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TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

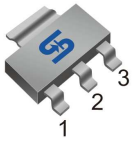
TSC966

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 BVceo, BVcbo
- High current gain

Structure

- Epitaxial Planar Type

Ordering Information

Part No.	Package	Packing
TSC966CT B0G	TO-92	1,000pcs / Bulk
TSC966CT A3G	TO-92	2,000pcs / Ammo
TSC966CW RPG	SOT-223	2,500pcs / 13" Reel

Note: "G" denote for Halogen Free Product

Absolute Maximum Rating (T_A=25°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	0.3	A
	Pulse		1	
Total Power Dissipation @ T_A=25°C	TO-92	P_{tot}	0.9	W
	SOT-223		1	
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 = 50uA	BV_{CBO}	600	--	--	V
Collector-Emitter Saturation Voltage	I_C = 100uA, V_{BE}= 0	BV_{CES}	600	--	--	V
Collector-Emitter Breakdown Voltage	I_C = 1mA	BV_{CEO}	400	--	--	V
Emitter-Base Breakdown Voltage	I_E = 50uA	BV_{EBO}	7	--	--	V
Collector-Base Cutoff Current	V_{CB} = 600V	I_{CBO}	--	--	0.5	uA
Collector-Emitter Cutoff Current	V_{CE} = 400V	I_{CEO}	--	--	1	uA
Emitter-Base Cutoff Current	V_{EB} = 7V	I_{EBO}	--	--	1.5	uA
Collector-Emitter Saturation Voltage	I_C = 50mA, I_B = 5mA	$V_{CE(SAT)}$	--	--	0.5	V
Base-Emitter Saturation Voltage	I_C = 50mA, I_B = 5mA	$V_{BE(SAT)}$	--	--	1	V
DC Current Transfer Ratio	V_{CE} = 5V, I_C = 1mA	h_{FE} 1	100	--	--	
	V_{CE} = 5V, I_C = 20mA	h_{FE} 2	90	--	300	
Transition Frequency	V_{CE} = 10V, I_E= 20mA	f_T	50	--	--	MHz
Output Capacitance	V_{CB} = 20V, f=1MHz	Cob	--	--	7	pF

