

NPN Silicon Planar High Voltage Transistor

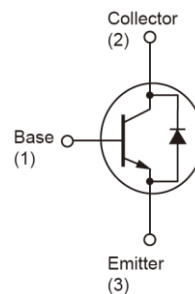
FEATURES

- 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		1	A
$V_{CE(SAT)}$	$I_C=0.5A, I_B=0.1A$	0.5	V



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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER		SYMBOL	LIMIT	UNIT
Collector-Base Voltage		V_{CBO}	600	V
Collector-Emitter Voltage		V_{CEO}	400	V
Emitter-Base Voltage		V_{EBO}	9	V
Collector Current	DC	I_C	1	A
	Pulse		2	A
Power Total Dissipation @ $T_A=25^\circ\text{C}$		P_{DTOT}	1.2	W
Maximum Operating Junction Temperature		T_J	+150	$^\circ\text{C}$
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
Static (Note 1)						
Collector-Base voltage	$I_C = 100\mu\text{A}$	BV_{CBO}	600	--	--	V
Collector-Emitter breakdown voltage	$I_C = 1\text{mA}$	BV_{CEO}	400	--	--	V
Emitter-Base breakdown voltage	$I_E = 100\mu\text{A}$	BV_{EBO}	9	--	--	V
Emitter cut-off current	$V_{EB} = 8\text{V}$	I_{EBO}	--	--	100	μA
Collector cut-off current	$V_{CB} = 600\text{V}$	I_{CBO}	--	--	100	μA
Collector-Emitter Cutoff Current	$V_{CE} = 400\text{V}$	I_{CEO}	--	--	1	mA
Collector-Emitter saturation voltage	$I_C = 500\text{mA}, I_B = 100\text{mA}$	$V_{CE(SAT) 1}$	---	--	0.5	V
Collector-Emitter saturation voltage	$I_C = 1\text{A}, I_B = 250\text{mA}$	$V_{CE(SAT) 2}$	---	--	1	V
Base-Emitter saturation voltage	$I_C = 500\text{mA}, I_B = 100\text{mA}$	$V_{BE(SAT) 1}$	--	--	1	V
Base-Emitter saturation voltage	$I_C = 1\text{A}, I_B = 250\text{mA}$	$V_{BE(SAT) 2}$	--	--	1.2	V
DC Current Gain	$V_{CE} = 10\text{V}, I_C = 250\text{mA}$	h_{FE1}	80	--	--	
Resistive Load Switching Time (Note 2)						
Turn-on Time	$V_{CC} = 125\text{V}, I_C = 1\text{A},$ $I_{B1} = I_{B2} = 200\text{mA}$	T_{on}	--	1	--	μs
Storage Time		T_{STG}	--	4	--	μs
Fall Time		T_f	--	0.7	--	μs

Notes:

