NPN Silicon Planar High Voltage Transistor

FEATURES

- High BV_{CEO}, BV_{CBO}
- High current gain
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-Free according to IEC 61249-2-21

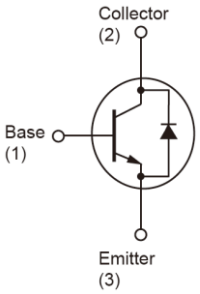
APPLICATION

- Lighting
- Switch mode power supply

KEY PERFORMANCE PARAMETERS			
PARAMETER		**VALUE**	**UNIT**
BV_{CEO}		400	V
BV_{CBO}		600	V
I_C		300	mA
$V_{CE(SAT)}$	I_C=50mA, I_B=5mA	0.5	V

Pb-Free RoHS COMPLIANT HALOGEN FREE

SOT-223



Notes: MSL 3 (Moisture Sensitivity Level) per J-STD-020

ABSOLUTE MAXIMUM RATINGS (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_{BE}=0V		V_{CES}	400	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	0.3	A
	Pulse		1	A
Power Total Dissipation @ T_A=25ºC		P_{DTOT}	1	W
Maximum Operating Junction Temperature		T_J	+150	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**LIMIT**	**UNIT**
Junction to Ambient Thermal Resistance	$R_{\Theta JA}$	91	°C/W
Junction to Case Thermal Resistance	$R_{\Theta JC}$	25	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER	**CONDITIONS**	**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Static (Note 1)						
Collector-Base voltage	I_C =50μA	BV_{CBO}	600	--	--	V
Collector-Emitter Saturation Voltage	I_C =100μA, V_{BE} =0	BV_{CES}	600	--	--	V
Collector-Emitter breakdown voltage	I_C =1mA	BV_{CEO}	400	--	--	V
Emitter-Base breakdown voltage	I_E =50μA	BV_{EBO}	7	--	--	V
Emitter cut-off current	V_{EB} =7V	I_{EBO}	--	--	1.5	μA
Collector cut-off current	V_{CB} =600V	I_{CBO}	--	--	0.5	μA
Collector-Emitter Cutoff Current	V_{CE} =400V	I_{CEO}	--	--	1	μA
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 Gain	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

Notes:

1. Pulse test: ≤ 380μs, duty cycle ≤ 2%
2. For DESIGN AID ONLY, not subject to production testing.

ORDERING INFORMATION

PART NO.	PACKAGE	PACKING
TSC966CW RPG	SOT-223	2,500pcs / 13”Reel

Electrical Characteristics Curve

(Ta = 25°C, unless otherwise noted)

