

SOT-223

Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CBO}	-500V
BV_{CEO}	-500V
I_C	-150mA
$V_{CE(SAT)}$	-0.5V @ $I_C / I_B = -50mA / -10mA$

Features

- Low Saturation Voltages
- Excellent gain characteristics specified up to -50mA

Structure

- Epitaxial Planar Type
- PNP Silicon Transistor

Ordering Information

Part No.	Package	Packing
TSA874CW RP	SOT-223	2.5Kpcs / 13" Reel

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-500	V
Collector-Emitter Voltage	V_{CEO}	-500	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	DC	-150	mA
	Pulse	-500	
Total Power Dissipation	P_{tot}	1	W
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	$I_C = -100\mu\text{A}, I_E = 0$	BV_{CBO}	-500	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = -10\text{mA}, I_B = 0$	BV_{CEO}	-500	--	--	V
Emitter-Base Breakdown Voltage	$I_E = -100\mu\text{A}, I_C = 0$	BV_{EBO}	-5	--	--	V
Collector Cutoff Current	$V_{CB} = 120\text{V}, I_E = 0$	I_{CBO}	--	--	-100	nA
Emitter Cutoff Current	$V_{EB} = 6\text{V}, I_C = 0$	I_{EBO}	--	--	-100	nA
Collector-Emitter Saturation Voltage	$I_C = -20\text{mA}, I_B = -2\text{mA}$	$V_{CE(SAT)} 1$	--	--	-0.2	V
	$I_C = -50\text{mA}, I_B = -10\text{mA}$	$V_{CE(SAT)} 2$	--	--	-0.5	
Base-Emitter Saturation Voltage	$I_C = -50\text{mA}, I_B = -10\text{mA}$	$V_{BE(SAT)}$	--	--	-0.9	V
Base-Emitter on Voltage	$V_{CE} = -10\text{V}, I_C = -50\text{mA}$	$V_{BE(ON)}$	--	--	-0.9	V
DC Current Transfer Ratio	$V_{CE} = -10\text{V}, I_C = -1\text{mA}$	$h_{FE} 1$	150	--	300	
	$V_{CE} = -10\text{V}, I_C = -50\text{mA}$	$h_{FE} 2$	80	--	300	
	$V_{CE} = -10\text{V}, I_C = -100\text{mA}$	$h_{FE} 3$	--	15	--	
Transition Frequency	$V_{CE} = 10\text{V}, I_C = -100\text{mA}$	f_T	--	50	--	MHz
Output Capacitance	$V_{CB} = 20\text{V}, f = 1\text{MHz}$	C_{ob}	--	--	8	pF
Turn On Time	$V_{CE} = -100\text{V}, I_C = -50\text{mA}$	T_{on}	--	110	--	nS
Turn Off Time	$I_{B1} = -5\text{mA}, I_{B2} = -10\text{mA}$	T_{off}	--	1500	--	nS

