

TO-92

Pin Definition:

1. Emitter
2. Base
3. Collector

PRODUCT SUMMARY

BV_{CBO}	150V
BV_{CEO}	60V
I_C	6A
V_{CE(SAT)}	0.55V @ I _C / I _B = 6A / 300mA

Features

- Excellent gain characteristics specified up to 10A

Structure

- Epitaxial Planar Type

Ordering Information

Part No.	Package	Packing
TSC5988CT B0	TO-92	1Kpcs / Bulk
TSC5988CT A3	TO-92	2Kpcs / Ammo

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V _{CBO}	150	V
Collector-Emitter Voltage	V _{CEO}	60	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current	DC	5	A
	Pulse	20	
Total Power Dissipation	P _{TOT}	1.0	W
Operating Junction Temperature	T _J	+150	°C
Operating Junction and Storage Temperature Range	T _{STG}	- 55 to +150	°C

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	I _C = 100uA, I _E = 0	BV _{CBO}	150	170	--	V
Collector-Emitter Breakdown Voltage	I _C = 10mA, I _B = 0	BV _{CEO}	60	70	--	V
Emitter-Base Breakdown Voltage	I _E = 100uA, I _C = 0	BV _{EBO}	6	8	--	V
Collector Cutoff Current	V _{CB} = 120V, I _E = 0	I _{CBO}	--	--	50	nA
	V _{CB} = 120V, T _A = 100°C		--	--	1	uA
Emitter Cutoff Current	V _{EB} = 6V, I _C = 0	I _{EBO}	--	--	10	nA
Collector-Emitter Saturation Voltage	I _C = 100mA, I _B = 5mA	V _{CE(SAT)} 1	--	20	50	mV
	I _C = 1A, I _B = 50mA	V _{CE(SAT)} 2	--	50	100	
	I _C = 2A, I _B = 50mA	V _{CE(SAT)} 3	--	125	150	
	I _C = 5A, I _B = 200mA	V _{CE(SAT)} 4	--	260	350	
Base-Emitter Saturation Voltage	I _C = 4A, I _B = 200mA	V _{BE(SAT)}	--	920	1050	mV
Base-Emitter on Voltage	V _{CE} = 1V, I _C = 4A	V _{BE(ON)}	--	840	950	mV
DC Current Transfer Ratio	V _{CE} = 1V, I _C = 10mA	h _{FE} 1	100	--	--	
	V _{CE} = 1V, I _C = 2A	h _{FE} 2	120	200	300	
	V _{CE} = 1V, I _C = 5A	h _{FE} 3	75	140	--	
	V _{CE} = 1V, I _C = 10A	h _{FE} 4	--	70	--	
Transition Frequency	V _{CE} = 10V, I _C = 100mA	f _T	--	130	--	MHz
Output Capacitance	V _{CB} = 10V, f = 1MHz	Cob	--	72	--	pF