Figure 1. Static Characteristics

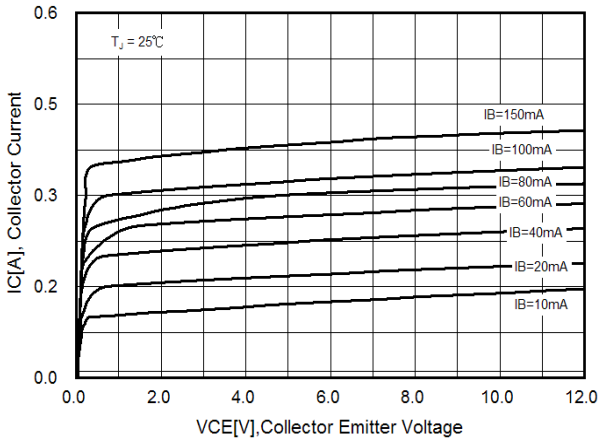


Figure 2. DC Current Gain

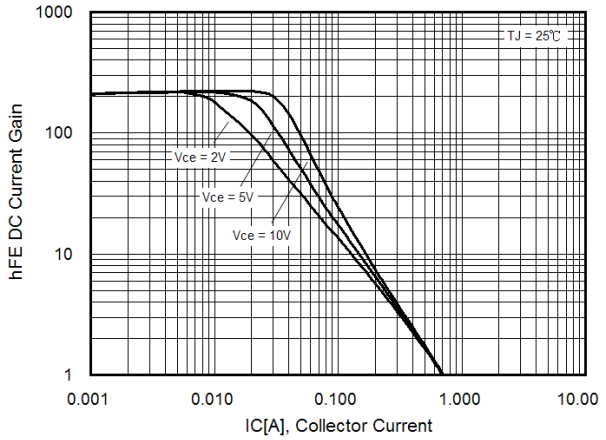


Figure 3. DC Current Gain

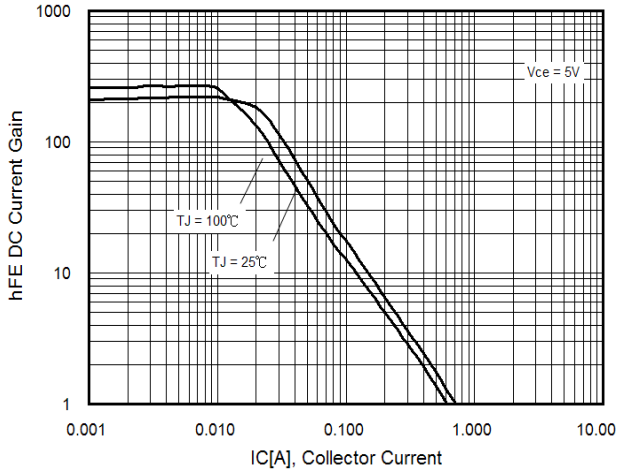


Figure 4. $V_{CE(sat)}$ vs Ic

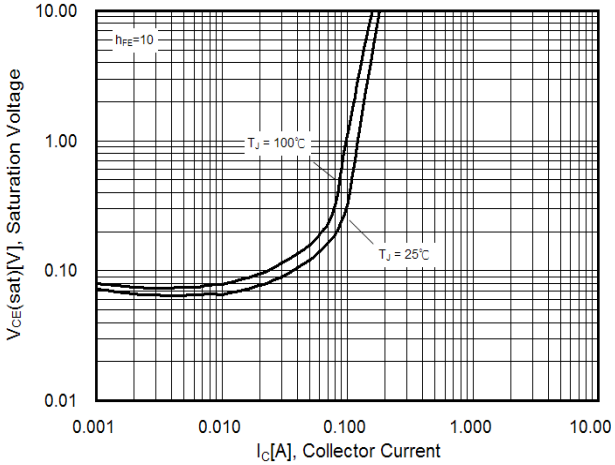


Figure 5. $V_{BE(sat)}$ vs Ic

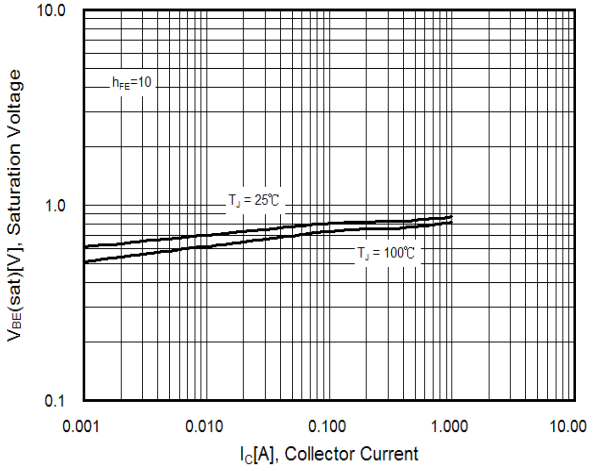
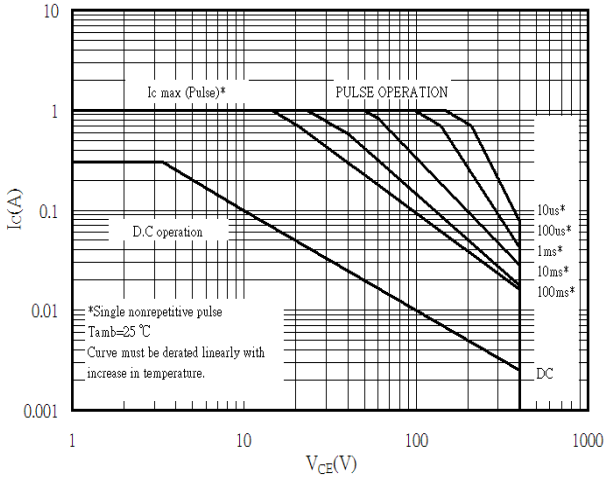
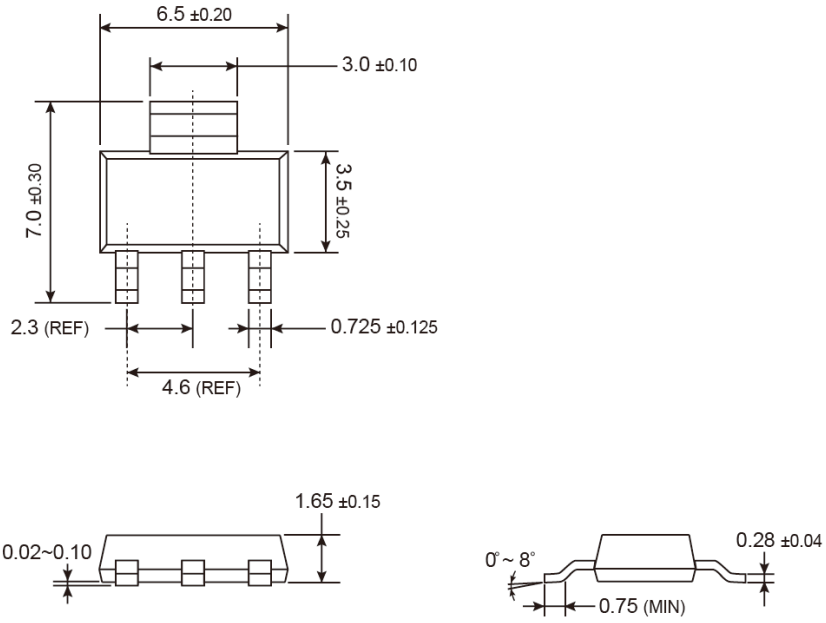


Figure 6. Safety Operation Area

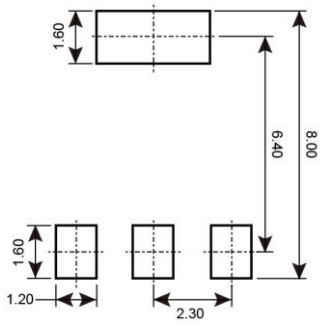


PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

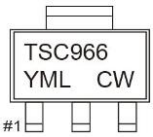
SOT-223



SUGGESTED PAD LAYOUT (Unit: Millimeters)



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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