

NPN Silicon Planar High Voltage Transistor

TO-92



Pin Definition:

1. Emitter
2. Collector
3. Base

SOT-223



Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CBO}	600V
BV_{CEO}	400V
I_C	300mA
$V_{CE(SAT)}$	0.5V @ $I_C / I_B = 50mA / 5mA$

Features

- High BV_{ceo} , BV_{cbo}
- High current gain

Structure

- Epitaxial Planar Type

Ordering Information

Part No.	Package	Packing
TSC966CT B0	TO-92	1Kpcs / Bulk
TSC966CT A3	TO-92	2Kpcs / Ammo
TSC966CW RPG	SOT-223	2.5Kpcs / 13" Reel

Note: "G" denote for Halogen Free Product

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	600	V
Collector-Emitter Voltage	V_{CES}	600	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	DC	I_C	A
	Pulse	0.3	
Total Power Dissipation @ $T_A=25^\circ\text{C}$	TO-92	0.9	W
	SOT-223	1	
Operating Junction Temperature	T_J	+150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_{STG}	- 55 to +150	$^\circ\text{C}$

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$I_C = 50\mu\text{A}$	BV_{CBO}	600	--	--	V
Collector-Emitter Saturation Voltage	$I_C = 100\mu\text{A}$, $V_{BE} = 0$	BV_{CES}	600	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 1\text{mA}$	BV_{CEO}	400	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 50\mu\text{A}$	BV_{EBO}	7	--	--	V
Collector-Base Cutoff Current	$V_{CB} = 600\text{V}$	I_{CBO}	--	--	0.5	μA
Collector-Emitter Cutoff Current	$V_{CE} = 400\text{V}$	I_{CEO}	--	--	1	μA
Emitter-Base Cutoff Current	$V_{EB} = 7\text{V}$	I_{EBO}	--	--	1.5	μA
Collector-Emitter Saturation Voltage	$I_C = 50\text{mA}$, $I_B = 5\text{mA}$	$V_{CE(SAT)}$	--	--	0.5	V
Base-Emitter Saturation Voltage	$I_C = 50\text{mA}$, $I_B = 5\text{mA}$	$V_{BE(SAT)}$	--	--	1	V
DC Current Transfer Ratio	$V_{CE} = 5\text{V}$, $I_C = 1\text{mA}$	h_{FE1}	100	--	--	
	$V_{CE} = 5\text{V}$, $I_C = 20\text{mA}$	h_{FE2}	90	--	300	
Transition Frequency	$V_{CE} = 10\text{V}$, $I_E = 20\text{mA}$	f_T	50	--	--	MHz
Output Capacitance	$V_{CB} = 20\text{V}$, $f = 1\text{MHz}$	C_{ob}	--	--	7	pF