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

Figure 1. DC Current Gain vs. Collector Current

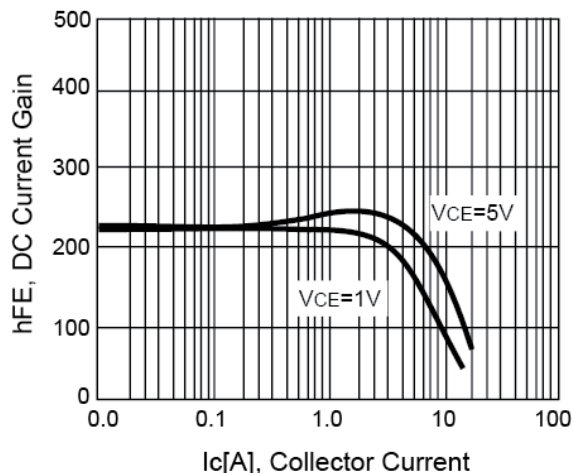


Figure 2. $V_{CE(SAT)}$ vs. Collector Current

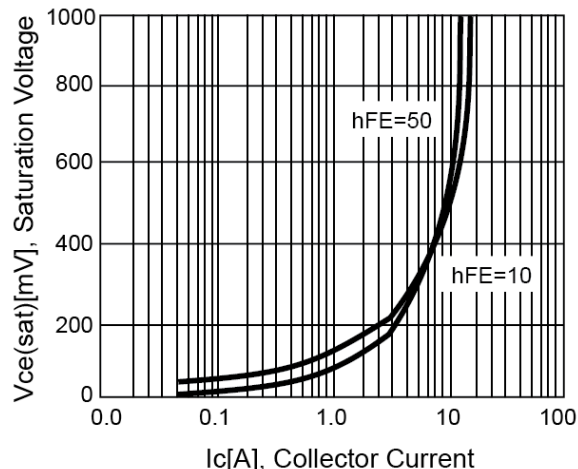


Figure 3. $V_{BE(SAT)}$ vs. Collector Current

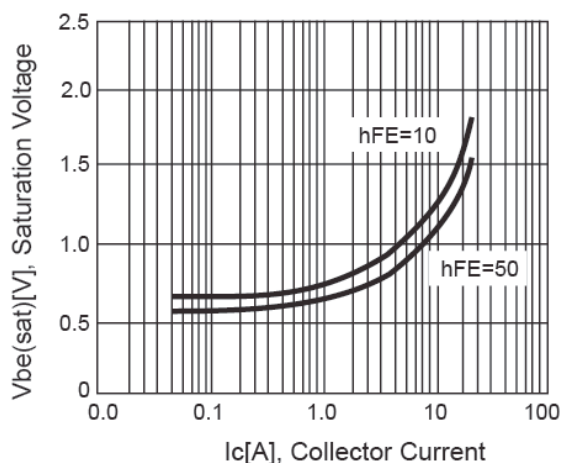


Figure 4. f_T vs. Emitter Current

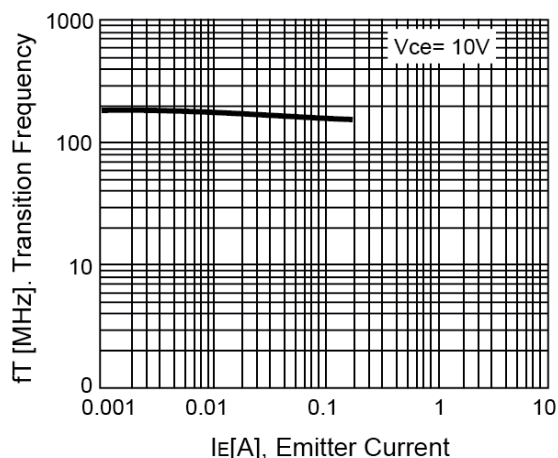


Figure 5. C_{ob} vs. Collector-Base Voltage

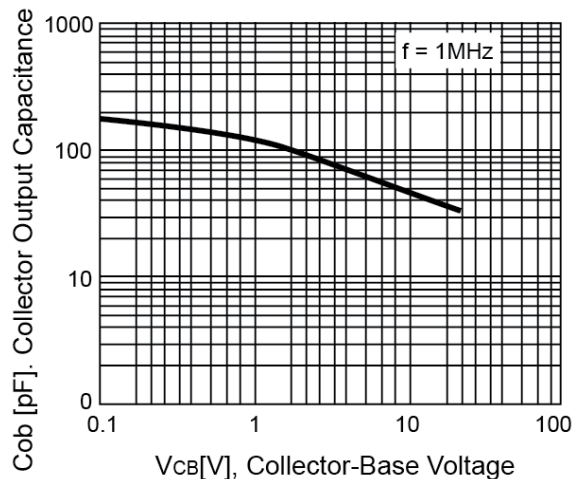
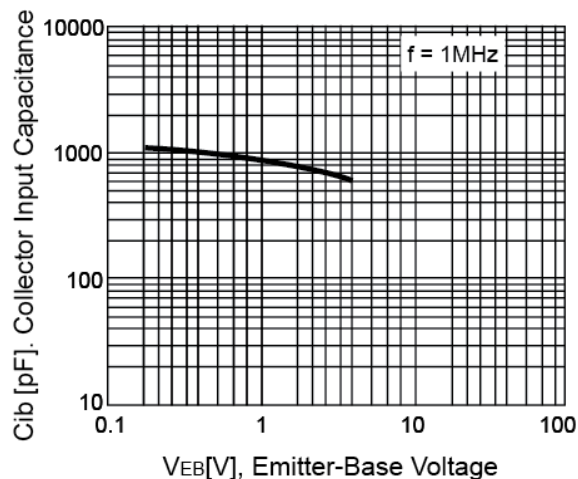