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

Figure 1. Static Characteristics

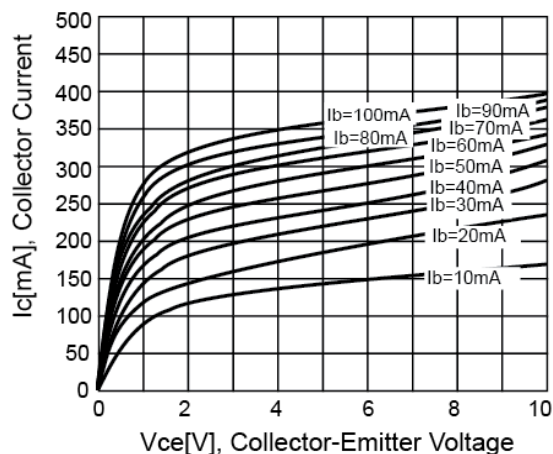


Figure 2. DC Current Gain

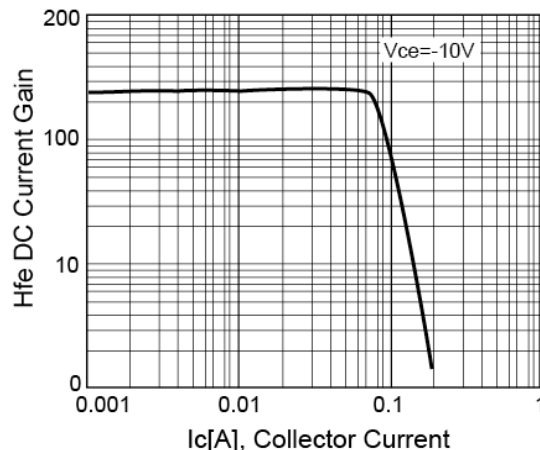


Figure 3. $V_{ce(sat)}$ v.s. $V_{be(sat)}$

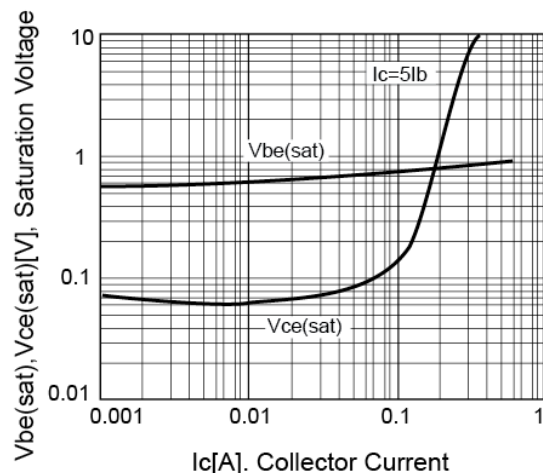


Figure 4. Power Derating

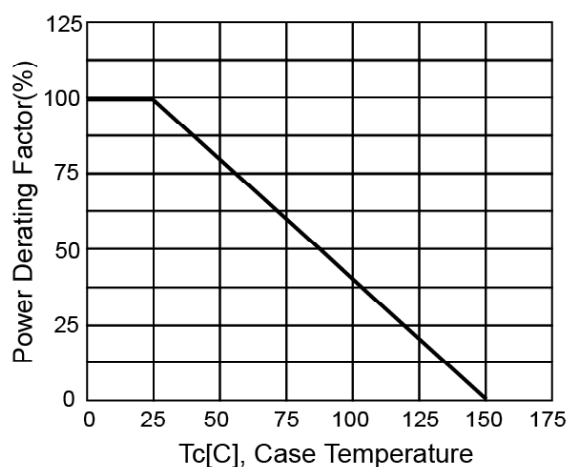
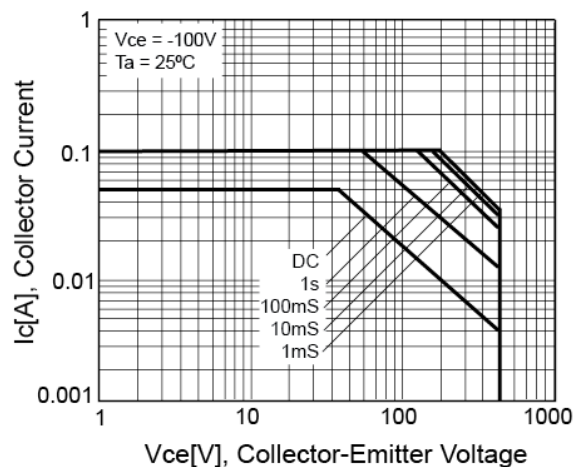
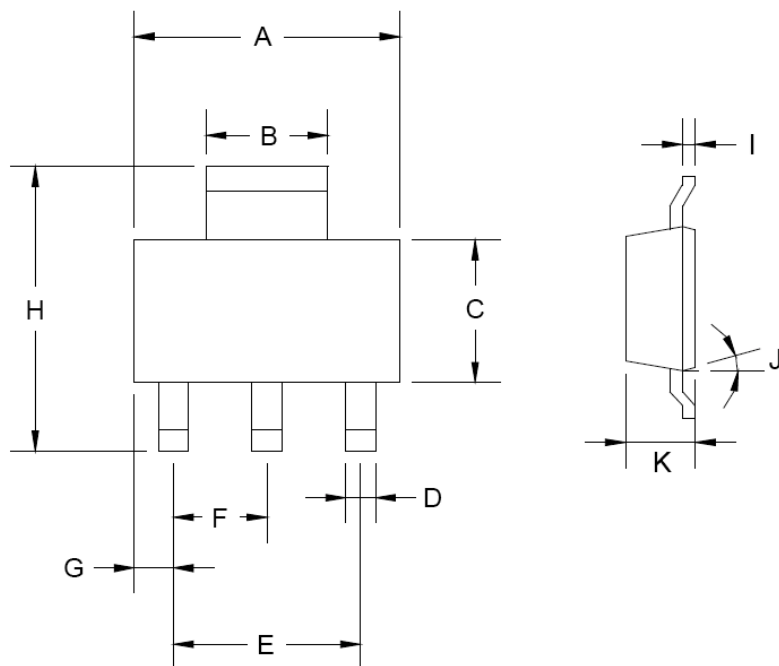


Figure 5. Safety Operation Area

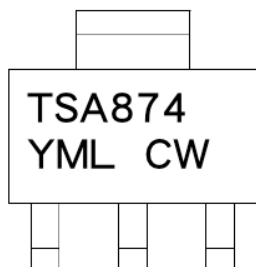


SOT-223 Mechanical Drawing



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

(**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

TSA874

PNP Silicon Planar High Voltage Transistor

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