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

Figure 1. Static Characteristics

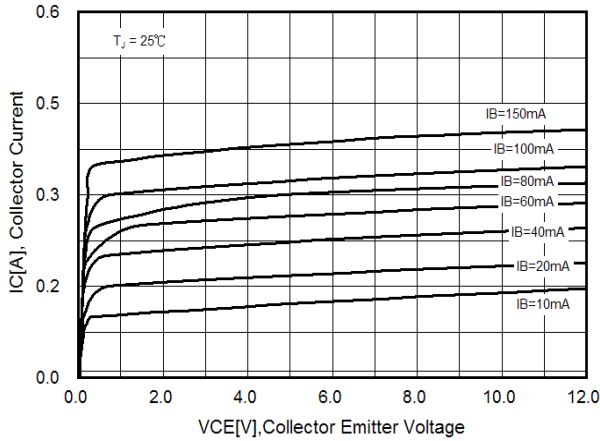


Figure 2. DC Current Gain

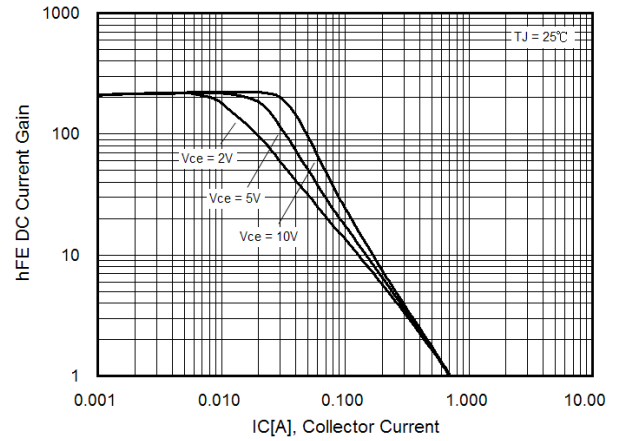


Figure 3. VCE(SAT) v.s. IC

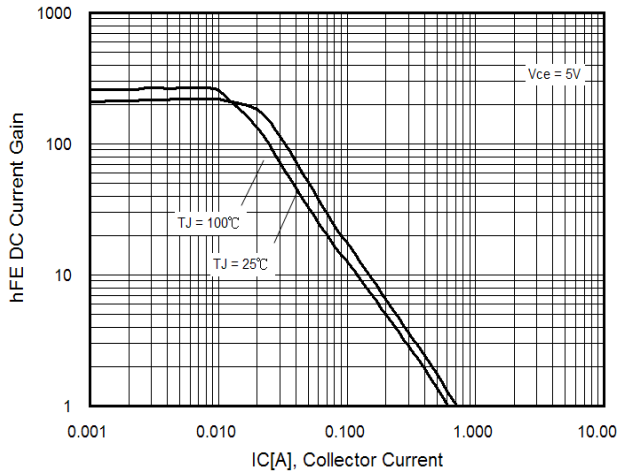


Figure 4. VBE(sat) vs IC

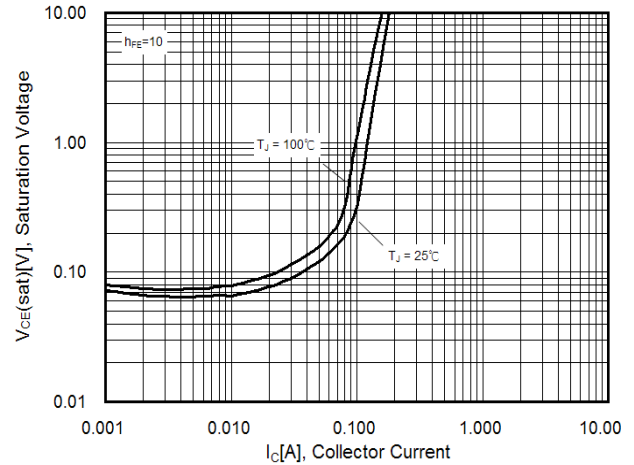


Figure 5. VBE(on) vs IC

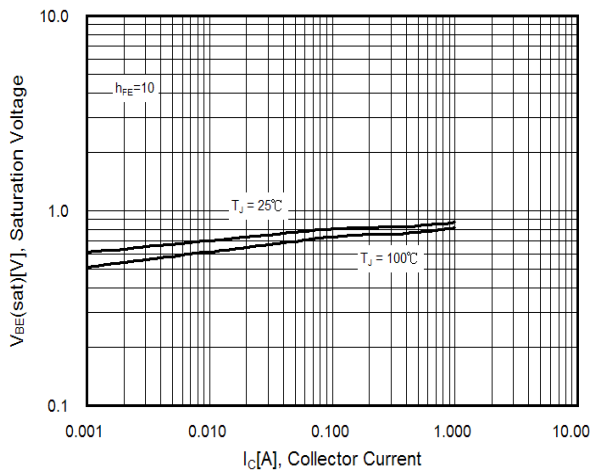
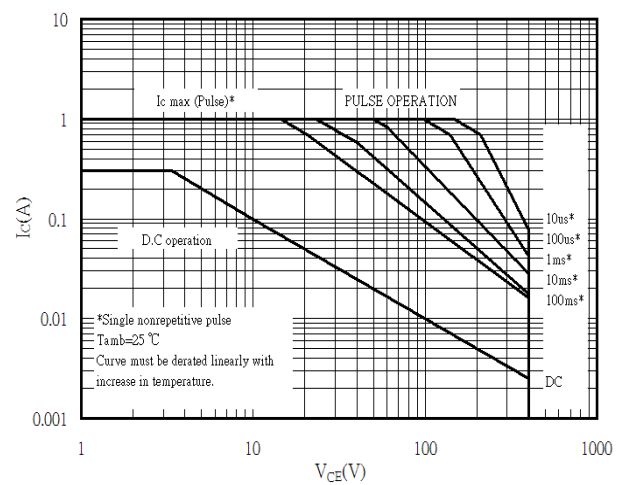
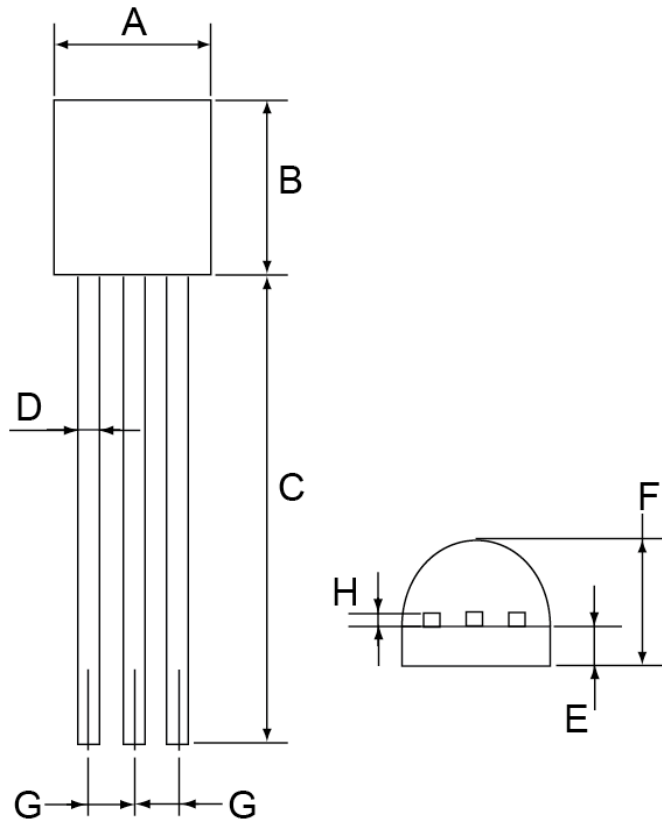