TSC966

NPN Silicon Planar High Voltage Transistor

Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

Figure 1. Static Characteristics

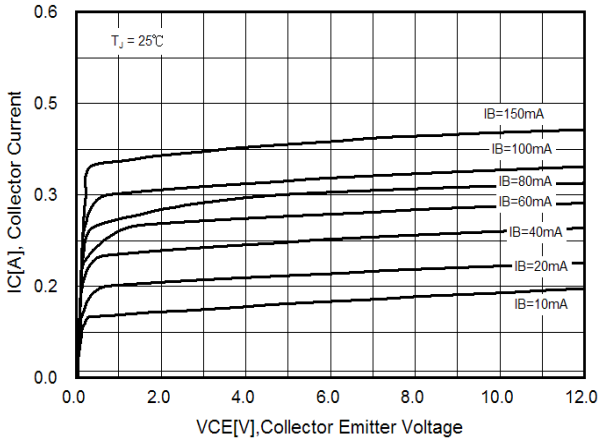


Figure 2. DC Current Gain

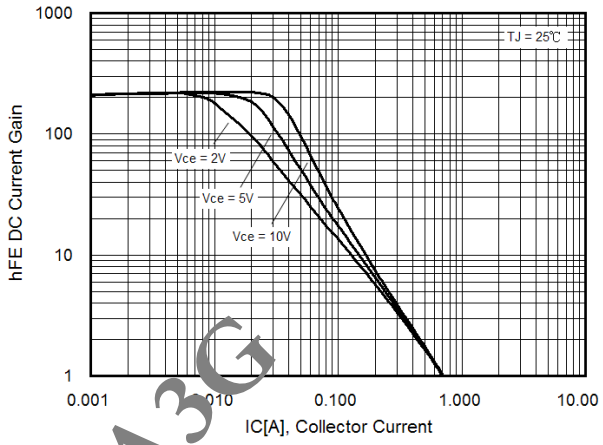


Figure 3. VCE(SAT) v.s. IC

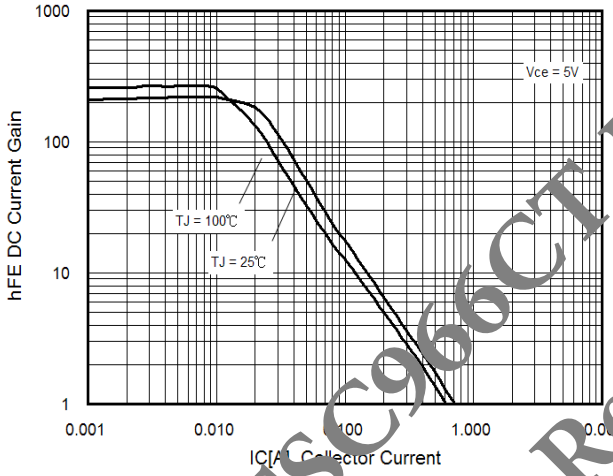


Figure 4. VBE(sat) vs Ic

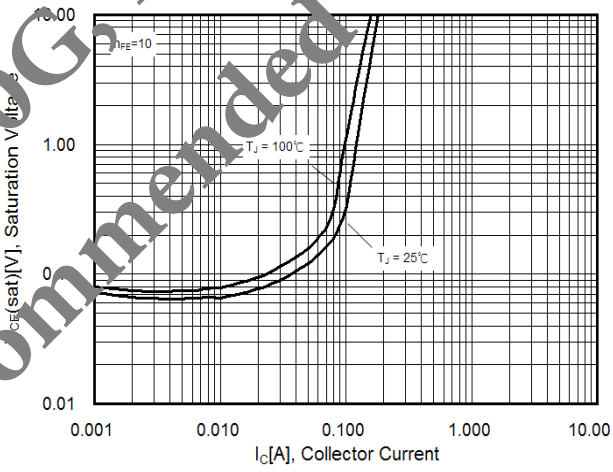


Figure 5. VBE(on) vs Ic

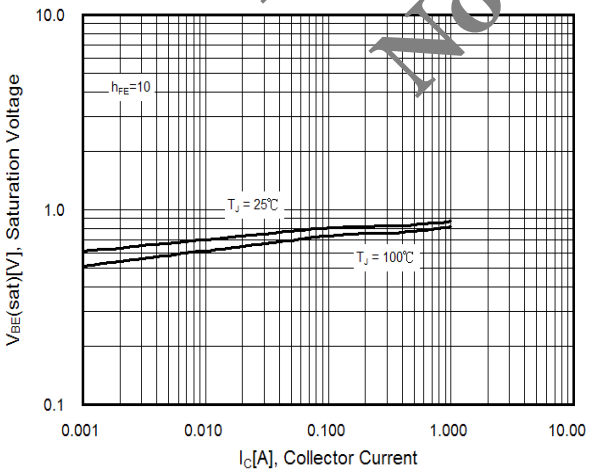
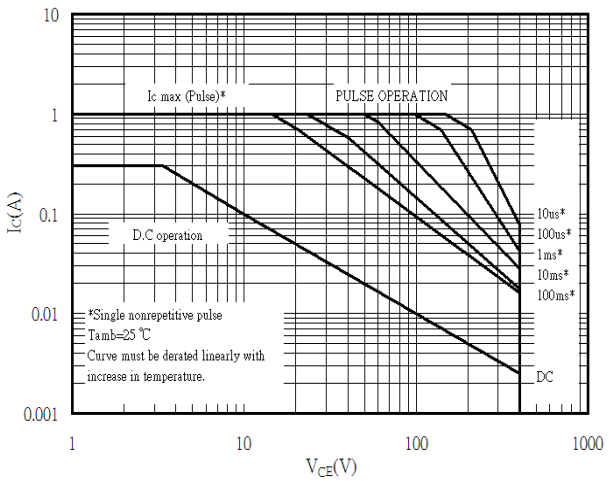


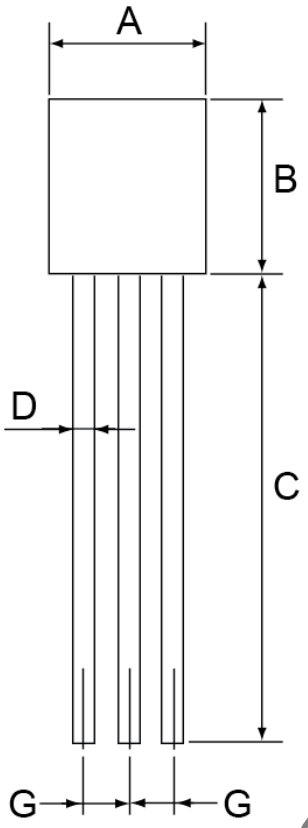
Figure 6. Safety Operation Area



TSC966

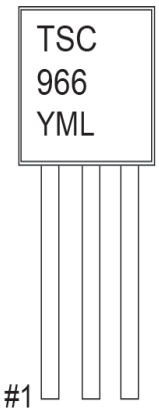
NPN Silicon Planar High Voltage Transistor

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 for Halogen Free Product

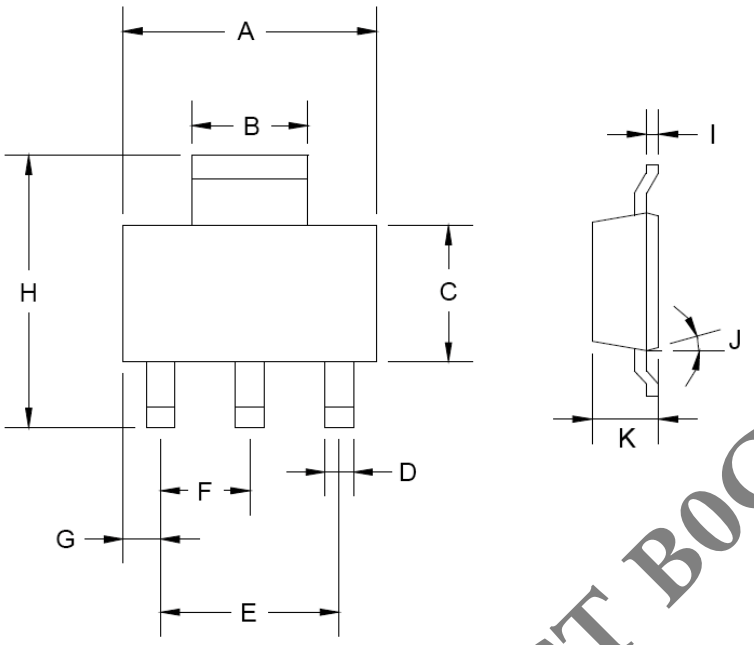
O =Jan	**P** =Feb	**Q** =Mar	**R** =Apr
S =May	**T** =Jun	**U** =Jul	**V** =Aug
W =Sep	**X** =Oct	**Y** =Nov	**Z** =Dec

L = Lot Code

TSC966

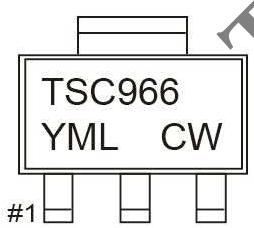
NPN Silicon Planar High Voltage Transistor

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



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