><tr><td>Collector-Emitter Voltage</td><td>V_{CEO}</td><td>20V</td><td>V</td></tr><tr><td>Emitter-Base Voltage</td><td>V_{EBO}</td><td>5</td><td>V</td></tr><tr><td rowspan="2">Collector Current</td><td>DC</td><td>1</td><td rowspan="2">A</td></tr><tr><td>Pulse</td><td>1.5 (note 1)</td></tr><tr><td>Collector Power Dissipation</td><td>P_D</td><td>0.225</td><td>W</td></tr><tr><td>Operating Junction Temperature</td><td>T_J</td><td>+150</td><td>°C</td></tr><tr><td>Operating Junction and Storage Temperature Range</td><td>T_{STG}</td><td>- 55 to +150</td><td>°C</td></tr></table> Note: 1. Single pulse, Pw = 10mS				Parameter	Symbol	Limit	Unit	Collector-Base Voltage	V _{CBO}	40V	V	Collector-Emitter Voltage	V _{CEO}	20V	V	Emitter-Base Voltage	V _{EBO}	5	V	Collector Current	DC	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
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Electrical Characteristics Ta = 25 °C unless otherwise noted						
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Collector-Base Voltage	I _C = 10uA, I _E = 0	BV _{CBO}	40	--	--	V
Collector-Emitter Breakdown Voltage	I _C = 1mA, I _B = 0	BV _{CEO}	20	--	--	V
Emitter-Base Breakdown Voltage	I _E = 10uA, 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)	--	0.2	0.4	V
DC Current Transfer Ratio	V _{CE} = 2V, 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

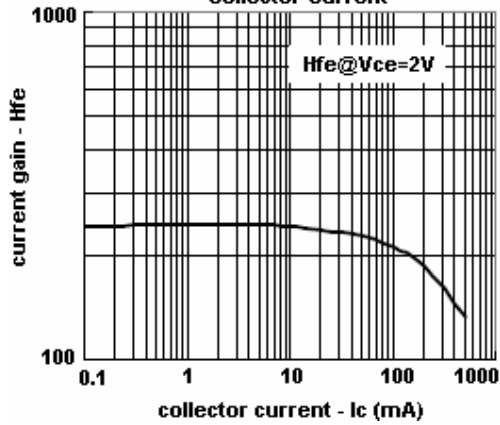


Figure 2. Saturation Voltage vs Collector Current

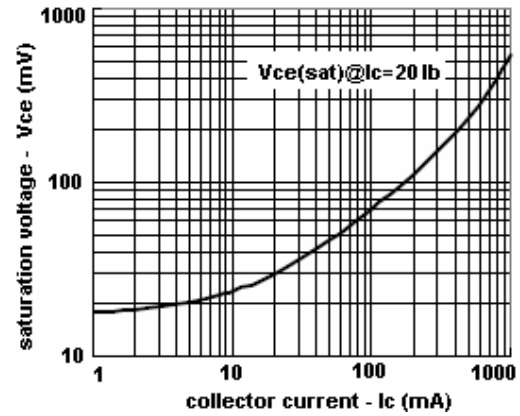


Figure 3. Saturation Voltage vs Collector Current

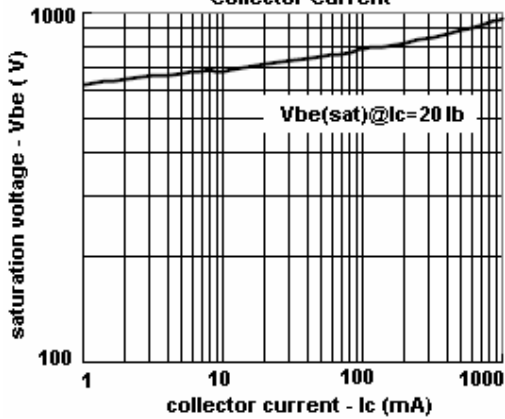


Figure 4. Power Derating Curves

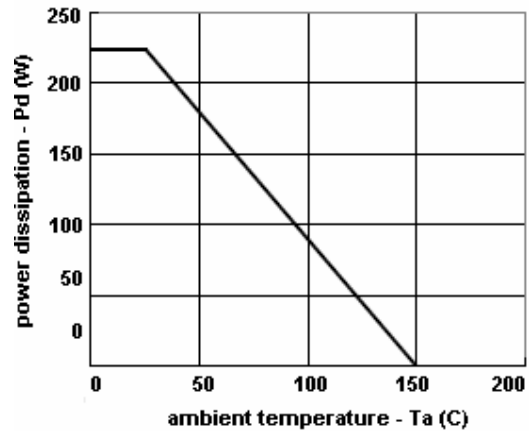
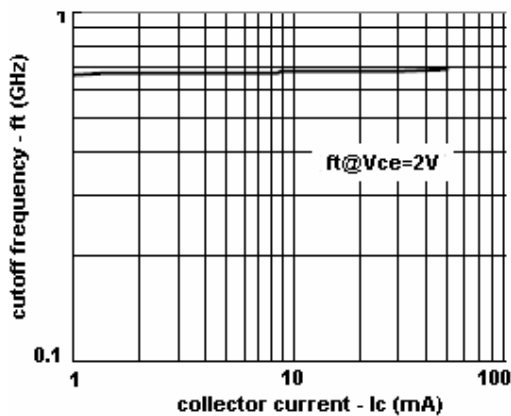
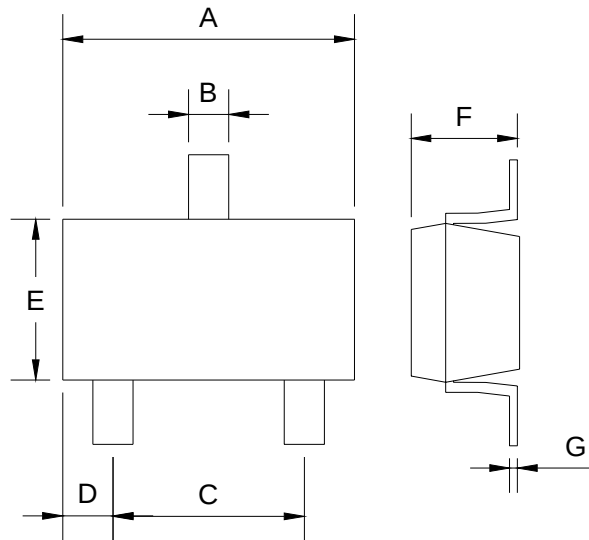


Figure 5. Cutoff Frequency vs Collector Current



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: **BS**