1. Pulse test: $\leq 380\mu\text{s}$, duty cycle $\leq 2\%$
2. For DESIGN AID ONLY, not subject to production testing.

ORDERING INFORMATION

PART NO.	PACKAGE	PACKING
TSC873CW RPG	SOT-223	2,500pcs / 13"Reel

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

Figure 1. Static Characteristics

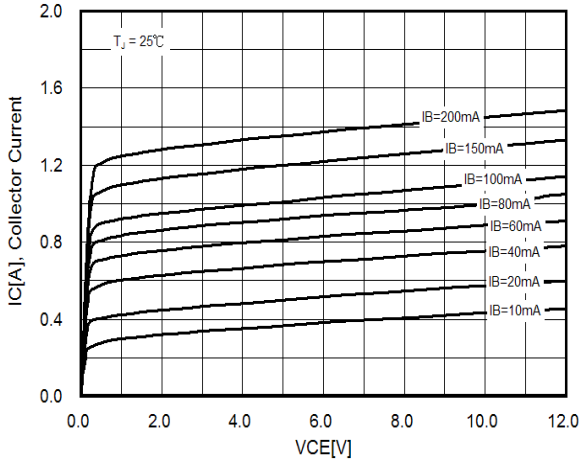


Figure 2. DC Current Gain

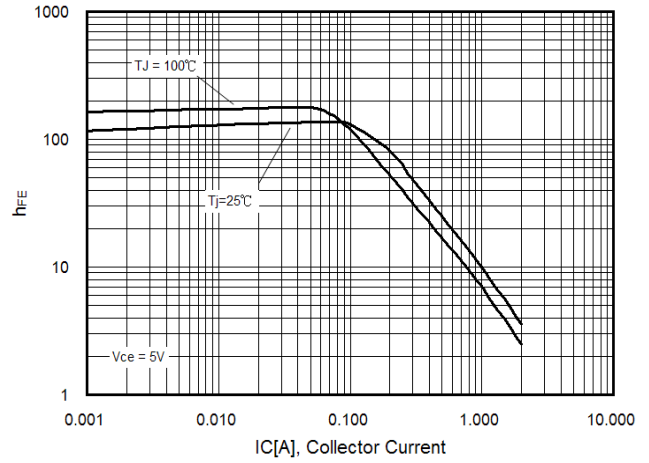


Figure 3. VCE(SAT) v.s. IC

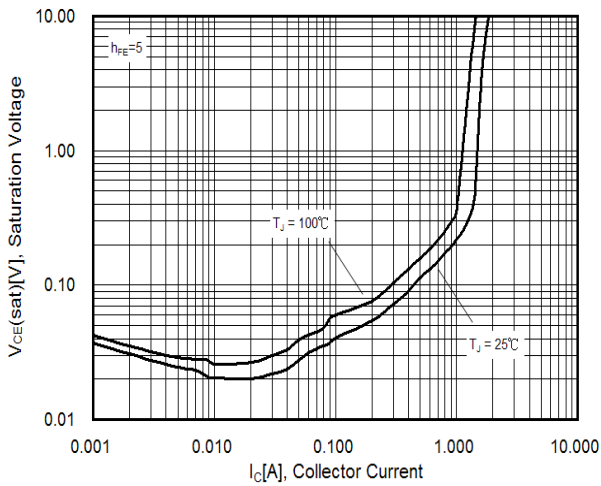


Figure 4. VBE(sat) vs IC

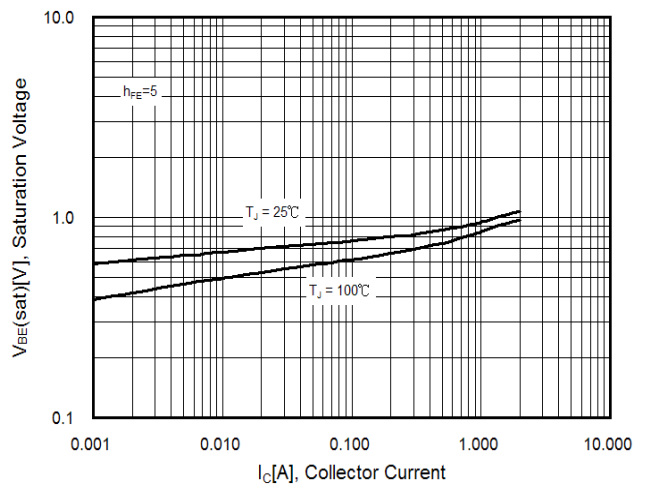


Figure 5. VBE(on) vs IC

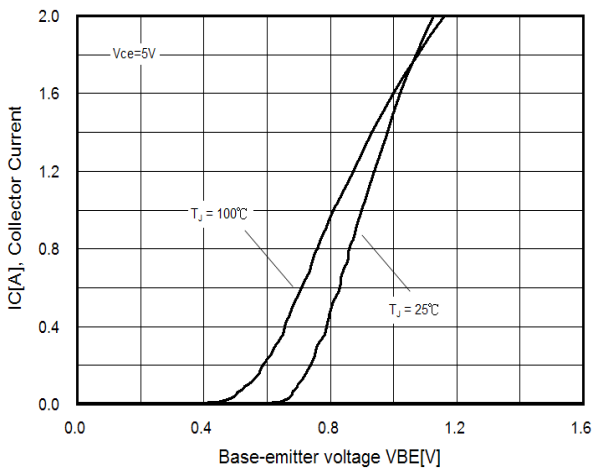
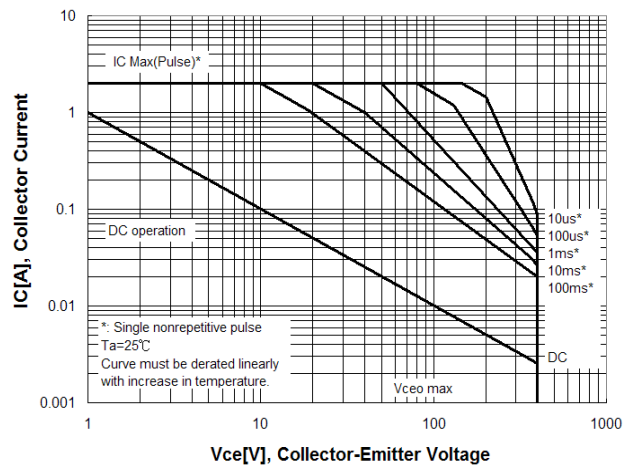
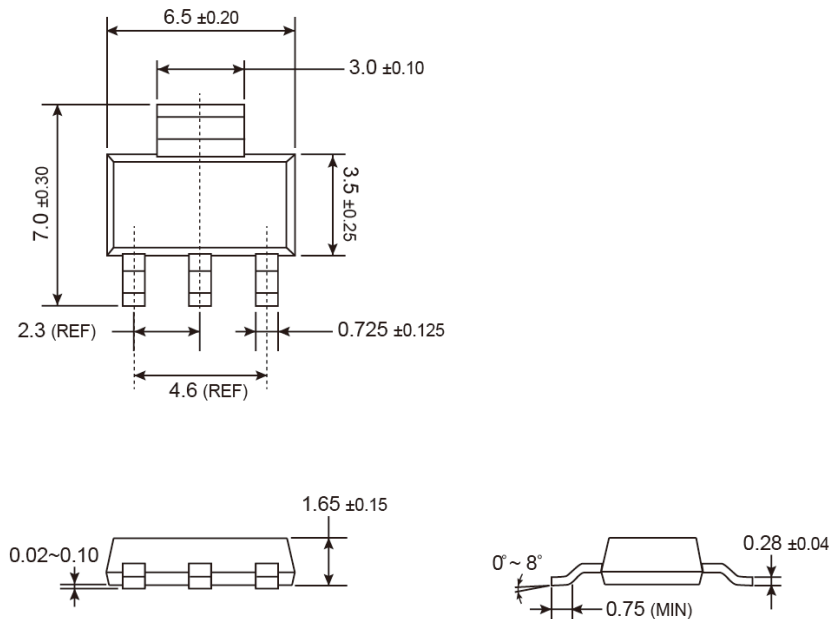


Figure 6. Safety Operation Area

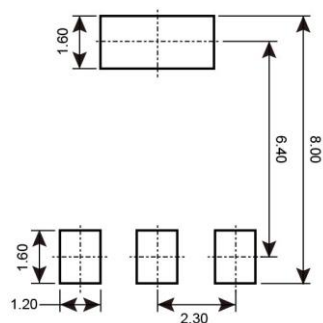


PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

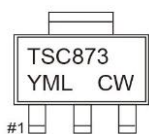
SOT-223



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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