Figure 6. C_{ib} vs. Emitter-Base Voltage



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

Figure 7. Safety Operation Area

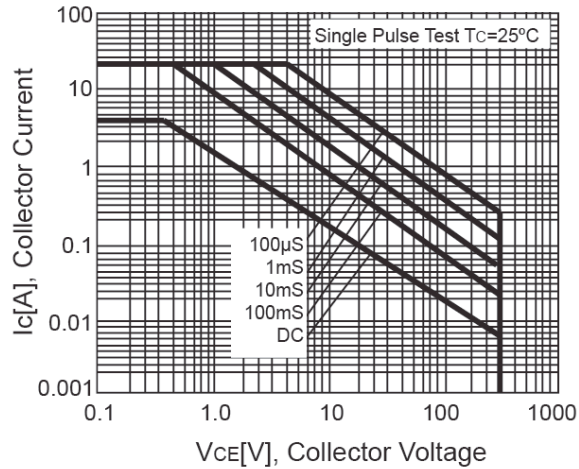
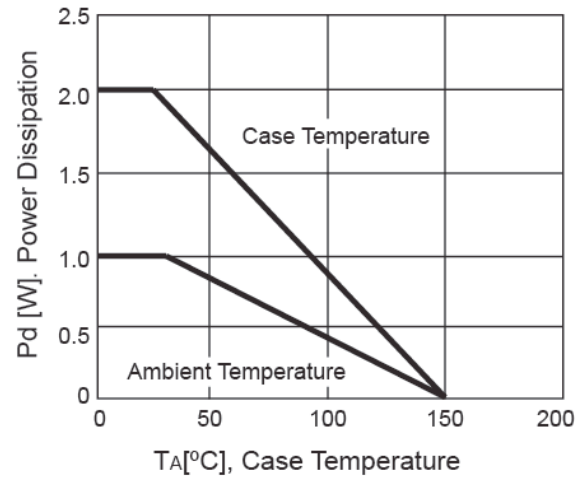
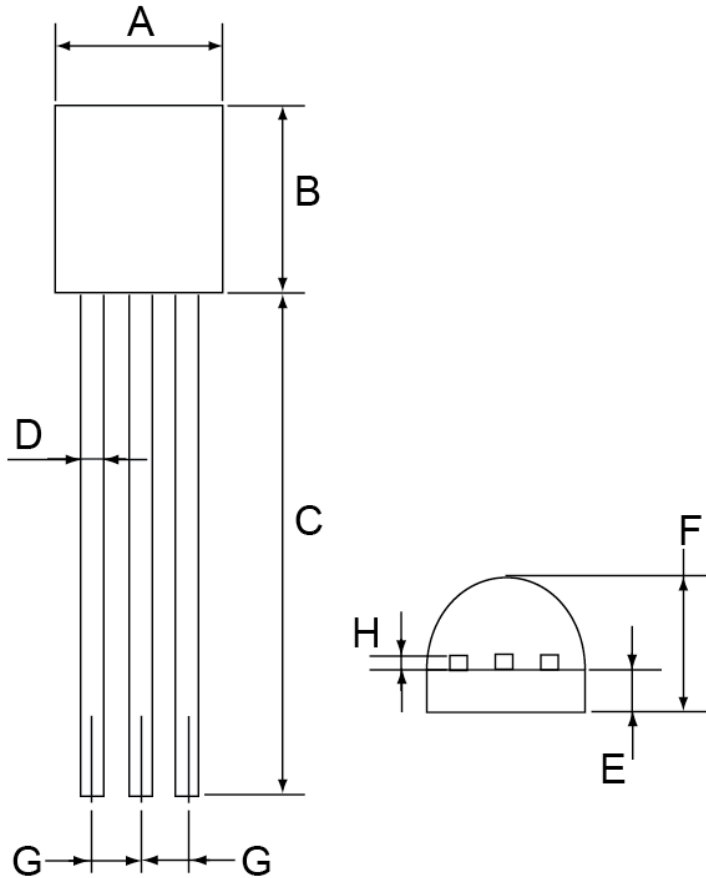


Figure 8. Derating Curve

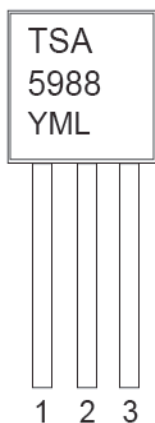


TO-92 Mechanical Drawing



TO-92 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	14.30(typ)		0.563(typ)	
D	0.43	0.49	0.017	0.019
E	1.18	1.28	0.046	0.050
F	3.30	3.70	0.130	0.146
G	1.27	1.31	0.05	0.051
H	0.37	0.43	0.015	0.017

Marking Diagram



Y = Year Code

M = Month Code

(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apr, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)

L = Lot Code

TSC5988

NPN Silicon Planar Medium Power Transistor

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