Figure 6. Safety Operation Area

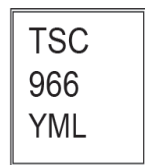


TO-92 Mechanical Drawing



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

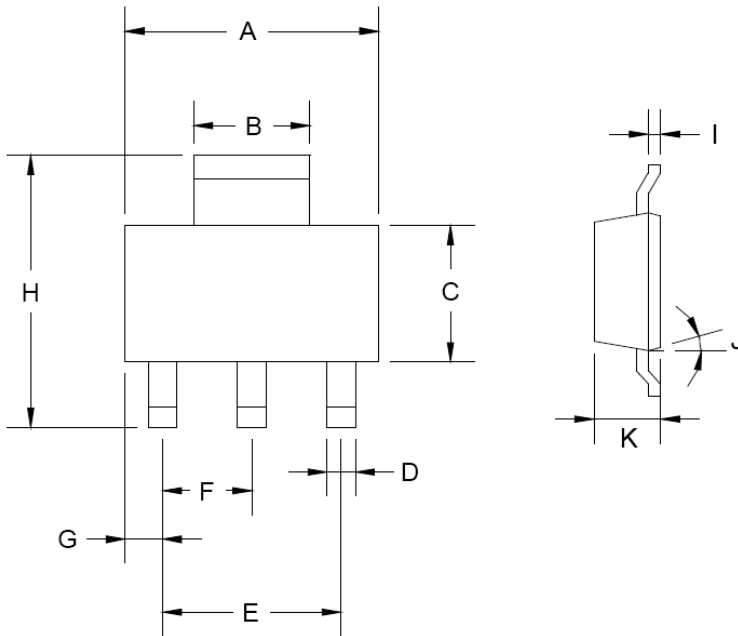
Marking Diagram



- Y** = Year Code
M = Month Code
 (A=Jan, B=Feb, C=Mar, D=Apl, E=May, F=Jun, G=Jul, H=Aug, I=Sep, J=Oct, K=Nov, L=Dec)
L = Lot Code

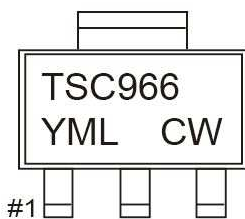
#1

SOT-223 Mechanical Drawing



SOT-223 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.350	6.850	0.250	0.270
B	2.900	3.100	0.114	0.122
C	3.450	3.750	0.136	0.148
D	0.595	0.635	0.023	0.025
E	4.550	4.650	0.179	0.183
F	2.250	2.350	0.088	0.093
G	0.835	1.035	0.032	0.041
H	6.700	7.300	0.263	0.287
I	0.250	0.355	0.010	0.014
J	10°	16°	10°	16°
K	1.550	1.800	0.061	0.071

Marking Diagram



Y = Year Code

M = Month Code for Halogen Free Product

(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apr, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)

L = Lot Code

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